SMD/BLOCK Type
EMI Suppression Filters

EMIFIL®

Innovator in Electronics

Murata Manufacturing Co., Ltd.

C31E.pdf
Jul.27,2012

Introduction

Murata Manufacturing Co., Ltd. has been developed the EMI suppression device market since the invention of 3 terminal capacitor DS310 series in 1979. Also, we have been struggling to develop and popularize new noise countermeasure technologies as well as new products in the concept of "Develop unique products", as the best solution partner of customers.
We hope you can find your key device to your noise problem.

Explanation of symbols in this catalog	Features of each series		Features of each item	
All Products	Flow OK	Flow soldering available	New	New product
			Kit	Exist in design kit
	Reflow OK	Reflow soldering available	≧1A	Rated current 1A or more
			≧3A	Rated current 3A or more
	Hi Power	Meet large current lines	≧10A	Rated current 10A or more
Chip Ferrite Bead	GHz	Meet high frequency noise up to 1-2GHz		
	Hi-GHz	Meet ultra high frequency noise up to 10GHz		
LC Combined Type Filter			DTV	Low cut off frequency type for UHF band noise which affects to digital TV tuner
Chip Common Mode Choke Coil			HD	for high speed differential signal lines (USB2.0/LVDS/IEEE1394 etc.)
			UD	for ultra high speed differential signal lines (HDMI/DVI/Display Port/USB3.0 etc.)
			Impedance Match	Line impedance has been matched to transmission lines

EU RoHS Compliant

- All the products in this catalog comply with EU RoHS.
- EU RoHS is "the European Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment."
- For more details, please refer to our website 'Murata's Approach for EU RoHS' (http://www.murata.com/info/rohs.html).

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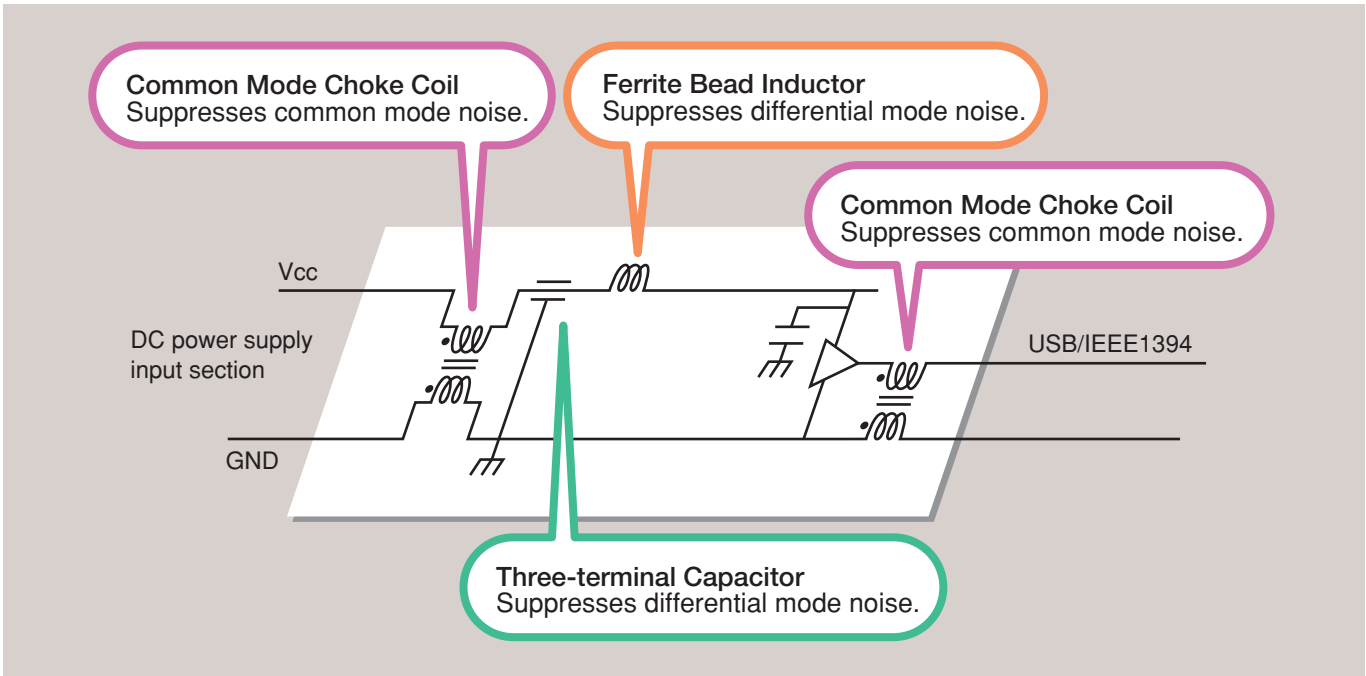
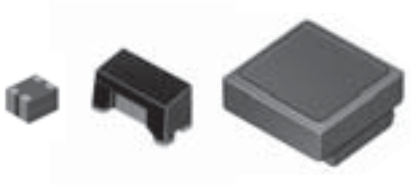
●Features & Suitable Circuits

Type	Features	Suitable Circuits
Ferrite Bead BLM/BLA Series 	· Miniaturized · Unnecessary of GND connection · Effective at low impedance line	· Application set with less noise radiation · Low impedance line
Capacitor Type NFM/NFA/NFE/NFR/ NFL/NFW Series 	· Great noise suppression effect · With effect as By-Pass capacitor (Lineup for Power) · Good noise separation from signal (LC filter for Signal) · Effective at high impedance line	· Application set with higher noise radiation · High impedance line · Circuit with By-Pass capacitor · Circuit driven by high frequency
Common Mode Choke Coil 	· Possible to suppress noise with less affect of ultra high speed signal · Great effect for common mode noise · Less magnetic saturation by current	· High speed differential signal line · I/F cable driver · Power line

●Example

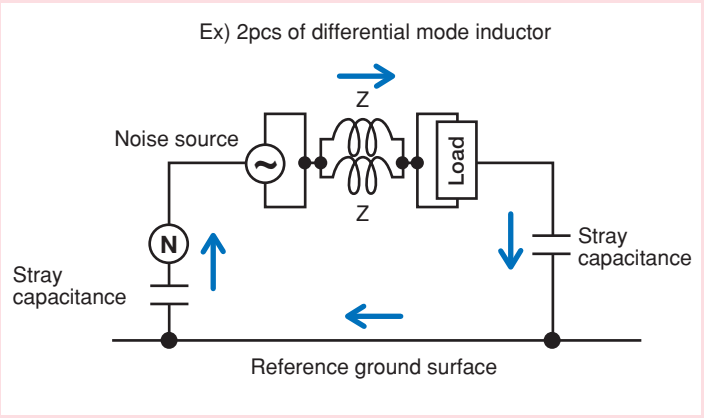


●Advantages to Use Common Mode Choke Coils



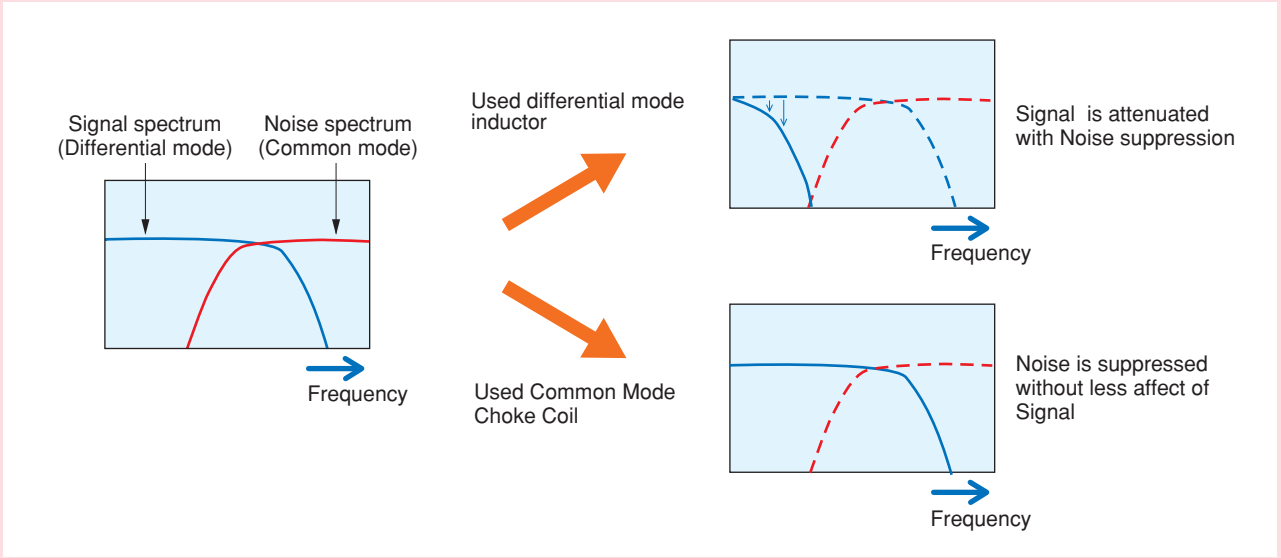
1. Great Effect for Common Mode Noise

Differential mode inductors work as a half impedance for common mode noise. Common Mode Choke Coils are effective for common mode noise.



2. Possible to Suppress Noise with Less Affect of Ultra High Speed Signal

Common Mode Choke Coils can suppress Noise with less affect of Signal, even if the frequency range of Signal and Noise are same, because of they separate each conductive mode of current.

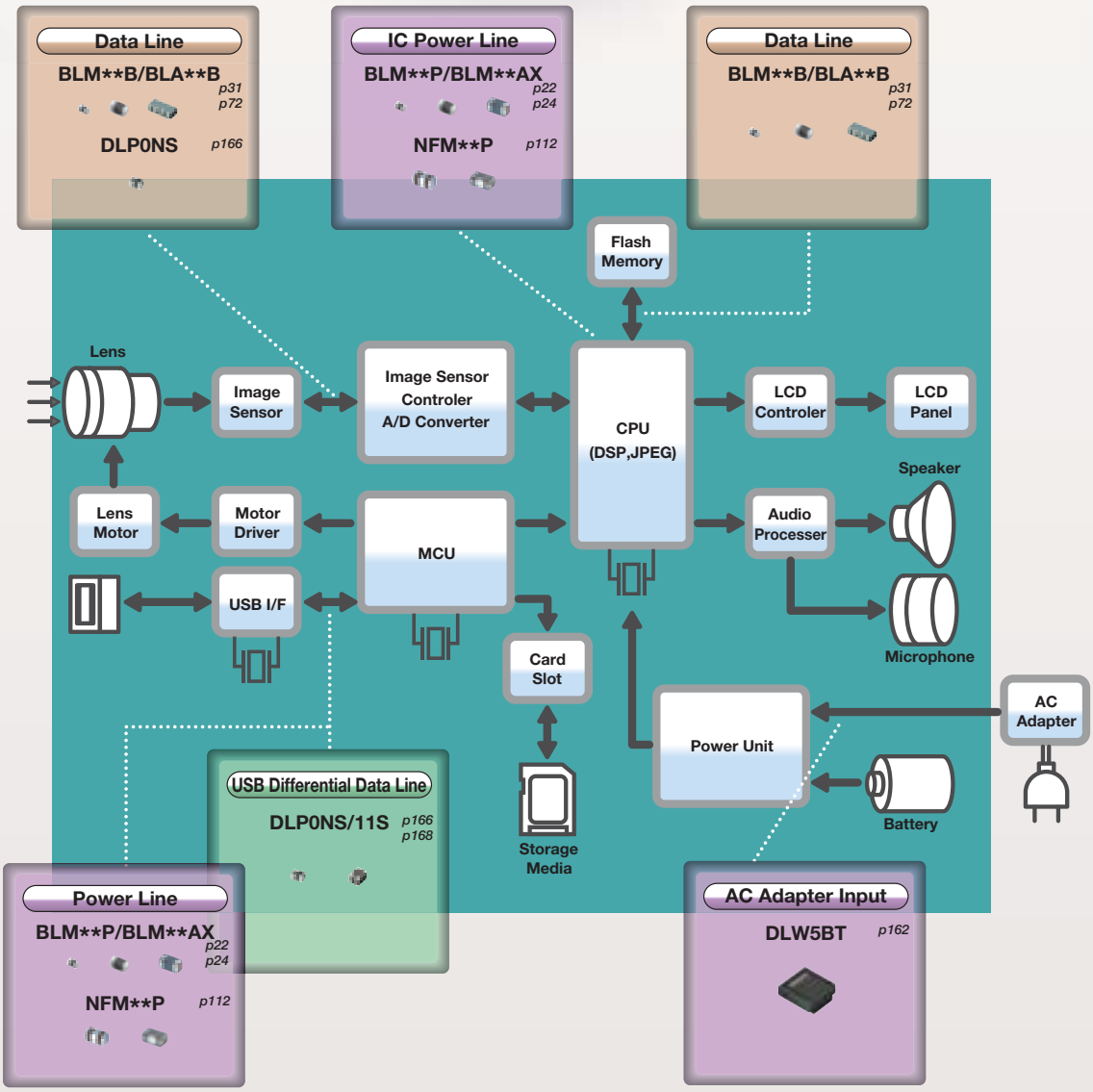


3. Less Magnetic Saturation by Current

Common Mode Choke Coils are effective for noise suppression of DC power lines, due to their less magnetic saturation at high power current, that comes from their construction of cancelling magnetic flux of differential mode current at each coils.

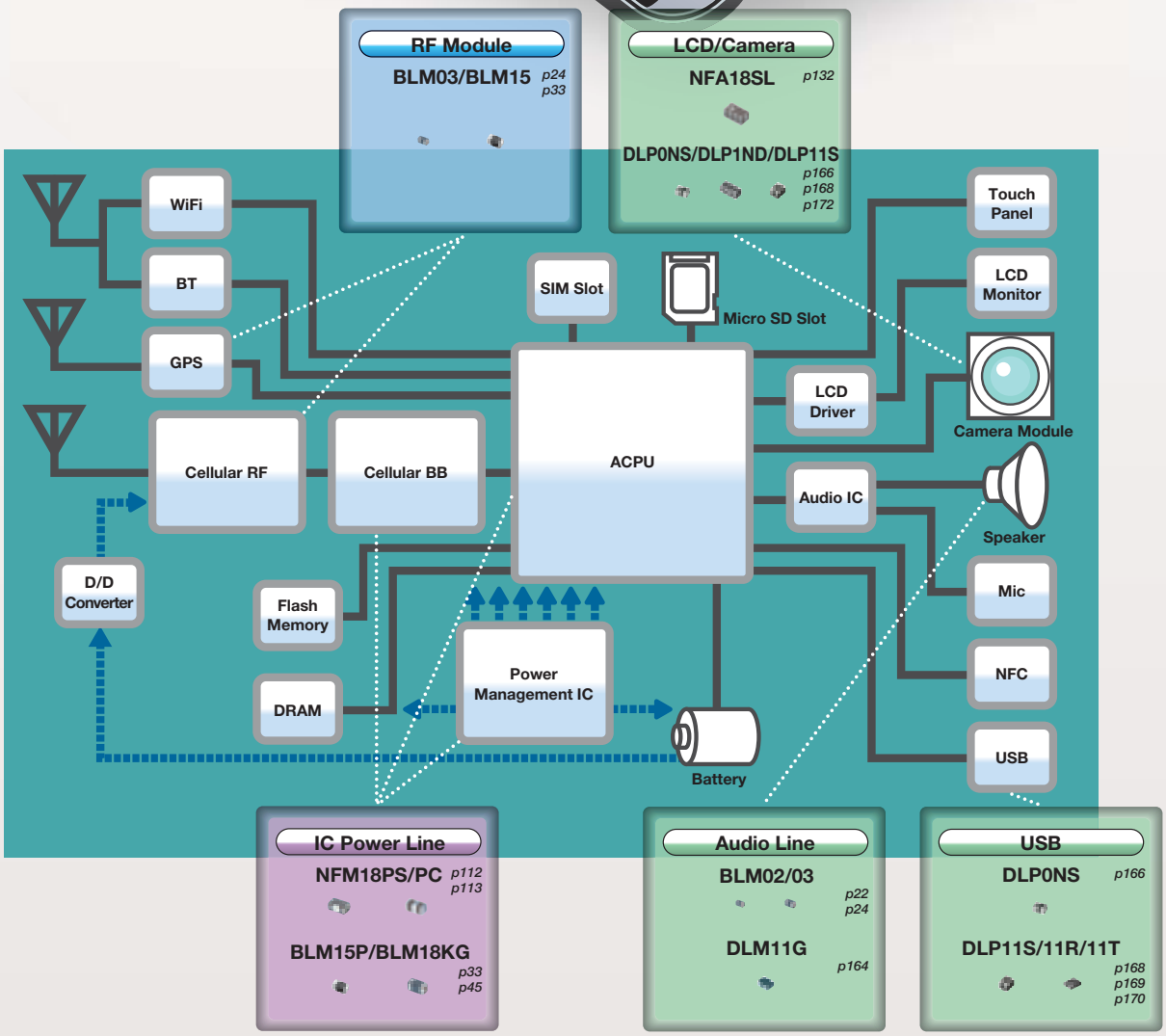
Digital Still Camera

Application Sample



Smartphone

Application Sample



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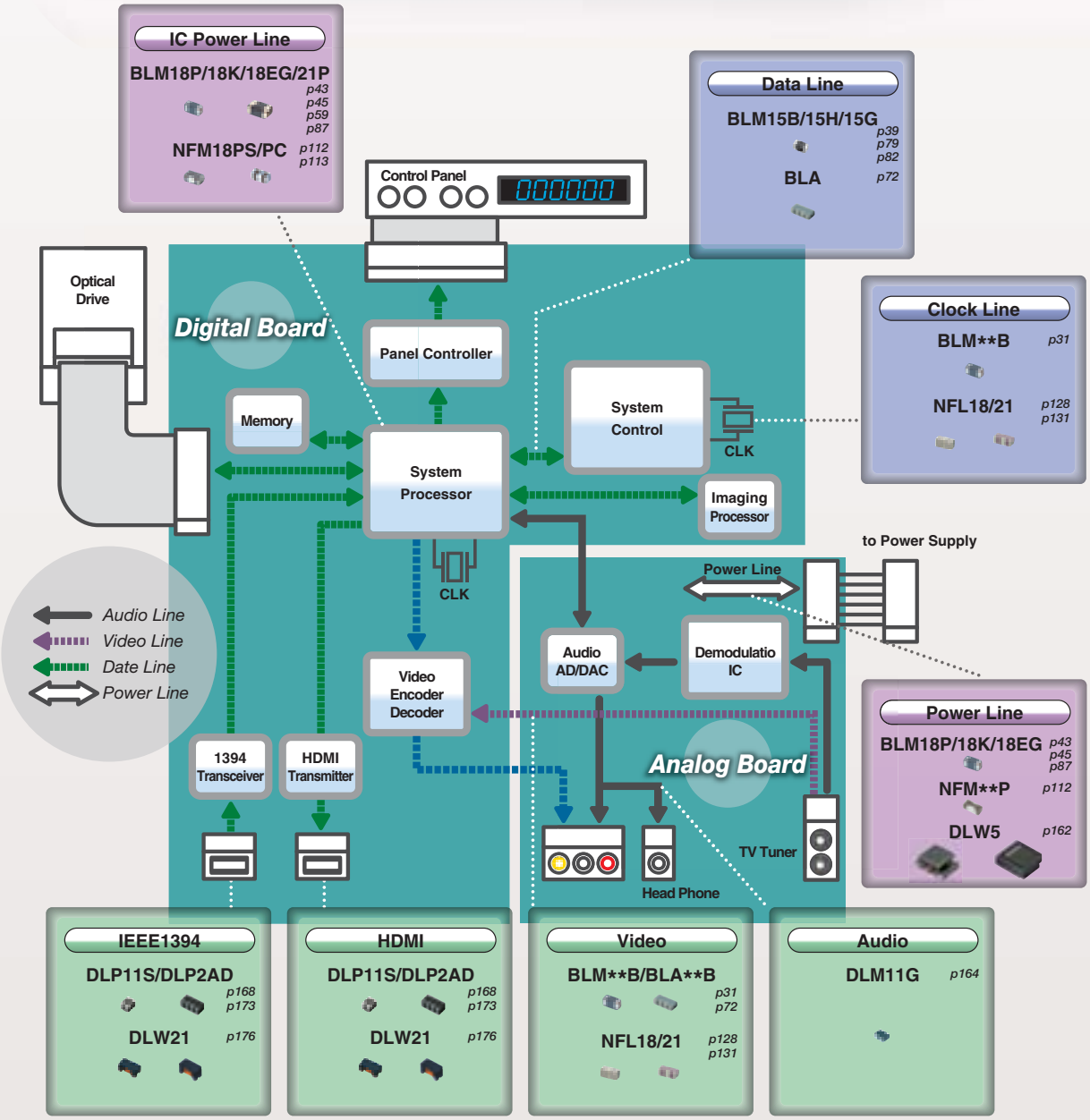
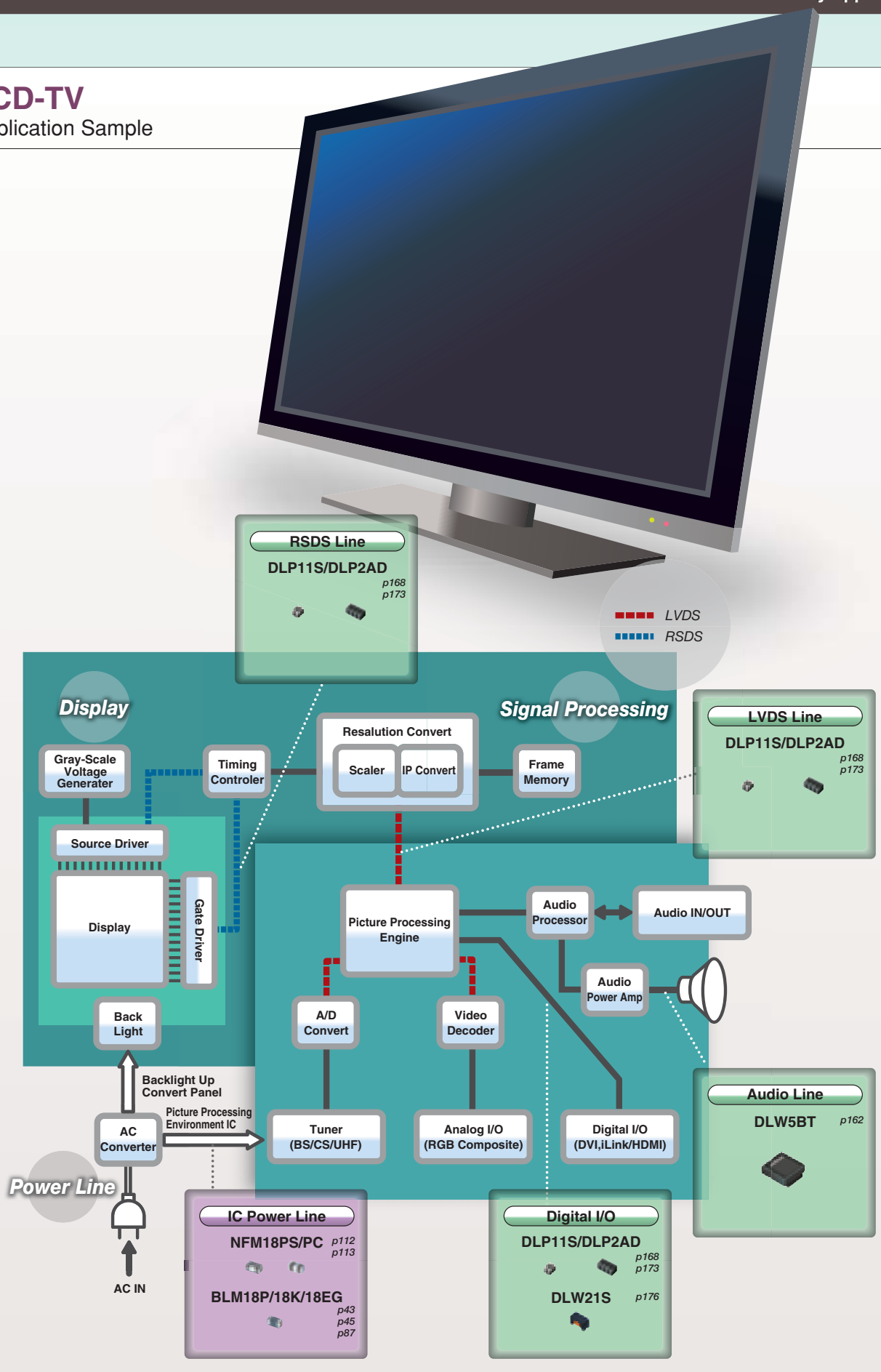
Blu-ray/DVD

Application Sample



LCD-TV

Application Sample



EMI Filter Selection by Circuits and Noise Frequency

●Chip Ferrite Bead / Chip EMIFIL®

Circuit Type?

Noise Frequency?

Noise Frequency: Under 1GHz

Inductor Type (Suppression Effect: Normal)

Power Line	General Signal Line (Under 10MHz)	High Speed Signal Line (Over 10MHz)
	BLM02AX p22 01005/Imp.10-120Ω	
	BLM03AX p27 0201/0.2-1A/Imp.10-1000Ω	
BLM03PG p24 0201/0.75-0.9A/Imp.22-33Ω	**BLM03A** p29 0201/Imp.10-1000Ω	**BLM03B** p31 0201/Imp.10-600Ω
Low DC Resistance / High Current Type	**BLM15A** p37 0402/Imp.10-1000Ω	**BLM15B** p39 0402/Imp.5-1800Ω
BLM03PX p25 0201/1-1.8A/Imp.22-80Ω	**BLM18A** p49 0603/Imp.120-1000Ω	**BLM18B** p51 0603/Imp.5-2500Ω
		BLM21B p63 0805/Imp.5-2700Ω
		Array Type
	BLM15AX p35 0402/0.35-1.74A/Imp.10-1000Ω	**BLA2AB** p72 0804/Imp.10-1000Ω
BLM15PG/PD p33 0402/1-2.2A/Imp.10-120Ω	**BLM18T** p55 0603/Imp.120-1000Ω	**BLA31B** p75 1206/Imp.120-1000Ω
BLM18P p43 0603/0.5-3A/Imp.30-470Ω	**BLM18R** p56 0603/Imp.120-1000Ω	
BLM21P p59 0805/1.5-6A/Imp.22-330Ω	**BLM21A** p61 0805/Imp.120-1000Ω	
BLM31P p68 1206/1.5-6A/Imp.33-600Ω	**BLM21R** p66 0805/Imp.120-1000Ω	
BLM41P p70 1806/1.5-6A/Imp.60-1000Ω	Array Type	
Low DC Resistance Type	**BLA2AA** p72 0804/Imp.120-1000Ω	
BLM18K p45 0603/1.3-6A/Imp.26-600Ω	**BLA31A** p75 1206/Imp.30-1000Ω	
BLM18S p47 0603/1.5-6A/Imp.26-330Ω		

Capacitor Type (Suppression Effect: High)

NFM18PC p113 0603/2-4A/Cap.0.1-2.2μF	**NFM18C** p122 0603/Cap.22-22000pF	LC Combined
NFM21P p115 0805/2-6A/Cap.0.1-10μF	**NFM21C** p123 0805/Cap.22-22000pF	**NFL15ST** p127 0402/Cut off 150-500MHz
NFM3DP p117 1205/2A/Cap.0.022μF	**NFM3DC** p124 1205/Cap.22-22000pF	**NFL18ST** p128 0603/Cut off 50-500MHz
NFM31P p118 1206/6A/Cap.27μF	**NFM41C** p125 1806/Cap.22-22000pF	**NFL18SP** p130 0603/Cut off 150-500MHz
NFM31K p119 1206/6-10A/Cap.0.1-0.022μF	Array Type	**NFL21S** p131 0805/Cut off 10-500MHz
NFM41P p120 1806/2-6A/Cap.0.2-1.5μF	**NFA31C** p126 1206/Cap.22-22000pF	**NFW31S** p137 1206/Cut off 10-500MHz
NFM55P p121 2220/6A/Cap.1.5μF	T Circuit Filter Feed Through Type	RC Combined
T Circuit Filter Feed Through Type	**NFE31P** p110 1206/Cap.22-2200pF	**NFR21G** p139 0805/22-100Ω/Cap.10-100pF
NFE31P p110 1206/6A/Cap.22-2200pF	**NFE61P** p111 2606/Cap.33-4700pF	Array Type (RC/LC Combined)
NFE61P p111 2706/2A/Cap.33-4700pF		**NFA31G** p140 1206/6.8-100Ω/Cap.10-100pF
Block Type		**NFA18S** p132 0603/Cut off 50-480MHz
BNX022/023 p199 10-15A/Range1MHz-2GHz		**NFA21S** p135 0805/Cut off 50-330MHz

Noise Frequency: GHz Band (800MHz to 2.5GHz)

Inductor Type (Suppression Effect: Nomal)

	BLM03HG p77 0201/Imp.600-1000Ω	**BLM03HD** p77 0201/Imp.330-1000Ω
	BLM15HG p79 0402/Imp.600-1000Ω	**BLM15HD** p79 0402/Imp.600-1800Ω
	BLM18HG p83 0603/Imp.470-1000Ω	**BLM15HB** p79 0402/Imp.120-220Ω
	BLM18HK p83 0603/Imp.330-1000Ω	**BLM18HD** p83 0603/Imp.470-1000Ω
BLM18HE p83 0603/0.5-0.8A/Imp.600-1500Ω		**BLM18HE** p83 0603/Imp.600-1500Ω
BLM15EG p81 0402/0.7-1.5A/Imp.120-220Ω		**BLM18HB** p83 0603/Imp.120-330Ω
BLM18EG p87 0603/0.5-2A/Imp.100-600Ω		

Capacitor Type (Suppression Effect: High)

NFM18PS p112 0603/2A/Cap.0.47-1.0μF		LC Combined
		NFL18ST p128 0603/Cut off 200-500MHz
		Array Type (LC Combined)
		NFA18S p132 0603/Cut off 50-480MHz
		NFA21S p135 0805/Cut off 50-330MHz

Noise Frequency: High-GHz Band (1GHz to 10GHz)

Inductor Type

	BLM15GG p82 0402/Imp.220-470Ω	**BLM15GA** p82 0402/Imp.75Ω
	BLM18GG p89 0603/Imp.470Ω	

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●Chip Common Mode Choke Coil

Circuit Type?

DC Power Line


DLW5AH p160
2014/0.2A/Imp.4000Ω


DLW5BS p160
2020/0.5-5A/Imp.190-3000Ω


DLW5BT p162
2020/1.5-6A/Imp.100-1400Ω

High Current Type Automotive Available


PLT10HH p180
12.9mmx6.6mm /6-10A/Imp.400-1000Ω

High Speed Differential Signal Line

High Speed Signal Line
(USB/LVDS/IEEE1394/mipi etc.)


DLP0QSN p165
025020/Imp.60Ω


DLP0NSN/SC p166
03025/Imp.28-120Ω


DLP11SN p168
0504/Imp.35-330Ω


DLP11RN p168
0504/Imp.45Ω


DLW21H p178
0805/Imp.67-180Ω


DLW21S_S p176
0805/Imp.67-500Ω


DLP31S p171
1206/Imp.120-550Ω


DLW31S p179
1206/Imp.90-2200Ω

Array Type


DLP1ND p172
05025/Imp.35-90Ω


DLP2ADN p173
0804/Imp.67-280Ω


DLP31D p175
1206/Imp.90-440Ω

Ultra High Speed Signal Line
(HDMI/DVI/Display Port etc.)


DLP0NSA p166
03025/Imp.15Ω


DLP11SA p168
0504/Imp.35-90Ω


DLP11RB p168
0504/Imp.15-40Ω


DLP11TB p168
0504/Imp.80Ω


DLW21S_HQ p176
0805/Imp.67-120Ω

Array Type


DLP2ADA p173
0804/Imp.35-90Ω

Audio Line


DLM11G p164
0504/Imp.600Ω


DLW5AT p162
2014/1-5A/Imp.110-2700Ω


DLW5BT p162
2020/1.5-6A/Imp.100-1400Ω

Guide of Digits in this Chart:

●for **BLM03P**

0201/0.75-0.9A/Imp.22-33Ω
Size (inch) / Rated Current / Impedance

●for **BNX022/023**

10-15A/Range1MHz-2GHz
Rated Current / Effective Frequency Range

●for **NFR21G**

0805/22-100Ω/Cap.10-100pF
Size (inch) / Resistance / Capacitance

●for **NFA18S**

0603/Cut off 50-480MHz
Size (inch) / Cut-off Frequency

●for **DLW5BS**

2020/0.5-5A/Imp.190-3000Ω
Size (inch) / Rated Current / Impedance

BL□

Inductor Type

		Series	Size Code Inch (mm)	Impedance (Ω) at 100MHz (10 / 100 / 1000)	Effective Frequency Range (Applicable Frequency Ranges are only for reference.) (10kHz 100kHz 1MHz 10MHz 100MHz 1GHz 10GHz)
For General Band Noise	Universal Type [Power Lines / Signal Lines]	BLM02AX p22	01005 (0402)	10 70 120	
		BLM03AX p27	0201 (0603)	10 80 120 240 600 1000	
		BLM15AX p35	0402 (1005)	10 30 70 120 220 600 1000	
	Signal Lines Type — For General Signal Lines	BLM03AG p29	0201 (0603)	10 80 70 120 240 600 1000	
		BLM15AG p37	0402 (1005)	10 70 120 220 600 1000	
		BLM18A p49	0603 (1608)	120 150 220 330 470 600 1000	
		BLM21A p61	0805 (2012)	120 150 220 330 470 600 1000	
		BLM18T p55	0603 (1608)	120 220 600 1000	
		BLA2AA p72 (4 circuits array)	0804 (2010)	120 220 600 1000	
		BLA31A p75 (4 circuits array)	1206 (3216)	30 60 120 220 600 1000	
	Signal Lines Type — For High Speed Signal Lines	BLM03B p31	0201 (0603)	10 22 33 47 56 75 80 120 240 470 600	
		BLM15B p39	0402 (1005)	5 10 22 33 47 75 120 220 240 470 600 1000 1800	
		BLM18B p51	0603 (1608)	5 10 22 47 60 75 120 140 150 220 330 420 470 600 1000 1500 1800 2200 2500	
		BLM21B p63	0805 (2012)	5 60 75 120 150 200 220 330 420 470 600 750 1000 1500 1800 2200 2250 2700	
		BLA2AB p72 (4 circuits array)	0804 (2010)	10 22 47 75 120 220 470 600 1000	
		BLA31B p75 (4 circuits array)	1206 (3216)	120 220 470 600 1000	
	Signal Lines Type — For Digital Interface Lines	BLM18R p56	0603 (1608)	120 220 470 600 1000	
		BLM21R p66	0805 (2012)	120 220 470 600 1000	
	Power Lines Type	BLM03PX* p25	0201 (0603)	22 (1.8A) 33 (1.5A) 80 (1A)	
		BLM03PG p24	0201 (0603)	22 (0.9A) 33 (0.75A)	
		BLM15P* p33	0402 (1005)	10 (1A) 30 (2.2A) 60 (1.7A) 80 (1.5A) 120 (1.3A)	
		BLM18P* p43	0603 (1608)	30 (1A) 33 (3A) 60 (0.5A) 120 (2A) 180 (1.5A) 220 (1.4A) 330 (1.2A) 470 (1A)	
		BLM21P* p59	0805 (2012)	22 (6A) 30 (3A) 60 (3A) 120 (3A) 220 (2A) 330 (1.5A)	
		BLM31P* p68	1206 (3216)	33 (6A) 50 (3A) 120 (3A) 390 (2A) 600 (1.5A)	
		BLM41P* p70	1806 (4516)	60 (6A) 75 (3A) 180 (3A) 470 (2A) 1000 (1.5A)	
		BLM18K* p45 (Low DC Resistance Type)	0603 (1608)	26 (6A) 30 (5A) 100 (3A) 70 (3.5A) 120 (3A) 220 (2.2A) 330 (1.7A) 470 (1.5A) 600 (1.3A)	
		BLM18S* p47 (Low DC Resistance Type)	0603 (1608)	26 (6A) 70 (4A) 120 (3A) 220 (2.5A) 330 (1.5A)	
For GHz Band Noise	Universal Type [Power Lines / Signal Lines]	BLM15EG* p81	0402 (1005)	120 (1.5A) 220 (0.7A)	
		BLM18EG* p87	0603 (1608)	100 (2A) 120 (2A) 220 (2A/1A) 330 (0.5A) 390 (0.5A) 470 (0.5A) 600 (0.5A)	
		BLM18HE* p83	0603 (1608)	600 (0.8A) 1000 (0.6A) 1500 (0.5A)	
	Signal Lines Type	BLM03HG p77	0201 (0603)	600 1000	
		BLM03HD p77	0201 (0603)	330 470 600 1000	
		BLM15HG p79	0402 (1005)	600 1000	
		BLM15HD p79	0402 (1005)	600 1000 1800	
		BLM15HB p79	0402 (1005)	120 220	
		BLM18HG p83	0603 (1608)	470 600 1000	
		BLM18HD p83	0603 (1608)	470 600 1000	
		BLM18HB p83	0603 (1608)	120 220 330	
		BLM18HK p83	0603 (1608)	330 470 600 1000	
For High-GHz Band Noise	Signal Lines Type	BLM15GG p82	0402 (1005)	220 470	
		BLM15GA p82	0402 (1005)	75	
		BLM18GG p89	0603 (1608)	470	

* The derating of rated current is required for some items according to the operating temperature on the each product page.

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NF□

Capacitor Type

	Series	Size Code Inch (mm)	Capacitance (F)	Effective Frequency Range (Applicable Frequency Ranges are only for reference.)
Signal Lines Type	NFM18C p122	0603 (1608)	22 47 100 220 470 1000 2200 22000	
	NFM21C p123	0805 (2012)	22 47 100 220 470 1000 2200 22000	
	NFM3DC p124	1205 (3212)	22 47 100 220 470 1000 2200 22000	
	NFM41C p125	1806 (4516)	22 47 100 220 470 1000 2200 22000	
	NFA31C p126 (4 circuits array)	1206 (3216)	22 47 100 220 470 1000 2200 22000	
Power Lines Type	NFM18P p112	0603 (1608)	0.1 0.22 0.47 1.0 2.2	
	NFM21P p115	0805 (2012)	0.1 0.22 0.47 1.0 2.2 4.7 10	
	NFM3DP* p117	1205 (3212)	22000	
	NFM31P p118	1206 (3216)	27	
	NFM31K p119	1206 (3216)	10000 15000 22000 0.1	
	NFM41P p120	1806 (4516)	0.2 1.5	
	NFM55P p121	2220 (5750)	1.5	
Universal Type [Power Lines / Signal Lines]	NFE31P p110	1206 (3216)	22 47 100 220 470 1500 2200	
	NFE61P p111	2606 (6816)	33 68 100 180 360 680 1000 4700	

Capacitance (F): 10p 100p 1000p 10000p 0.1μ 1μ 10μ

Effective Frequency Range (Applicable Frequency Ranges are only for reference.): 10kHz 100kHz 1MHz 10MHz 100MHz 1GHz 10GHz

NF□

LC(RC) Combined Type

	Series	Size Code Inch (mm)	Cut-off Frequency (MHz)	Effective Frequency Range (Applicable Frequency Ranges are only for reference.)
Signal Lines Type	NFL15ST p127	0402 (1005)	150 200 300 500	
	NFL18ST p128	0603 (1608)	200 300 500	
	NFL18SP p130	0603 (1608)	150 200 300 500	
	NFL21S p131	0805 (2012)	10 20 50 70 100 150 200 300 400 500	
	NFA18S p132 (4 circuits array)	0603 (1608)	50 130 180 200 220 300 350 400 480	
	NFA21S p135 (4 circuits array)	0805 (2012)	50 80 200 280 300 310 330	
	NFW31S p137	1206 (3216)	10 20 50 100 150 200 300 400 500	
	NFR21G p139	0805 (2012)		
	NFA31G p140 (4 circuits array)	1206 (3216)		

Cut-off Frequency (MHz): 10 100 500

Effective Frequency Range (Applicable Frequency Ranges are only for reference.): 10kHz 100kHz 1MHz 10MHz 100MHz 1GHz 10GHz

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DL□/PL□

Common Mode Choke Coils
Large Current Common Mode Choke Coil for Automotive Available

		Series	Size Code Inch (mm)	Common Mode Impedance (Ω) at 100MHz	Effective Frequency Range (Applicable Frequency Ranges are only for reference.)
				100 500 1000	10kHz 100kHz 1MHz 10MHz 100MHz 1GHz 10GHz
Signal Lines Type	For Audio Lines	DLM11G p164	0504 (1210)	600	
	For Ultra High Speed Signal Lines	DLP0QS p165	025020 (0605)	60	
		DLP0NS p166	03025 (0806)	28 90 / 15 67 120	
		DLP11S p168	0504 (1210)	67 240 / 35 90 120 160 200 280 330	
		DLP11R p169	0504 (1210)	40 / 15 45	
		DLP11TB p170	0504 (1210)	80	
		DLP31S p171	1206 (3216)	120 220 550	
		DLP1ND p172 (2 circuits array)	05025 (1506)	35 90 / 67	
		DLP2AD p173 (2 circuits array)	0804 (2010)	35 90 240 / 67 120 160 200 280	
		DLP31D p175 (2 circuits array)	1206 (3216)	90 130 200 320 440	
		DLW21S p176	0805 (2012)	90 / 67 120 180 260 370 500	
		DLW21H p178	0805 (2012)	90 / 67 120 180	
		DLW31S p179	1206 (3216)	90 160 260 600 1000 2200	
Universal Type [Power Lines / Signal Lines]		DLW5AH/DLW5BS p160	2014 (5036) / 2020 (5050)	190 350 1000 1500 4000 3000	
		DLW5AT/DLW5BT p162	2014 (5036) / 2020 (5050)	110 400 850 1400 / 100 250 500 1000 2700	
Large Current Type for Automotive Available		PLT10HH* p180	–	400 900 / 500 1000 (at 10MHz)	

BNX

Block EMIFIL®

		Series	Height (mm)	Rated Voltage (Vdc)	Rated Current (A)	Effective Frequency Range (Applicable Frequency Ranges are only for reference.)
						10kHz 100kHz 1MHz 10MHz 100MHz 1GHz 10GHz
Power Lines Type	SMD Type	BNX022* p199	3.1	50	10	
		BNX023* p199	3.1	100	15	
		BNX024* p199	3.5	50	15	
		BNX025* p199	3.5	25	15	
	Lead Type	BNX002 p201	13 max.	50	10	
		BNX003 p201	13 max.	150	10	
		BNX005 p201	13.5 max.	50	15	
		BNX012* p202	8.0 max.	50	15	
		BNX016* p202	8.0 max.	25	15	

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□BL□

Chip Ferrite Bead

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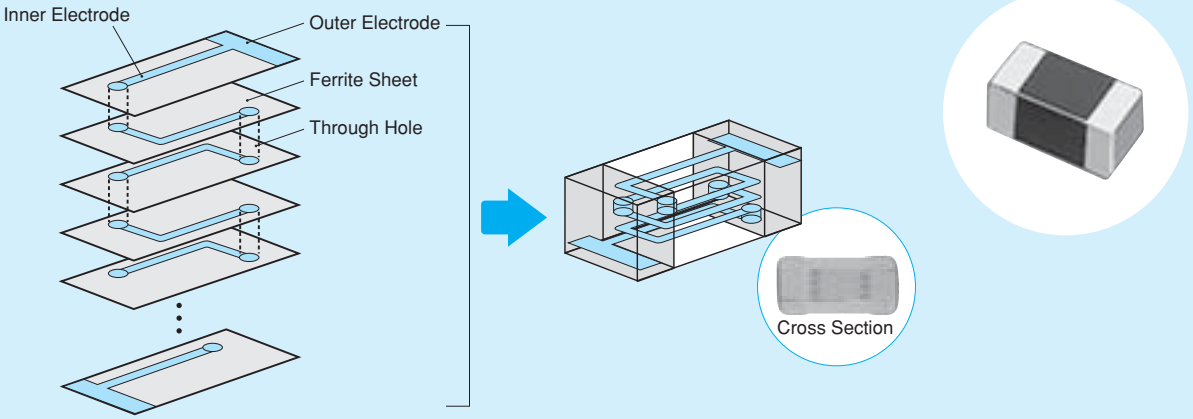
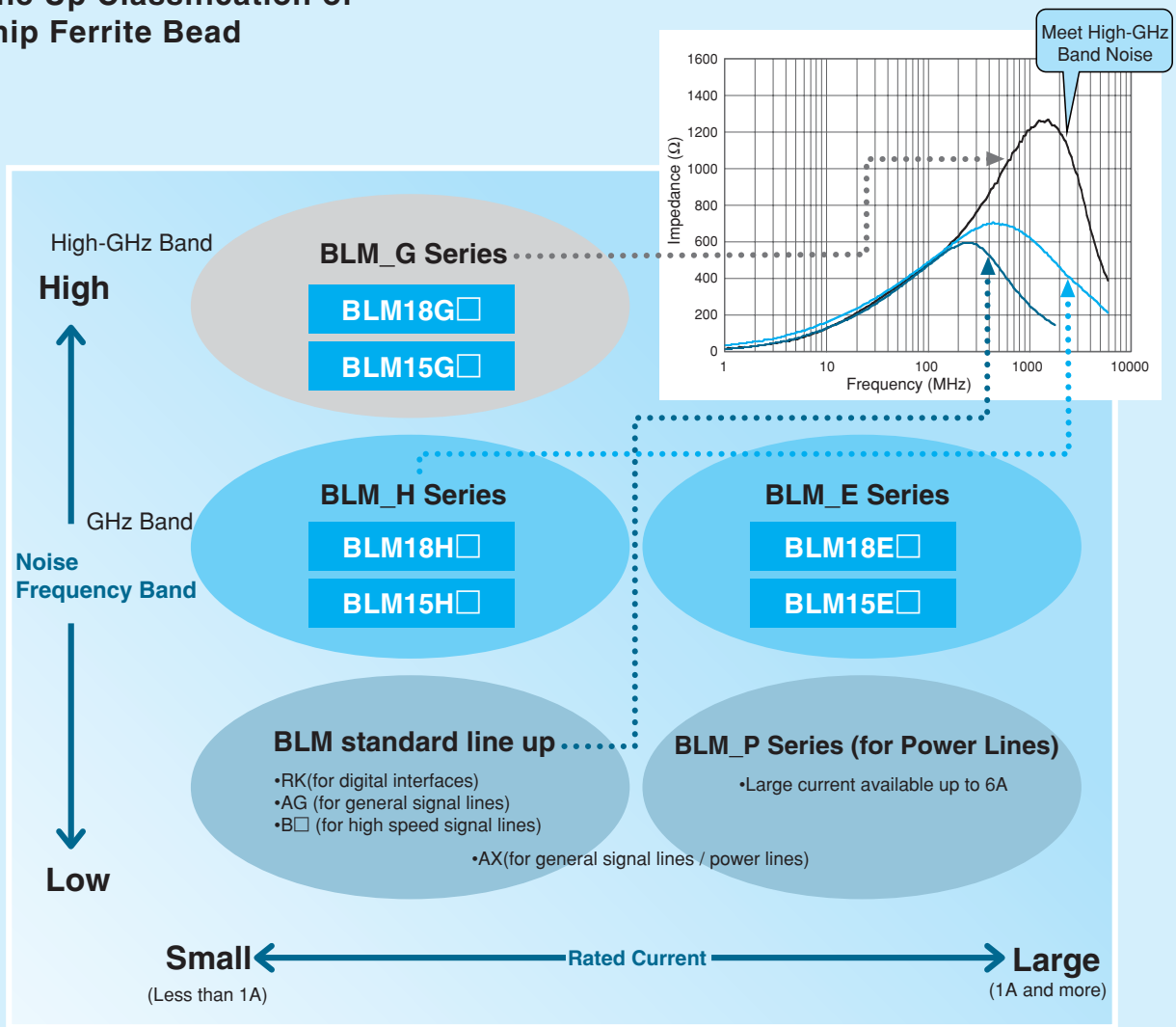
muRata

●Example of Chip Ferrite Bead BLM Series Structure



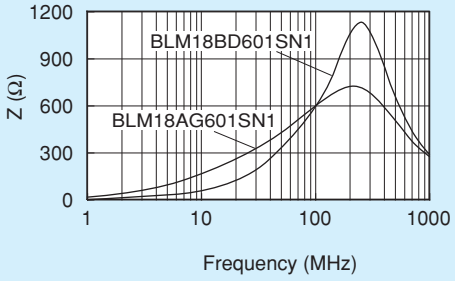
●Line Up Classification of Chip Ferrite Bead



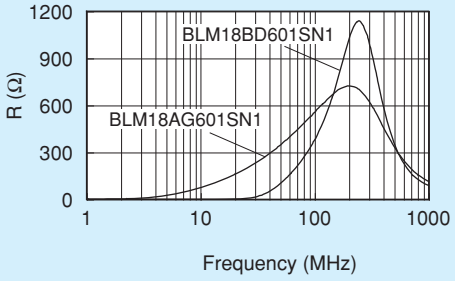
●Difference between BLM A type and B type (HG type vs HD/HB/HE type)

A type: Impedance curve rises from low frequency range. Suppress noise in wide frequency range.
B type: Impedance curve rises sharply. Less damage to signal waveforms.

■Comparison of Impedance Curve

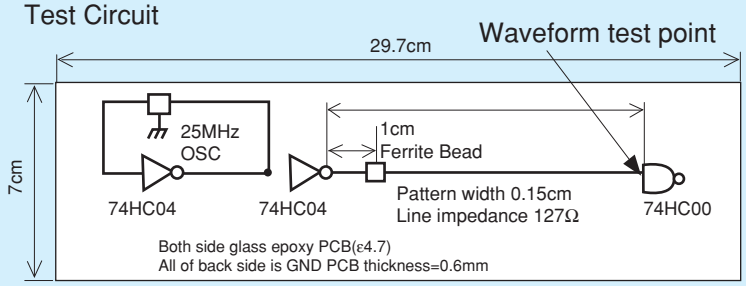


■Comparison of Resistance Element

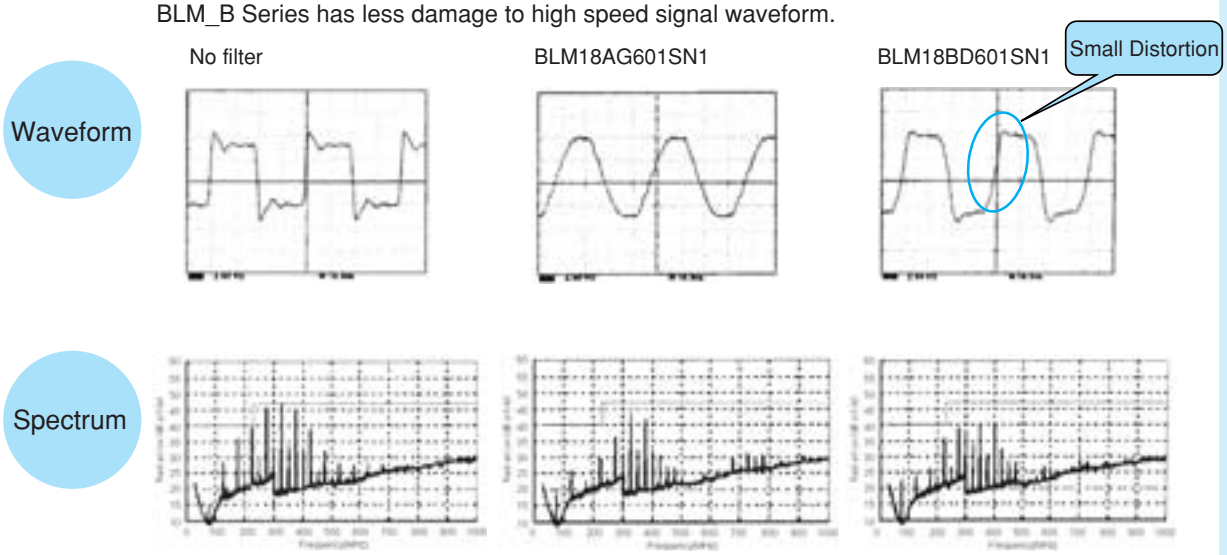


■Comparison of Test Effect (25MHz)

Test Circuit



BLM_B Series has less damage to high speed signal waveform.



BL□ Chip Ferrite Bead Part Numbering

(Part Number) BL M 18 AG 102 S N 1 D
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶Product ID

Product ID	
BL	Chip Ferrite Beads

❷Type

Code	Type
A	Array Type
M	Ferrite Bead Single Type

❸Dimensions (L×W)

Code	Dimensions (L×W)	EIA
02	0.4×0.2mm	01005
03	0.6×0.3mm	0201
15	1.0×0.5mm	0402
18	1.6×0.8mm	0603
2A	2.0×1.0mm	0804
21	2.0×1.25mm	0805
31	3.2×1.6mm	1206
41	4.5×1.6mm	1806

❺Impedance

Expressed by three figures. The unit is in ohm (Ω) at 100MHz. The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

❻Electrode

Expressed by a letter.

Ex.)

Code	Electrode
S/T	Sn Plating
A	Au Plating

❼Category

Code	Category
N	Standard Type

❽Number of Circuits

Code	Number of Circuits
1	1 Circuit
4	4 Circuits

❹Characteristics/Applications

Code *1	Characteristics/Applications	Series
AG	for General Use	BLM03/15/18/21, BLA2A/31
AX		BLM02/03/15
TG		BLM18
BA	for High-speed Signal Lines	BLM15/18
BB		BLM03/15/18/21, BLA2A
BC		BLM03/15
BD		BLM03/15/18/21, BLA2A/31
PD	for Power Supplies	BLM15
PG		BLM03/15/18/21/31/41
PX		BLM03/15
KG	for Power Supplies (Low DC Resistance Type)	BLM18
SG		
RK	for Digital Interface	BLM18/21
HG	for GHz Band General Use	BLM03/15/18
EG	for GHz Band General Use (Low DC Resistance Type)	BLM15/18
HB	for GHz Band High-speed Signal Lines	BLM15/18
HD		BLM03/15/18
HE		BLM18
HK	for GHz Band Digital Interface	BLM18
GA	for High-GHz Band High-speed Signal Lines	BLM15
GG	for High-GHz Band General Use	BLM15/18

*1 Frequency characteristics vary with each code.

❾Packaging

Code	Packaging	Series
K	Embossed Taping (ø330mm Reel)	BLM21 *1/31/41
L	Embossed Taping (ø180mm Reel)	
B	Bulk	All Series
J	Paper Taping (ø330mm Reel)	BLM03/15/18 *3/21 *2, BLA2A/31
D	Paper Taping (ø180mm Reel)	BLM02/03/15/18/21 *2, BLA2A/31

*1 BLM21BD222SN1/BLM21BD272SN1 only. *2 Except BLM21BD222SN1/BLM21BD272SN1 *3 Except BLM18T

Size Code (Inch)	Thickness (mm)	Type	Part Number	Impedance at 100MHz/20°C	Impedance at 1GHz/20°C	Rated Current	New / Kit / ≥1A / GHz / ≥3A / Hi-GHz / Flow / ReFlow
01005	0.2	Universal Type [Power lines/Signal lines] p22	BLM02AX100SN1	10ohm±5ohm	-	750mA	New ReFlow
	0.2		BLM02AX700SN1	70ohm±25%	-	300mA	New ReFlow
	0.2		BLM02AX121SN1	120ohm±25%	-	250mA	New ReFlow
0201	0.3	For General Signal Lines p29	BLM03AG100SN1	10ohm(Typ.)	-	500mA	Kit ReFlow
	0.3		BLM03AG700SN1	70ohm(Typ.)	-	200mA	Kit ReFlow
	0.3		BLM03AG800SN1	80ohm±25%	-	200mA	Kit ReFlow
	0.3		BLM03AG121SN1	120ohm±25%	-	200mA	Kit ReFlow
	0.3		BLM03AG241SN1	240ohm±25%	-	200mA	Kit ReFlow
	0.3		BLM03AG601SN1	600ohm±25%	-	100mA	Kit ReFlow
	0.3		BLM03AG102SN1	1000ohm±25%	-	100mA	Kit ReFlow
	0.3	Universal Type [Power lines/Signal lines] p27	BLM03AX100SN1	10ohm(Typ.)	-	1000mA	Kit ≥1A ReFlow
	0.3		BLM03AX800SN1	80ohm±25%	-	500mA	Kit ReFlow
	0.3		BLM03AX121SN1	120ohm±25%	-	450mA	Kit ReFlow
	0.3		BLM03AX241SN1	240ohm±25%	-	350mA	Kit ReFlow
	0.3		BLM03AX601SN1	600ohm±25%	-	250mA	Kit ReFlow
	0.3		BLM03AX102SN1	1000ohm±25%	-	200mA	Kit ReFlow
	0.3	For High Speed Signal Lines (Sharp Impedance Curve) p31	BLM03BD750SN1	75ohm±25%	-	300mA	Kit ReFlow
	0.3		BLM03BD121SN1	120ohm±25%	-	250mA	Kit ReFlow
	0.3		BLM03BD241SN1	240ohm±25%	-	200mA	Kit ReFlow
	0.3		BLM03BD471SN1	470ohm±25%	-	215mA	Kit ReFlow
	0.3		BLM03BD601SN1	600ohm±25%	-	200mA	Kit ReFlow
	0.3		BLM03BB100SN1	10ohm±25%	-	300mA	Kit ReFlow
	0.3		BLM03BB220SN1	22ohm±25%	-	200mA	Kit ReFlow
	0.3		BLM03BB470SN1	47ohm±25%	-	200mA	Kit ReFlow
	0.3		BLM03BB750SN1	75ohm±25%	-	200mA	Kit ReFlow
	0.3		BLM03BB121SN1	120ohm±25%	-	100mA	Kit ReFlow
	0.3		BLM03BC330SN1	33ohm±25%	-	150mA	Kit ReFlow
	0.3		BLM03BC560SN1	56ohm±25%	-	100mA	Kit ReFlow
	0.3		BLM03BC800SN1	80ohm±25%	-	100mA	Kit ReFlow
	0.3	For Power Lines p24	BLM03PG220SN1	22ohm±25%	-	900mA	Kit ReFlow
	0.3		BLM03PG330SN1	33ohm±25%	-	750mA	Kit ReFlow
	0.3	p25	BLM03PX220SN1	22ohm±25%	-	1800mA	New Kit ≥1A ReFlow
	0.3		BLM03PX330SN1	33ohm±25%	-	1500mA	New Kit ≥1A ReFlow
	0.3		BLM03PX800SN1	80ohm±25%	-	1000mA	New Kit ≥1A ReFlow
	0.3	For GHz Band Noise — For General Signal Lines p77	BLM03HG601SN1	600ohm±25%	1000ohm±40%	150mA	Kit GHz ReFlow
	0.3		BLM03HG102SN1	1000ohm±25%	1800ohm±40%	125mA	Kit GHz ReFlow
	0.3	For GHz Band Noise — For High Speed Signal Lines p77	BLM03HD331SN1	330ohm±25%	-	200mA	Kit GHz ReFlow
	0.3		BLM03HD471SN1	470ohm±25%	-	175mA	Kit GHz ReFlow
	0.3		BLM03HD601SN1	600ohm±25%	-	150mA	Kit GHz ReFlow
	0.3		BLM03HD102SN1	1000ohm±25%	-	120mA	Kit GHz ReFlow
0402	0.5	For General Signal Lines p37	BLM15AG100SN1	10ohm(Typ.)	-	1000mA	Kit ≥1A ReFlow
	0.5		BLM15AG700SN1	70ohm(Typ.)	-	500mA	Kit ReFlow
	0.5		BLM15AG121SN1	120ohm±25%	-	500mA	Kit ReFlow
	0.5		BLM15AG221SN1	220ohm±25%	-	300mA	Kit ReFlow
	0.5		BLM15AG601SN1	600ohm±25%	-	300mA	Kit ReFlow
	0.5		BLM15AG102SN1	1000ohm±25%	-	200mA	Kit ReFlow
	0.5	Universal Type [Power lines/Signal lines] p35	BLM15AX100SN1	10ohm(Typ.)	-	1740mA	Kit ≥1A ReFlow
	0.5		BLM15AX300SN1	30ohm±25%	-	1100mA	Kit ≥1A ReFlow
	0.5		BLM15AX700SN1	70ohm±25%	-	780mA	Kit ReFlow
	0.5		BLM15AX121SN1	120ohm±25%	-	680mA	Kit ReFlow
	0.5		BLM15AX221SN1	220ohm±25%	-	580mA	Kit ReFlow
	0.5		BLM15AX601SN1	600ohm±25%	-	420mA	Kit ReFlow
	0.5		BLM15AX102SN1	1000ohm±25%	-	350mA	Kit ReFlow

Continued on the following page.

Size Code (Inch)	Thickness (mm)	Type		Part Number	Impedance at 100MHz/20°C	Impedance at 1GHz/20°C	Rated Current	New / Kit / ≥1A / ≥3A / GHz / Hi-GHz / Flow / ReFlow
0402	0.5	For High Speed Signal Lines (Sharp Impedance Curve)	p39	BLM15BD750SN1	75ohm±25%	-	300mA	Kit ReFlow
	0.5			BLM15BD121SN1	120ohm±25%	-	300mA	Kit ReFlow
	0.5			BLM15BD221SN1	220ohm±25%	-	300mA	Kit ReFlow
	0.5			BLM15BD471SN1	470ohm±25%	-	200mA	Kit ReFlow
	0.5			BLM15BD601SN1	600ohm±25%	-	200mA	Kit ReFlow
	0.5			BLM15BD102SN1	1000ohm±25%	-	200mA	Kit ReFlow
	0.5			BLM15BD182SN1	1800ohm±25%	-	100mA	Kit ReFlow
	0.5			BLM15BB050SN1	5ohm±25%	-	500mA	Kit ReFlow
	0.5			BLM15BB100SN1	10ohm±25%	-	300mA	Kit ReFlow
	0.5			BLM15BB220SN1	22ohm±25%	-	300mA	Kit ReFlow
	0.5			BLM15BB470SN1	47ohm±25%	-	300mA	Kit ReFlow
	0.5			BLM15BB750SN1	75ohm±25%	-	300mA	Kit ReFlow
	0.5			BLM15BB121SN1	120ohm±25%	-	300mA	Kit ReFlow
	0.5			BLM15BB221SN1	220ohm±25%	-	200mA	Kit ReFlow
	0.5			BLM15BC121SN1	120ohm±25%	-	350mA	Kit ReFlow
	0.5			BLM15BC241SN1	240ohm±25%	-	250mA	Kit ReFlow
	0.5			BLM15BA050SN1	5ohm±25%	-	300mA	Kit ReFlow
	0.5			BLM15BA100SN1	10ohm±25%	-	300mA	Kit ReFlow
	0.5			BLM15BA220SN1	22ohm±25%	-	300mA	Kit ReFlow
	0.5			BLM15BA330SN1	33ohm±25%	-	300mA	Kit ReFlow
	0.5			BLM15BA470SN1	47ohm±25%	-	200mA	Kit ReFlow
	0.5			BLM15BA750SN1	75ohm±25%	-	200mA	Kit ReFlow
	0.5	For Power Lines	p33	BLM15PG100SN1	10ohm(Typ.)	-	1000mA	Kit ≥1A ReFlow
	0.5			BLM15PD300SN1	30ohm±25%	-	2200mA	Kit ≥1A ReFlow
	0.5			BLM15PD600SN1	60ohm±25%	-	1700mA	Kit ≥1A ReFlow
	0.5			BLM15PD800SN1	80ohm±25%	-	1500mA	Kit ≥1A ReFlow
	0.5			BLM15PD121SN1	120ohm±25%	-	1300mA	Kit ≥1A ReFlow
	0.5	For GHz Band Noise	p79 For General Signal Lines	BLM15HG601SN1	600ohm±25%	1000ohm±40%	300mA	Kit GHz ReFlow
	0.5			BLM15HG102SN1	1000ohm±25%	1400ohm±40%	250mA	Kit GHz ReFlow
	0.5		p79 For High Speed Signal Lines (Sharp Impedance Curve)	BLM15HD601SN1	600ohm±25%	1400ohm±40%	300mA	Kit GHz ReFlow
	0.5			BLM15HD102SN1	1000ohm±25%	2000ohm±40%	250mA	Kit GHz ReFlow
	0.5			BLM15HD182SN1	1800ohm±25%	2700ohm±40%	200mA	Kit GHz ReFlow
	0.5			BLM15HB121SN1	120ohm±25%	500ohm±40%	300mA	Kit GHz ReFlow
	0.5			BLM15HB221SN1	220ohm±25%	900ohm±40%	250mA	Kit GHz ReFlow
	0.5		p81 Universal Type [Power Lines/Signal Lines]	BLM15EG121SN1	120ohm±25%	145ohm(Typ.)	1500mA	Kit ≥1A GHz ReFlow
	0.5			BLM15EG221SN1	220ohm±25%	270ohm(Typ.)	700mA	Kit GHz ReFlow
	0.5	For High-GHz Band Noise	p82 For General Signal Lines	BLM15GG221SN1	220ohm±25%	600ohm±40%	300mA	Kit Hi-GHz ReFlow
	0.5			BLM15GG471SN1	470ohm±25%	1200ohm±40%	200mA	Kit Hi-GHz ReFlow
	0.5		p82 For High Speed Signal Lines	BLM15GA750SN1	75ohm±25%	1000ohm±40%	200mA	Kit Hi-GHz ReFlow
0603	0.8	For General Signal Lines	p49	BLM18AG121SN1	120ohm±25%	-	500mA	Kit Flow ReFlow
	0.8			BLM18AG151SN1	150ohm±25%	-	500mA	Kit Flow ReFlow
	0.8			BLM18AG221SN1	220ohm±25%	-	500mA	Kit Flow ReFlow
	0.8			BLM18AG331SN1	330ohm±25%	-	500mA	Kit Flow ReFlow
	0.8			BLM18AG471SN1	470ohm±25%	-	500mA	Kit Flow ReFlow
	0.8			BLM18AG601SN1	600ohm±25%	-	500mA	Kit Flow ReFlow
	0.8			BLM18AG102SN1	1000ohm±25%	-	400mA	Kit Flow ReFlow
	0.6		p55	BLM18TG121TN1	120ohm±25%	-	200mA	Flow ReFlow
	0.6			BLM18TG221TN1	220ohm±25%	-	200mA	Flow ReFlow
	0.6			BLM18TG601TN1	600ohm±25%	-	200mA	Flow ReFlow
	0.6			BLM18TG102TN1	1000ohm±25%	-	100mA	Flow ReFlow

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⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

Size Code (Inch)	Thickness (mm)	Type		Part Number	Impedance at 100MHz/20°C	Impedance at 1GHz/20°C	Rated Current	New / Kit / ≥1A / ≥3A / GHz / Hi-GHz	Flow / ReFlow
0603	0.8	For High Speed Signal Lines (Sharp Impedance Curve)	p51	BLM18BD470SN1	47ohm±25%	-	500mA	Kit	Flow ReFlow
	0.8			BLM18BD121SN1	120ohm±25%	-	200mA	Kit	Flow ReFlow
	0.8			BLM18BD151SN1	150ohm±25%	-	200mA	Kit	Flow ReFlow
	0.8			BLM18BD221SN1	220ohm±25%	-	200mA	Kit	Flow ReFlow
	0.8			BLM18BD331SN1	330ohm±25%	-	200mA	Kit	Flow ReFlow
	0.8			BLM18BD421SN1	420ohm±25%	-	200mA	Kit	Flow ReFlow
	0.8			BLM18BD471SN1	470ohm±25%	-	200mA	Kit	Flow ReFlow
	0.8			BLM18BD601SN1	600ohm±25%	-	200mA	Kit	Flow ReFlow
	0.8			BLM18BD102SN1	1000ohm±25%	-	100mA	Kit	Flow ReFlow
	0.8			BLM18BD152SN1	1500ohm±25%	-	50mA	Kit	Flow ReFlow
	0.8			BLM18BD182SN1	1800ohm±25%	-	50mA	Kit	Flow ReFlow
	0.8			BLM18BD222SN1	2200ohm±25%	-	50mA	Kit	Flow ReFlow
	0.8			BLM18BD252SN1	2500ohm±25%	-	50mA	Kit	Flow ReFlow
	0.8			BLM18BB050SN1	5ohm±25%	-	700mA	Kit	Flow ReFlow
	0.8			BLM18BB100SN1	10ohm±25%	-	700mA	Kit	Flow ReFlow
	0.8			BLM18BB220SN1	22ohm±25%	-	600mA	Kit	Flow ReFlow
	0.8			BLM18BB470SN1	47ohm±25%	-	550mA	Kit	Flow ReFlow
	0.8			BLM18BB600SN1	60ohm±25%	-	550mA	Kit	Flow ReFlow
	0.8			BLM18BB750SN1	75ohm±25%	-	500mA	Kit	Flow ReFlow
	0.8			BLM18BB121SN1	120ohm±25%	-	500mA	Kit	Flow ReFlow
	0.8			BLM18BB141SN1	140ohm±25%	-	450mA		Flow ReFlow
	0.8			BLM18BB151SN1	150ohm±25%	-	450mA	Kit	Flow ReFlow
	0.8			BLM18BB221SN1	220ohm±25%	-	450mA	Kit	Flow ReFlow
	0.8			BLM18BB331SN1	330ohm±25%	-	400mA	Kit	Flow ReFlow
	0.8			BLM18BB471SN1	470ohm±25%	-	300mA	Kit	Flow ReFlow
	0.8			BLM18BA050SN1	5ohm±25%	-	500mA	Kit	Flow ReFlow
	0.8			BLM18BA100SN1	10ohm±25%	-	500mA	Kit	Flow ReFlow
	0.8			BLM18BA220SN1	22ohm±25%	-	500mA		Flow ReFlow
	0.8			BLM18BA470SN1	47ohm±25%	-	300mA	Kit	Flow ReFlow
	0.8			BLM18BA750SN1	75ohm±25%	-	300mA	Kit	Flow ReFlow
	0.8			BLM18BA121SN1	120ohm±25%	-	200mA	Kit	Flow ReFlow
	0.8	For Digital Interface Lines	p56	BLM18RK121SN1	120ohm±25%	-	200mA	Kit	Flow ReFlow
	0.8			BLM18RK221SN1	220ohm±25%	-	200mA		Flow ReFlow
	0.8			BLM18RK471SN1	470ohm±25%	-	200mA	Kit	Flow ReFlow
	0.8			BLM18RK601SN1	600ohm±25%	-	200mA	Kit	Flow ReFlow
	0.8			BLM18RK102SN1	1000ohm±25%	-	200mA	Kit	Flow ReFlow
	0.8	For Power Lines	Standard Type p43	BLM18PG300SN1	30ohm(Typ.)	-	1000mA	Kit ≥1A	Flow ReFlow
	0.8			BLM18PG330SN1	33ohm±25%	-	3000mA	Kit ≥3A	Flow ReFlow
	0.8			BLM18PG600SN1	60ohm(Typ.)	-	500mA	Kit	Flow ReFlow
	0.8			BLM18PG121SN1	120ohm±25%	-	2000mA	Kit ≥1A	Flow ReFlow
	0.8			BLM18PG181SN1	180ohm±25%	-	1500mA	Kit ≥1A	Flow ReFlow
	0.8			BLM18PG221SN1	220ohm±25%	-	1400mA	Kit ≥1A	Flow ReFlow
	0.8			BLM18PG331SN1	330ohm±25%	-	1200mA	Kit ≥1A	Flow ReFlow
	0.8			BLM18PG471SN1	470ohm±25%	-	1000mA	Kit ≥1A	Flow ReFlow
	0.6		Low DC Resistance Type p45	BLM18KG260TN1	26ohm±25%	-	6000mA	Kit ≥3A	Flow ReFlow
	0.6			BLM18KG300TN1	30ohm±25%	-	5000mA	Kit ≥3A	Flow ReFlow
	0.6			BLM18KG700TN1	70ohm±25%	-	3500mA	Kit ≥3A	Flow ReFlow
	0.6			BLM18KG101TN1	100ohm±25%	-	3000mA	Kit ≥3A	Flow ReFlow
	0.6			BLM18KG121TN1	120ohm±25%	-	3000mA	Kit ≥3A	Flow ReFlow
	0.8			BLM18KG221SN1	220ohm±25%	-	2200mA	Kit ≥1A	Flow ReFlow
	0.8			BLM18KG331SN1	330ohm±25%	-	1700mA	Kit ≥1A	Flow ReFlow
	0.8			BLM18KG471SN1	470ohm±25%	-	1500mA	Kit ≥1A	Flow ReFlow
	0.8			BLM18KG601SN1	600ohm±25%	-	1300mA	Kit ≥1A	Flow ReFlow
	0.5		p47	BLM18SG260TN1	26ohm±25%	-	6000mA	Kit ≥3A	Flow ReFlow
	0.5			BLM18SG700TN1	70ohm±25%	-	4000mA	Kit ≥3A	Flow ReFlow
	0.5			BLM18SG121TN1	120ohm±25%	-	3000mA	Kit ≥3A	Flow ReFlow
	0.5			BLM18SG221TN1	220ohm±25%	-	2500mA	Kit ≥1A	Flow ReFlow
	0.5			BLM18SG331TN1	330ohm±25%	-	1500mA	Kit ≥1A	Flow ReFlow

Continued on the following page.

Size Code (Inch)	Thickness (mm)	Type		Part Number	Impedance at 100MHz/20°C	Impedance at 1GHz/20°C	Rated Current	New / Kit / ≥1A / ≥3A / GHz / Hi-GHz / Flow / ReFlow
0603	0.8	For GHz Band Noise	p83 For General Signal Lines	BLM18HG471SN1	470ohm±25%	600ohm(Typ.)	200mA	Kit GHz Flow ReFlow
	0.8			BLM18HG601SN1	600ohm±25%	700ohm(Typ.)	200mA	Kit GHz Flow ReFlow
	0.8			BLM18HG102SN1	1000ohm±25%	1000ohm(Typ.)	100mA	Kit GHz Flow ReFlow
	0.8		p83 For High Speed Signal Lines (Sharp Impedance Curve)	BLM18HE601SN1	600ohm±25%	600ohm(Typ.)	800mA	Kit GHz Flow ReFlow
	0.8			BLM18HE102SN1	1000ohm±25%	1000ohm(Typ.)	600mA	Kit GHz Flow ReFlow
	0.8			BLM18HE152SN1	1500ohm±25%	1500ohm(Typ.)	500mA	Kit GHz Flow ReFlow
	0.8			BLM18HD471SN1	470ohm±25%	1000ohm(Typ.)	100mA	Kit GHz Flow ReFlow
	0.8			BLM18HD601SN1	600ohm±25%	1200ohm(Typ.)	100mA	Kit GHz Flow ReFlow
	0.8			BLM18HD102SN1	1000ohm±25%	1700ohm(Typ.)	50mA	Kit GHz Flow ReFlow
	0.8			BLM18HB121SN1	120ohm±25%	500ohm±40%	200mA	Kit GHz Flow ReFlow
	0.8			BLM18HB221SN1	220ohm±25%	1100ohm±40%	100mA	Kit GHz Flow ReFlow
	0.8			BLM18HB331SN1	330ohm±25%	1600ohm±40%	50mA	Kit GHz Flow ReFlow
	0.8		p83 For Digital Interface Lines	BLM18HK331SN1	330ohm±25%	400ohm±40%	200mA	Kit GHz Flow ReFlow
	0.8			BLM18HK471SN1	470ohm±25%	600ohm±40%	200mA	Kit GHz Flow ReFlow
	0.8			BLM18HK601SN1	600ohm±25%	700ohm±40%	100mA	Kit GHz Flow ReFlow
	0.8			BLM18HK102SN1	1000ohm±25%	1200ohm±40%	50mA	Kit GHz Flow ReFlow
	0.5		p87 Universal Type [Power lines/ Signal lines]	BLM18EG101TN1	100ohm±25%	140ohm(Typ.)	2000mA	Kit ≥1A GHz Flow ReFlow
	0.8			BLM18EG121SN1	120ohm±25%	145ohm(Typ.)	2000mA	Kit ≥1A GHz Flow ReFlow
	0.8			BLM18EG221SN1	220ohm±25%	260ohm(Typ.)	2000mA	Kit ≥1A GHz Flow ReFlow
	0.5			BLM18EG221TN1	220ohm±25%	300ohm(Typ.)	1000mA	Kit ≥1A GHz Flow ReFlow
	0.5			BLM18EG331TN1	330ohm±25%	450ohm(Typ.)	500mA	Kit GHz Flow ReFlow
	0.5			BLM18EG391TN1	390ohm±25%	520ohm(Typ.)	500mA	Kit GHz Flow ReFlow
	0.8			BLM18EG471SN1	470ohm±25%	550ohm(Typ.)	500mA	Kit GHz Flow ReFlow
	0.8			BLM18EG601SN1	600ohm±25%	700ohm(Typ.)	500mA	Kit GHz Flow ReFlow
	0.8	For High-GHz Band Noise	p89	BLM18GG471SN1	470ohm±25%	1800ohm±30%	200mA	Kit Hi-GHz ReFlow
0805	0.85	For General Signal Lines	p61	BLM21AG121SN1	120ohm±25%	-	800mA	Kit Flow ReFlow
	0.85			BLM21AG151SN1	150ohm±25%	-	800mA	Kit Flow ReFlow
	0.85			BLM21AG221SN1	220ohm±25%	-	800mA	Kit Flow ReFlow
	0.85			BLM21AG331SN1	330ohm±25%	-	700mA	Kit Flow ReFlow
	0.85			BLM21AG471SN1	470ohm±25%	-	700mA	Kit Flow ReFlow
	0.85			BLM21AG601SN1	600ohm±25%	-	600mA	Kit Flow ReFlow
	0.85			BLM21AG102SN1	1000ohm±25%	-	500mA	Kit Flow ReFlow
	0.85	For High Speed Signal Lines (Sharp Impedance Curve)	p63	BLM21BD121SN1	120ohm±25%	-	200mA	Kit Flow ReFlow
	0.85			BLM21BD151SN1	150ohm±25%	-	200mA	Flow ReFlow
	0.85			BLM21BD221SN1	220ohm±25%	-	200mA	Kit Flow ReFlow
	0.85			BLM21BD331SN1	330ohm±25%	-	200mA	Flow ReFlow
	0.85			BLM21BD421SN1	420ohm±25%	-	200mA	Kit Flow ReFlow
	0.85			BLM21BD471SN1	470ohm±25%	-	200mA	Kit Flow ReFlow
	0.85			BLM21BD601SN1	600ohm±25%	-	200mA	Kit Flow ReFlow
	0.85			BLM21BD751SN1	750ohm±25%	-	200mA	Flow ReFlow
	0.85			BLM21BD102SN1	1000ohm±25%	-	200mA	Kit Flow ReFlow
	0.85			BLM21BD152SN1	1500ohm±25%	-	200mA	Kit Flow ReFlow
	0.85			BLM21BD182SN1	1800ohm±25%	-	200mA	Kit Flow ReFlow
	0.85			BLM21BD222TN1	2200ohm±25%	-	200mA	Kit Flow ReFlow
	1.25			BLM21BD222SN1	2250ohm(Typ.)	-	200mA	Kit Flow ReFlow
	1.25			BLM21BD272SN1	2700ohm±25%	-	200mA	Kit Flow ReFlow
	0.85			BLM21BB050SN1	5ohm±25%	-	1000mA	Kit Flow ReFlow
	0.85			BLM21BB600SN1	60ohm±25%	-	800mA	Kit Flow ReFlow
	0.85			BLM21BB750SN1	75ohm±25%	-	700mA	Kit Flow ReFlow
	0.85			BLM21BB121SN1	120ohm±25%	-	600mA	Kit Flow ReFlow
	0.85			BLM21BB151SN1	150ohm±25%	-	600mA	Flow ReFlow
	0.85			BLM21BB201SN1	200ohm±25%	-	500mA	Flow ReFlow
	0.85			BLM21BB221SN1	220ohm±25%	-	500mA	Kit Flow ReFlow
	0.85			BLM21BB331SN1	330ohm±25%	-	400mA	Kit Flow ReFlow
	0.85			BLM21BB471SN1	470ohm±25%	-	400mA	Kit Flow ReFlow
	0.85	For Digital Interface Lines	p66	BLM21RK121SN1	120ohm±25%	-	200mA	Flow ReFlow
	0.85			BLM21RK221SN1	220ohm±25%	-	200mA	Flow ReFlow
	0.85			BLM21RK471SN1	470ohm±25%	-	200mA	Flow ReFlow
	0.85			BLM21RK601SN1	600ohm±25%	-	200mA	Flow ReFlow
	0.85			BLM21RK102SN1	1000ohm±25%	-	200mA	Flow ReFlow

Continued on the following page.

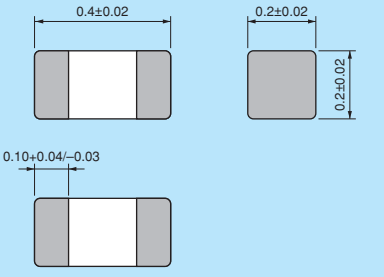
Size Code (Inch)	Thickness (mm)	Type	Part Number	Impedance at 100MHz/20°C	Impedance at 1GHz/20°C	Rated Current	New / Kit / ≥1A / ≥3A / GHz / Hi-GHz	Flow / ReFlow
0805	0.85	For Power Lines p59	BLM21PG220SN1	22ohm±25%	-	6000mA	Kit ≥3A	Flow ReFlow
	0.85		BLM21PG300SN1	30ohm(Typ.)	-	4000mA	Kit ≥3A	Flow ReFlow
	0.85		BLM21PG600SN1	60ohm±25%	-	3500mA	Kit ≥3A	Flow ReFlow
	0.85		BLM21PG121SN1	120ohm±25%	-	3000mA	Kit ≥3A	Flow ReFlow
	0.85		BLM21PG221SN1	220ohm±25%	-	2000mA	Kit ≥1A	Flow ReFlow
	0.85		BLM21PG331SN1	330ohm±25%	-	1500mA	Kit ≥1A	Flow ReFlow
1206	1.1	For Power Lines p68	BLM31PG330SN1	33ohm±25%	-	6000mA	Kit ≥3A	Flow ReFlow
	1.1		BLM31PG500SN1	50ohm(Typ.)	-	3500mA	Kit ≥3A	Flow ReFlow
	1.1		BLM31PG121SN1	120ohm±25%	-	3500mA	Kit ≥3A	Flow ReFlow
	1.1		BLM31PG391SN1	390ohm±25%	-	2000mA	Kit ≥1A	Flow ReFlow
	1.1		BLM31PG601SN1	600ohm±25%	-	1500mA	Kit ≥1A	Flow ReFlow
1806	1.6	For Power Lines p70	BLM41PG600SN1	60ohm(Typ.)	-	6000mA	Kit ≥3A	Flow ReFlow
	1.6		BLM41PG750SN1	75ohm(Typ.)	-	3500mA	Kit ≥3A	Flow ReFlow
	1.6		BLM41PG181SN1	180ohm±25%	-	3500mA	Kit ≥3A	Flow ReFlow
	1.6		BLM41PG471SN1	470ohm±25%	-	2000mA	Kit ≥1A	Flow ReFlow
	1.6		BLM41PG102SN1	1000ohm±25%	-	1500mA	Kit ≥1A	Flow ReFlow
0804	0.5	For General Signal Lines p72	BLA2AAG121SN4	120ohm±25%	-	100mA		ReFlow
	0.5		BLA2AAG221SN4	220ohm±25%	-	50mA		ReFlow
	0.5		BLA2AAG601SN4	600ohm±25%	-	50mA		ReFlow
	0.5		BLA2AAG102SN4	1000ohm±25%	-	50mA		ReFlow
	0.5	For High Speed Signal Lines p72	BLA2ABB100SN4	10ohm±25%	-	200mA		ReFlow
	0.5		BLA2ABB220SN4	22ohm±25%	-	200mA		ReFlow
	0.5		BLA2ABB470SN4	47ohm±25%	-	200mA		ReFlow
	0.5		BLA2ABB121SN4	120ohm±25%	-	50mA		ReFlow
	0.5		BLA2ABB221SN4	220ohm±25%	-	50mA		ReFlow
	0.5		BLA2ABD750SN4	75ohm±25%	-	200mA		ReFlow
	0.5		BLA2ABD121SN4	120ohm±25%	-	200mA		ReFlow
	0.5		BLA2ABD221SN4	220ohm±25%	-	100mA		ReFlow
	0.5		BLA2ABD471SN4	470ohm±25%	-	100mA		ReFlow
	0.5		BLA2ABD601SN4	600ohm±25%	-	100mA		ReFlow
	0.5		BLA2ABD102SN4	1000ohm±25%	-	50mA		ReFlow
1206	0.8	For General Signal Lines p75	BLA31AG300SN4	30ohm±25%	-	200mA		Flow ReFlow
	0.8		BLA31AG600SN4	60ohm±25%	-	200mA		Flow ReFlow
	0.8		BLA31AG121SN4	120ohm±25%	-	150mA		Flow ReFlow
	0.8		BLA31AG221SN4	220ohm±25%	-	150mA		Flow ReFlow
	0.8		BLA31AG601SN4	600ohm±25%	-	100mA		Flow ReFlow
	0.8		BLA31AG102SN4	1000ohm±25%	-	50mA		Flow ReFlow
	0.8	For High Speed Signal Lines p75	BLA31BD121SN4	120ohm±25%	-	150mA		Flow ReFlow
	0.8		BLA31BD221SN4	220ohm±25%	-	150mA		Flow ReFlow
	0.8		BLA31BD471SN4	470ohm±25%	-	100mA		Flow ReFlow
	0.8		BLA31BD601SN4	600ohm±25%	-	100mA		Flow ReFlow
	0.8		BLA31BD102SN4	1000ohm±25%	-	50mA		Flow ReFlow

BLM02AX Series (01005 Size)

Reflow OK

High spec ferrite bead Ultra low dc resistance 0402mm size.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	20000
B	Bulk(Bag)	1000

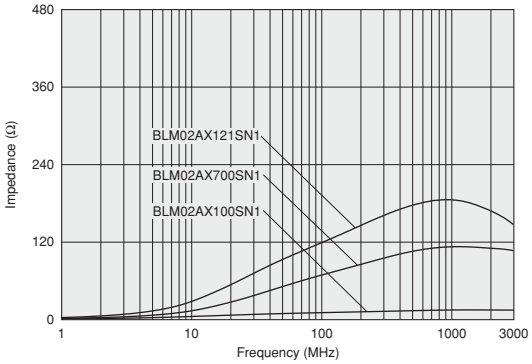
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM02AX100SN1□	10ohm ±5 ohm	750mA	0.07ohm max.	-55°C to +125°C	New
BLM02AX700SN1□	70ohm ±25%	300mA	0.4ohm max.	-55°C to +125°C	New
BLM02AX121SN1□	120ohm ±25%	250mA	0.5ohm max.	-55°C to +125°C	New

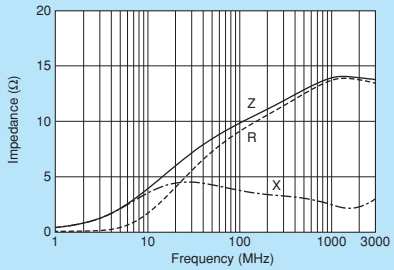
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

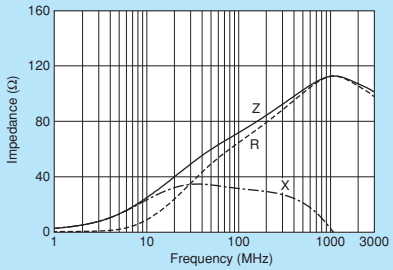


■ Impedance-Frequency Characteristics

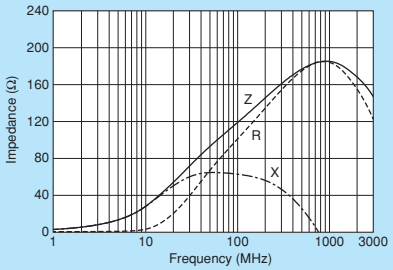
BLM02AX100SN1



BLM02AX700SN1



BLM02AX121SN1



Excellent for Both of Signal and Power Lines! Multi Function Chip Ferrite Bead BLM□□AX Series

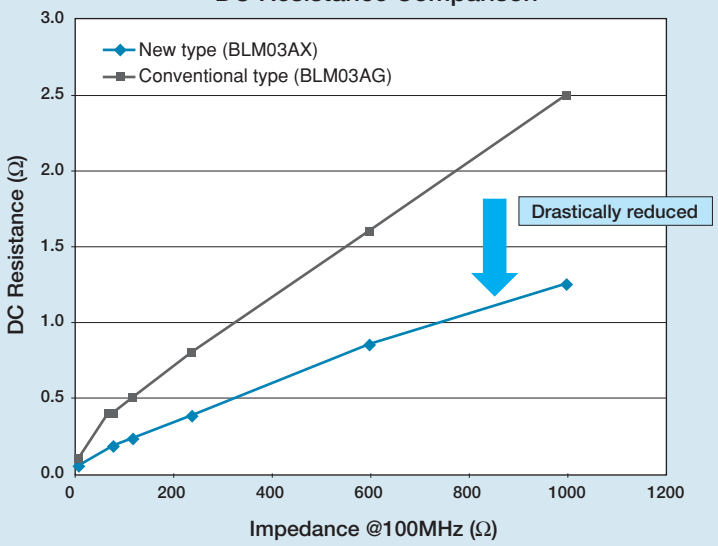
Feature

- 1/2 DC resistance than conventional type by latest technology
  New ferrite material
  Optimum ferrite firing condition
  Fine piling technology
  Advanced coil pattern design technology
- Improved stability of performance at heat shock
- Wide line-up from 10 to 1000ohm(@100MHz) useful for signal line

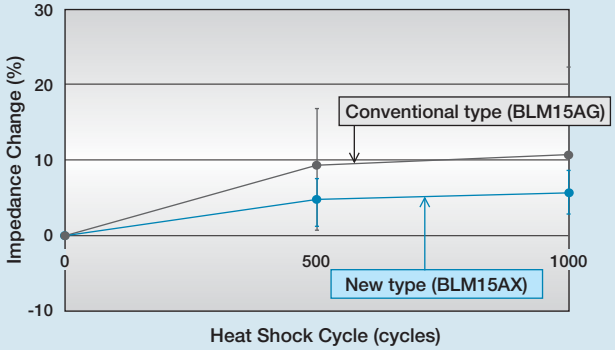
Advantage

- High Rated Current
  Good for Miniaturize of high power equipment
- Lower Voltage down at Ferrite bead
  Good for Battery driven equipment by saving running voltage margin
- Higher Reliability

Drastically Reduced DC Resistance



Test Result - Heat Shock



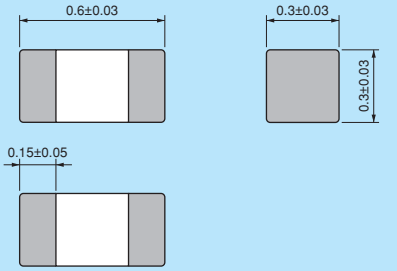
BLM03PG Series (0201 Size)

Hi Power Reflow OK

0201 size for power lines.

*Please refer to the products which are designed for both power lines and signal lines.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	15000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

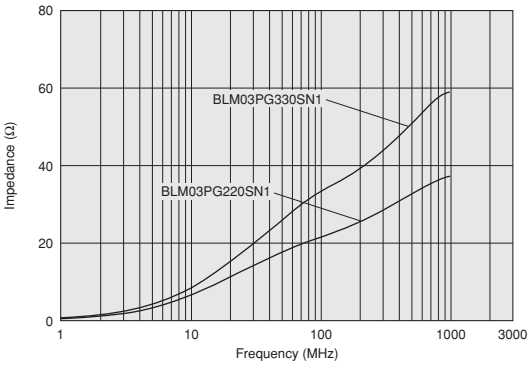
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM03PG220SN1□	22ohm ±25%	900mA	0.065ohm max.	-55°C to +125°C	Kit
BLM03PG330SN1□	33ohm ±25%	750mA	0.090ohm max.	-55°C to +125°C	Kit

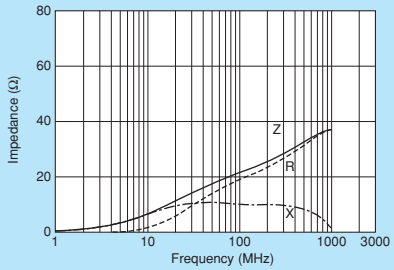
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

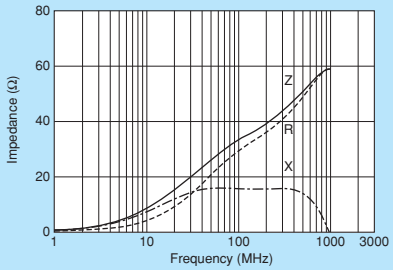


■ Impedance-Frequency Characteristics

BLM03PG220SN1



BLM03PG330SN1

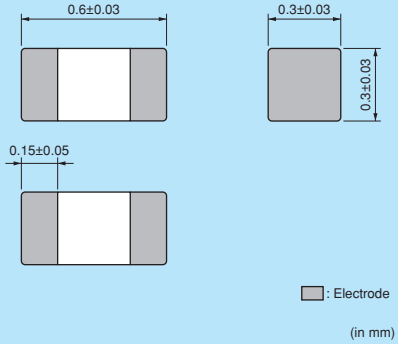


BLM03PX Series (0201 Size)

Hi Power Reflow OK

Improved DC resistance, meet larger current.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	15000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

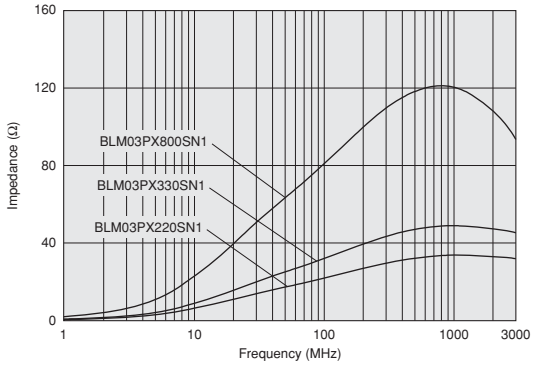
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM03PX220SN1□	22ohm ±25%	1800mA	0.040ohm max.	-55°C to +125°C	New Kit ≧1A
BLM03PX330SN1□	33ohm ±25%	1500mA	0.055ohm max.	-55°C to +125°C	New Kit ≧1A
BLM03PX800SN1□	80ohm ±25%	1000mA	0.130ohm max.	-55°C to +125°C	New Kit ≧1A

Number of Circuits: 1

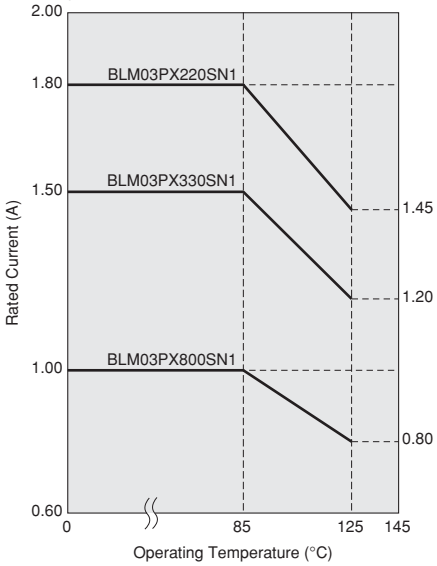
■ Impedance-Frequency Characteristics (Main Items)



■ Notice (Rating)

In operating temperature exceeding +85°C derating of current is necessary for BLM03PX_SN1 series.
Please apply the derating curve shown in chart according to the operating temperature.

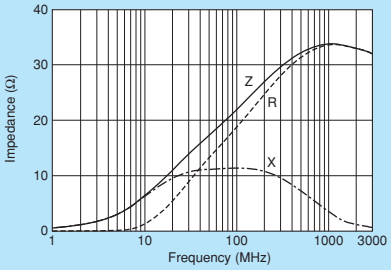
Derating of Rated Current



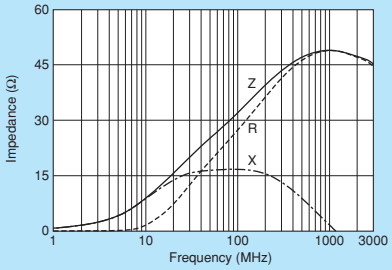
Continued on the following page.

■ Impedance-Frequency Characteristics

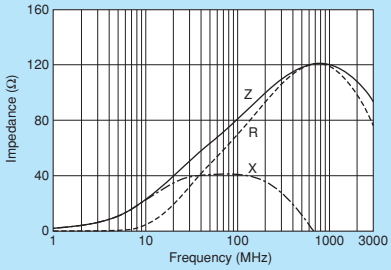
BLM03PX220SN1



BLM03PX330SN1



BLM03PX800SN1

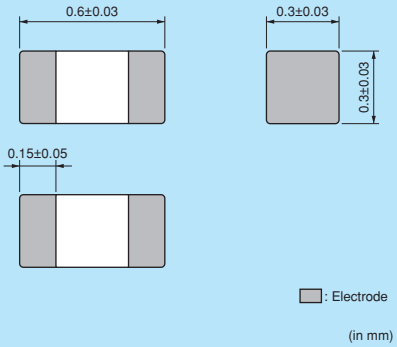


BLM03AX Series (0201 Size)

Hi Power Reflow OK

High Spec Ferrite Bead Ultra low dc resistance and wide impedance line up. Fit for both power lines and signal lines.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	15000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

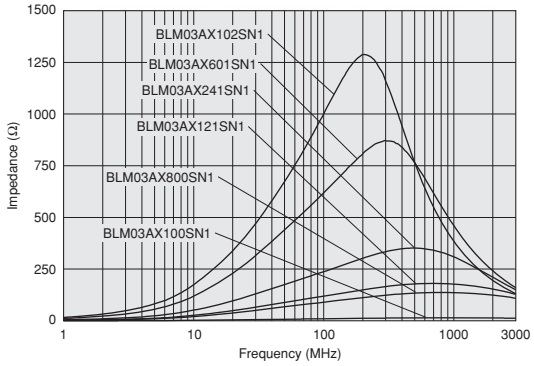
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM03AX100SN1□	10ohm (Typ.)	1000mA	0.05ohm max.	-55°C to +125°C	Kit ≧1A
BLM03AX800SN1□	80ohm ±25%	500mA	0.18ohm max.	-55°C to +125°C	Kit
BLM03AX121SN1□	120ohm ±25%	450mA	0.23ohm max.	-55°C to +125°C	Kit
BLM03AX241SN1□	240ohm ±25%	350mA	0.38ohm max.	-55°C to +125°C	Kit
BLM03AX601SN1□	600ohm ±25%	250mA	0.85ohm max.	-55°C to +125°C	Kit
BLM03AX102SN1□	1000ohm ±25%	200mA	1.25ohm max.	-55°C to +125°C	Kit

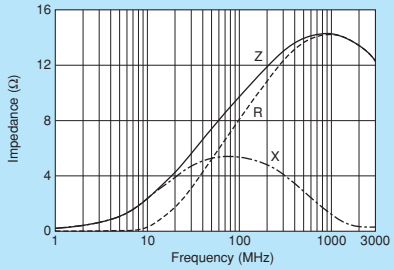
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

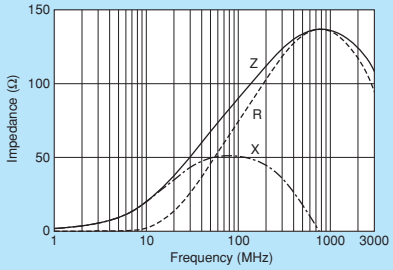


■ Impedance-Frequency Characteristics

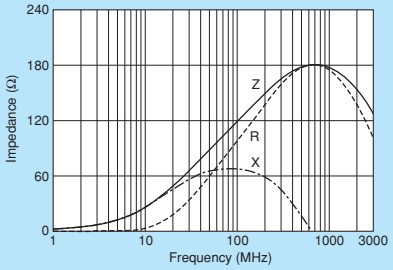
BLM03AX100SN1



BLM03AX800SN1



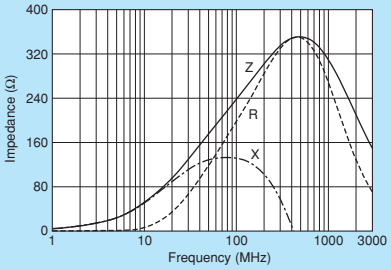
BLM03AX121SN1



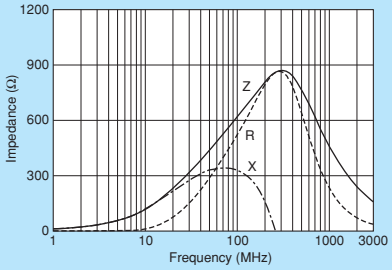
Continued on the following page.

■ Impedance-Frequency Characteristics

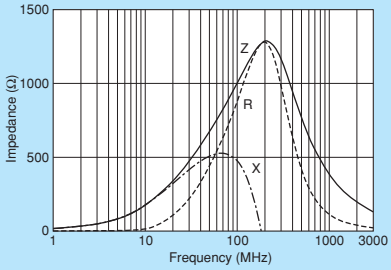
BLM03AX241SN1



BLM03AX601SN1



BLM03AX102SN1

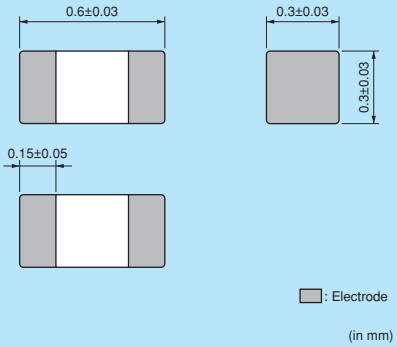


BLM03AG Series (0201 Size)

Reflow OK

0201 size for general signal lines.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	15000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

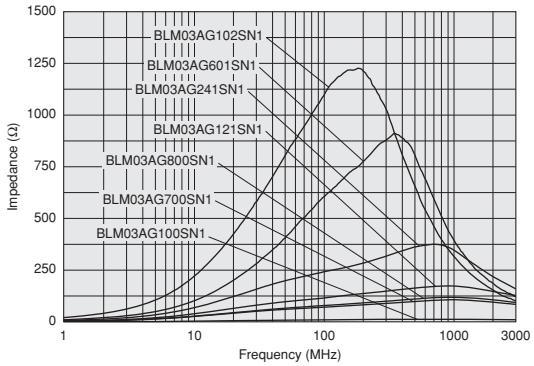
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM03AG100SN1□	10ohm (Typ.)	500mA	0.1ohm max.	-55°C to +125°C	Kit
BLM03AG700SN1□	70ohm (Typ.)	200mA	0.4ohm max.	-55°C to +125°C	Kit
BLM03AG800SN1□	80ohm ±25%	200mA	0.4ohm max.	-55°C to +125°C	Kit
BLM03AG121SN1□	120ohm ±25%	200mA	0.5ohm max.	-55°C to +125°C	Kit
BLM03AG241SN1□	240ohm ±25%	200mA	0.8ohm max.	-55°C to +125°C	Kit
BLM03AG601SN1□	600ohm ±25%	100mA	1.5ohm max.	-55°C to +125°C	Kit
BLM03AG102SN1□	1000ohm ±25%	100mA	2.5ohm max.	-55°C to +125°C	Kit

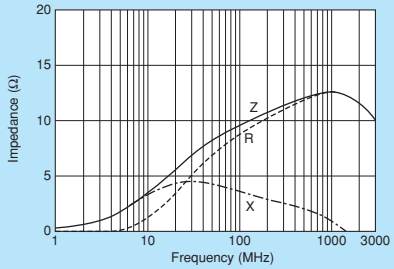
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

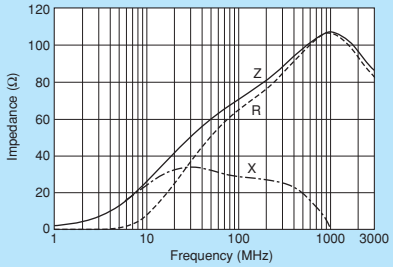


■ Impedance-Frequency Characteristics

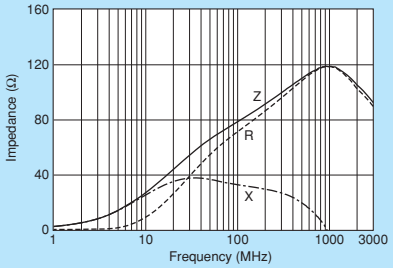
BLM03AG100SN1



BLM03AG700SN1



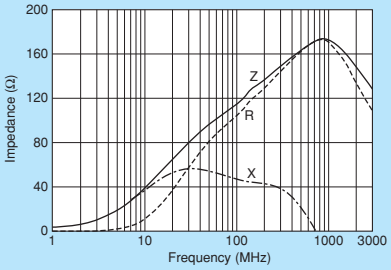
BLM03AG800SN1



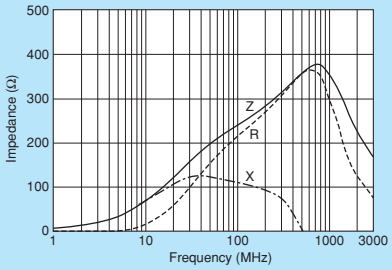
Continued on the following page.

■ Impedance-Frequency Characteristics

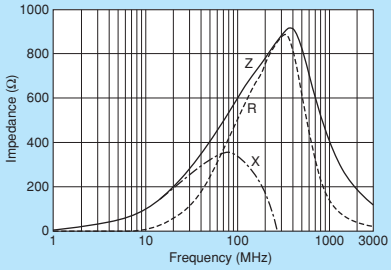
BLM03AG121SN1



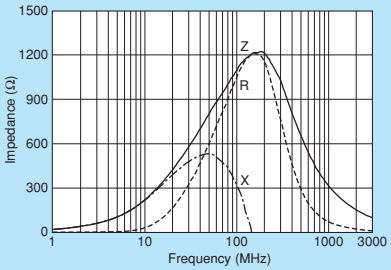
BLM03AG241SN1



BLM03AG601SN1



BLM03AG102SN1

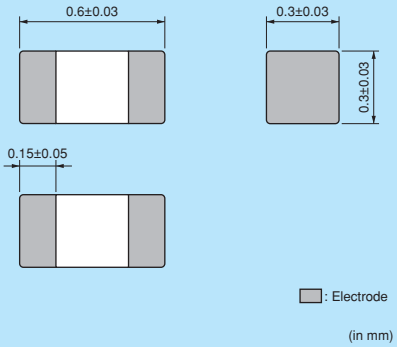


BLM03B Series (0201 Size)

Reflow OK

0201 size for high speed signal lines.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	15000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

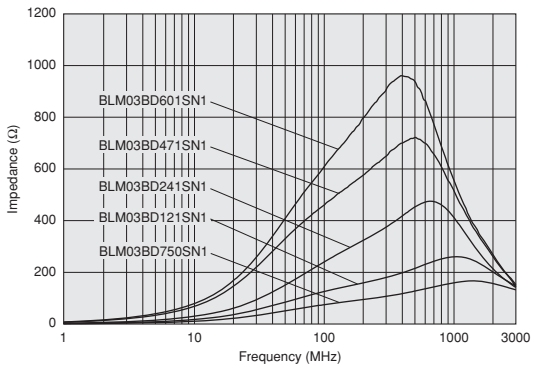
■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM03BD750SN1□	75ohm ±25%	300mA	0.4ohm max.	-55°C to +125°C	Kit
BLM03BD121SN1□	120ohm ±25%	250mA	0.5ohm max.	-55°C to +125°C	Kit
BLM03BD241SN1□	240ohm ±25%	200mA	0.8ohm max.	-55°C to +125°C	Kit
BLM03BD471SN1□	470ohm ±25%	215mA	1.5ohm max.	-55°C to +125°C	Kit
BLM03BD601SN1□	600ohm ±25%	200mA	1.7ohm max.	-55°C to +125°C	Kit
BLM03BB100SN1□	10ohm ±25%	300mA	0.4ohm max.	-55°C to +125°C	Kit
BLM03BB220SN1□	22ohm ±25%	200mA	0.5ohm max.	-55°C to +125°C	Kit
BLM03BB470SN1□	47ohm ±25%	200mA	0.7ohm max.	-55°C to +125°C	Kit
BLM03BB750SN1□	75ohm ±25%	200mA	1.0ohm max.	-55°C to +125°C	Kit
BLM03BB121SN1□	120ohm ±25%	100mA	1.5ohm max.	-55°C to +125°C	Kit
BLM03BC330SN1□	33ohm ±25%	150mA	0.85ohm max.	-55°C to +125°C	Kit
BLM03BC560SN1□	56ohm ±25%	100mA	1.05ohm max.	-55°C to +125°C	Kit
BLM03BC800SN1□	80ohm ±25%	100mA	1.40ohm max.	-55°C to +125°C	Kit

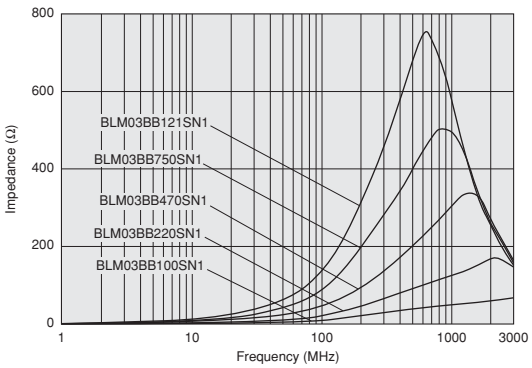
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

BLM03BD Series



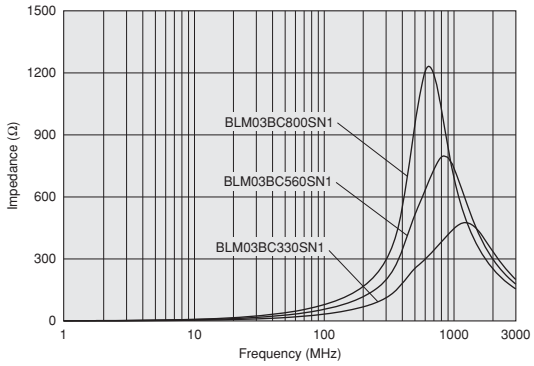
BLM03BB Series



Continued on the following page.

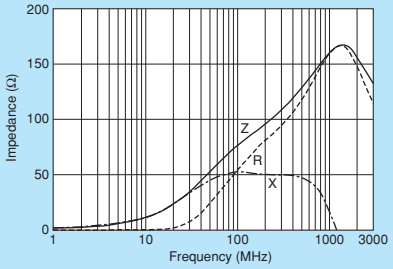
■ Impedance-Frequency Characteristics (Main Items)

BLM03BC Series

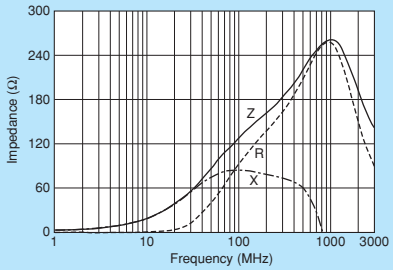


■ Impedance-Frequency Characteristics

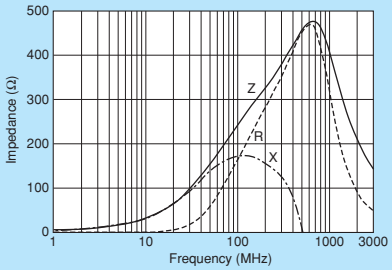
BLM03BD750SN1



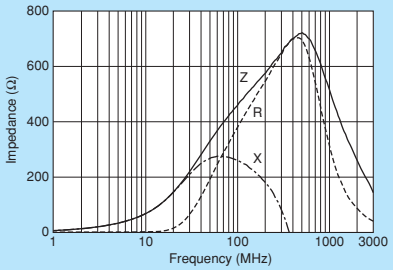
BLM03BD121SN1



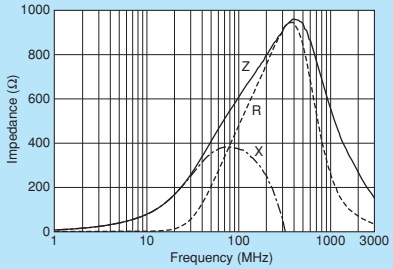
BLM03BD241SN1



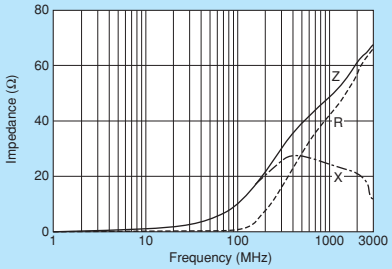
BLM03BD471SN1



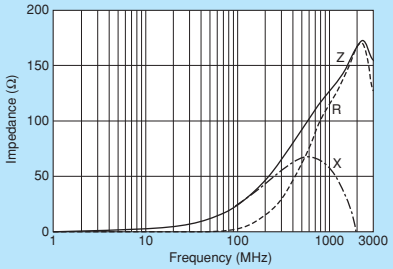
BLM03BD601SN1



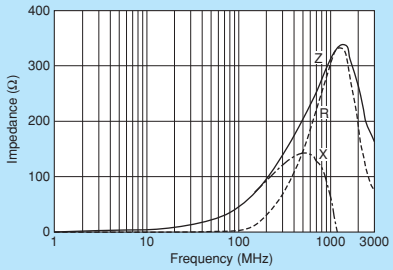
BLM03BB100SN1



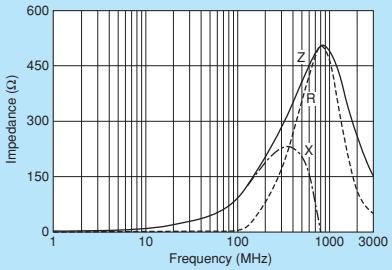
BLM03BB220SN1



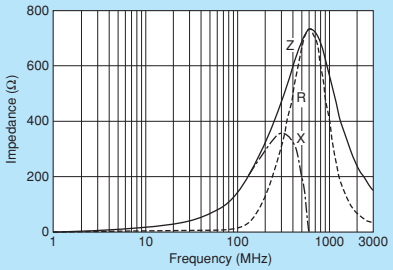
BLM03BB470SN1



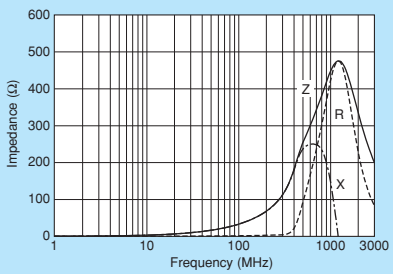
BLM03BB750SN1



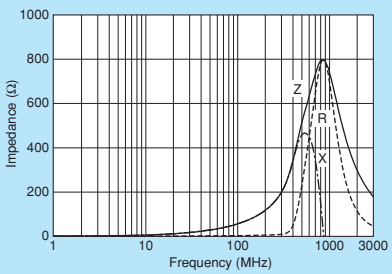
BLM03BB121SN1



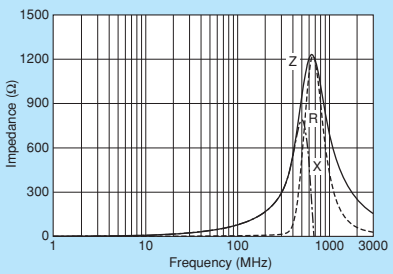
BLM03BC330SN1



BLM03BC560SN1



BLM03BC800SN1



⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

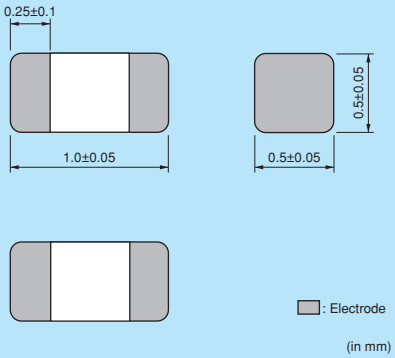
BLM15PG/BLM15PD Series (0402 Size)

Hi Power Reflow OK

0402 size for power lines.

*Please refer to the products which are designed for both power lines and signal lines.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

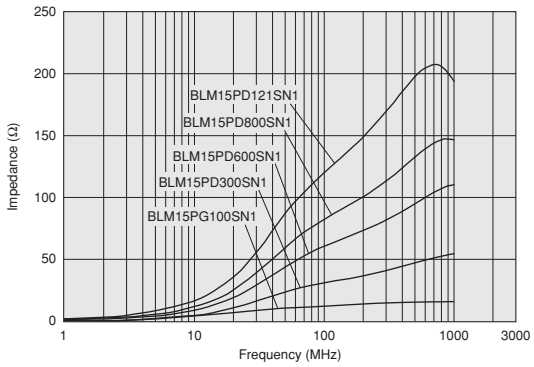
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15PG100SN1□	10ohm (Typ.)	1000mA	0.05ohm max.	-55°C to +125°C	Kit ≧1A
BLM15PD300SN1□	30ohm ±25%	2200mA	0.035ohm max.	-55°C to +125°C	Kit ≧1A
BLM15PD600SN1□	60ohm ±25%	1700mA	0.06ohm max.	-55°C to +125°C	Kit ≧1A
BLM15PD800SN1□	80ohm ±25%	1500mA	0.07ohm max.	-55°C to +125°C	Kit ≧1A
BLM15PD121SN1□	120ohm ±25%	1300mA	0.09ohm max.	-55°C to +125°C	Kit ≧1A

Number of Circuits: 1

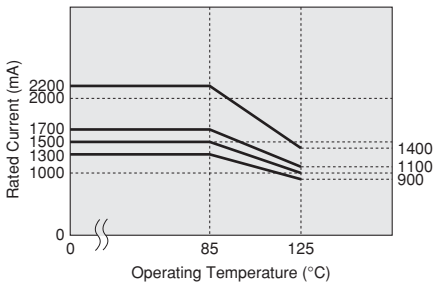
■ Impedance-Frequency Characteristics (Main Items)



■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM15PD series.
Please apply the derating curve shown in chart according to the operating temperature.

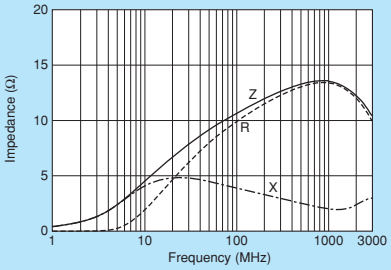
Derating of Rated Current



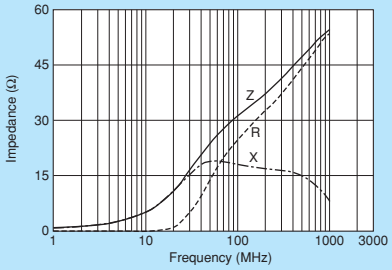
Continued on the following page.

■ Impedance-Frequency Characteristics

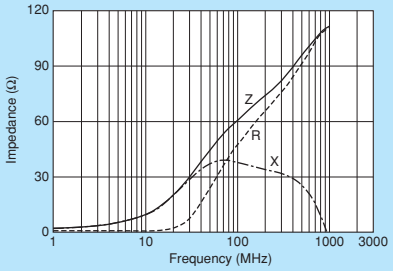
BLM15PG100SN1



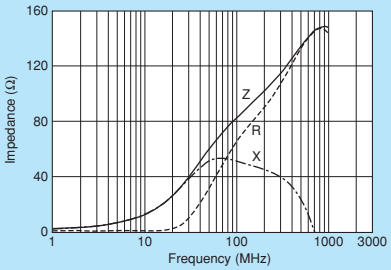
BLM15PD300SN1



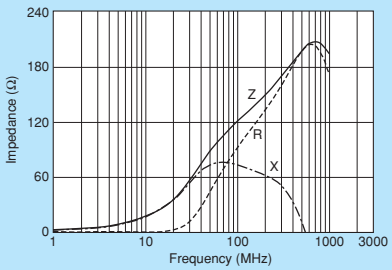
BLM15PD600SN1



BLM15PD800SN1



BLM15PD121SN1

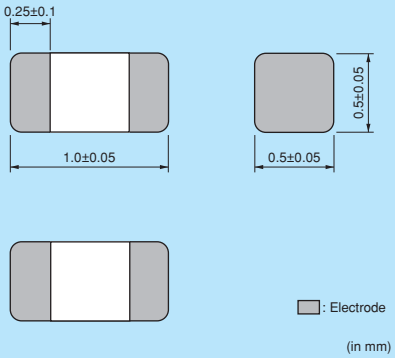


BLM15AX Series (0402 Size)

Hi Power Reflow OK

High Spec Ferrite Bead Ultra low dc resistance and wide impedance line up. Fit for both power lines and signal lines.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

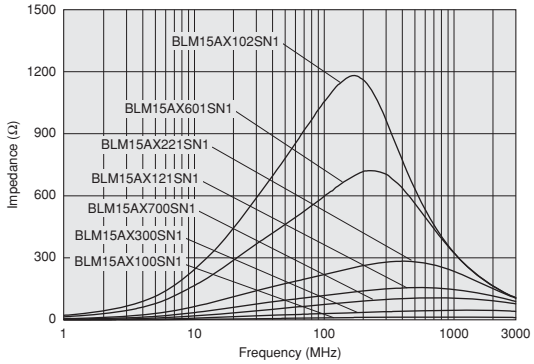
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15AX100SN1□	10ohm (Typ.)	1740mA	0.015ohm max.	-55°C to +125°C	Kit ≧1A
BLM15AX300SN1□	30ohm ±25%	1100mA	0.06ohm max.	-55°C to +125°C	Kit ≧1A
BLM15AX700SN1□	70ohm ±25%	780mA	0.1ohm max.	-55°C to +125°C	Kit
BLM15AX121SN1□	120ohm ±25%	680mA	0.13ohm max.	-55°C to +125°C	Kit
BLM15AX221SN1□	220ohm ±25%	580mA	0.18ohm max.	-55°C to +125°C	Kit
BLM15AX601SN1□	600ohm ±25%	420mA	0.34ohm max.	-55°C to +125°C	Kit
BLM15AX102SN1□	1000ohm ±25%	350mA	0.49ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

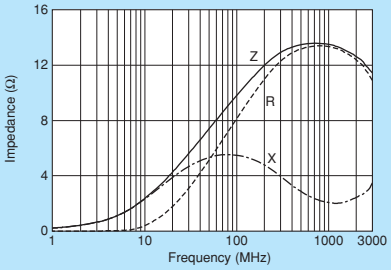
■ Impedance-Frequency Characteristics (Main Items)



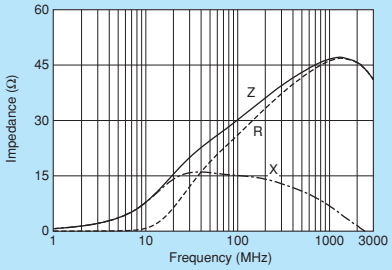
Continued on the following page.

■ Impedance-Frequency Characteristics

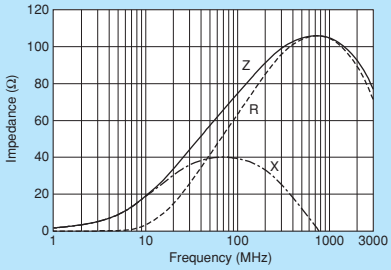
BLM15AX100SN1



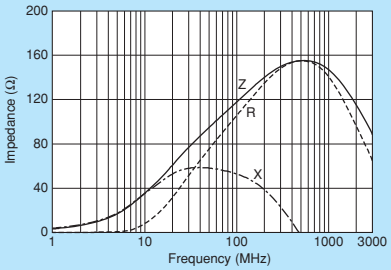
BLM15AX300SN1



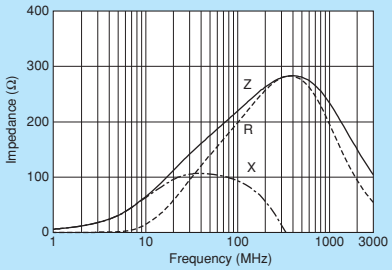
BLM15AX700SN1



BLM15AX121SN1



BLM15AX221SN1



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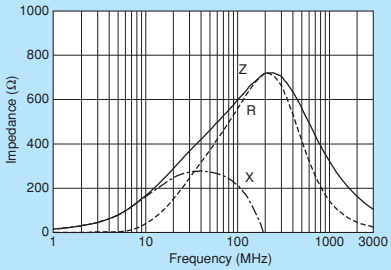
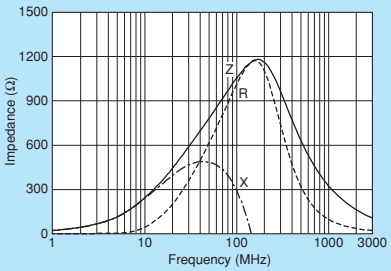


BLM15AX102SN1

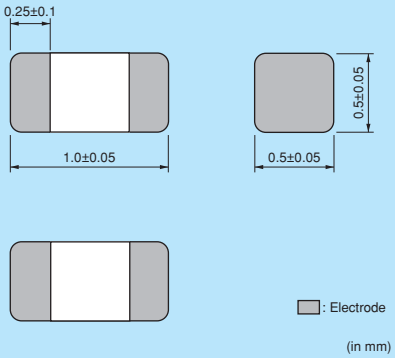


BLM15AG Series (0402 Size)

Reflow OK

0402 size for general signal lines.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

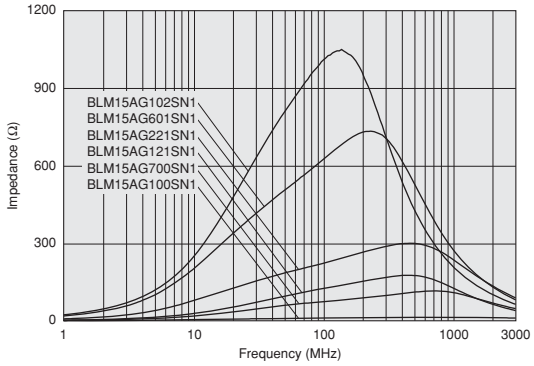
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15AG100SN1□	10ohm (Typ.)	1000mA	0.05ohm max.	-55°C to +125°C	Kit ≧1A
BLM15AG700SN1□	70ohm (Typ.)	500mA	0.15ohm max.	-55°C to +125°C	Kit
BLM15AG121SN1□	120ohm ±25%	500mA	0.25ohm max.	-55°C to +125°C	Kit
BLM15AG221SN1□	220ohm ±25%	300mA	0.35ohm max.	-55°C to +125°C	Kit
BLM15AG601SN1□	600ohm ±25%	300mA	0.6ohm max.	-55°C to +125°C	Kit
BLM15AG102SN1□	1000ohm ±25%	200mA	1.0ohm max.	-55°C to +125°C	Kit

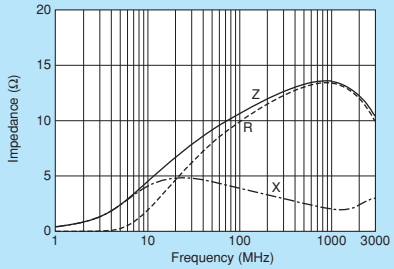
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

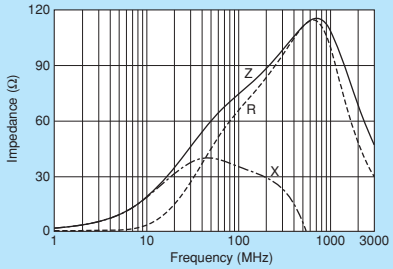


■ Impedance-Frequency Characteristics

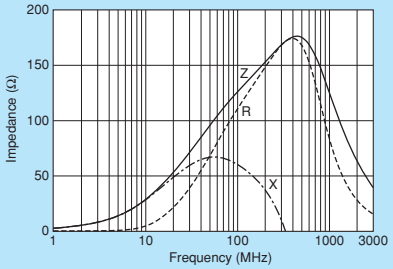
BLM15AG100SN1



BLM15AG700SN1



BLM15AG121SN1

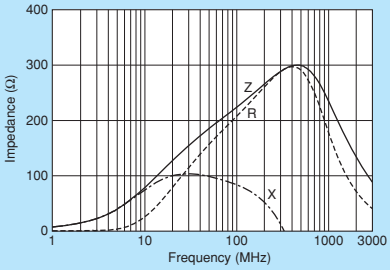


Continued on the following page.

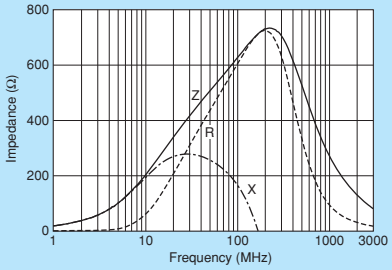
⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

■ Impedance-Frequency Characteristics

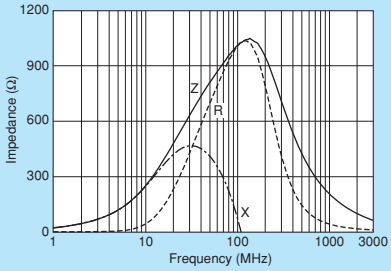
BLM15AG221SN1



BLM15AG601SN1



BLM15AG102SN1

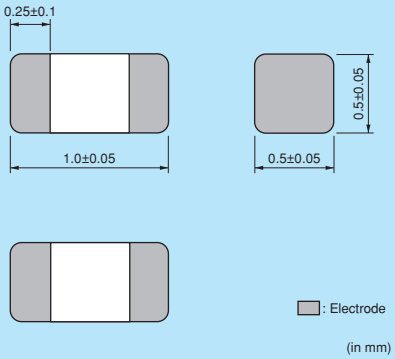


BLM15B Series (0402 Size)

Reflow OK

0402 size for high speed signal lines.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

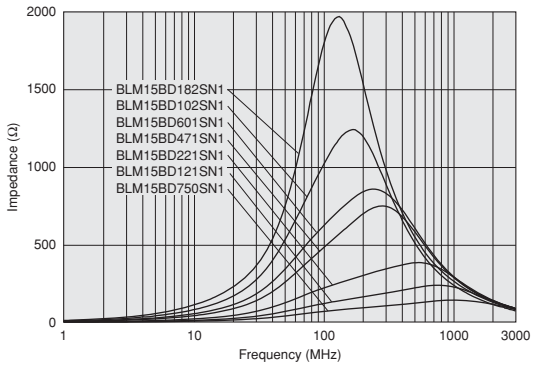
Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15BD750SN1□	75ohm ±25%	300mA	0.20ohm max.	-55°C to +125°C	Kit
BLM15BD121SN1□	120ohm ±25%	300mA	0.30ohm max.	-55°C to +125°C	Kit
BLM15BD221SN1□	220ohm ±25%	300mA	0.40ohm max.	-55°C to +125°C	Kit
BLM15BD471SN1□	470ohm ±25%	200mA	0.60ohm max.	-55°C to +125°C	Kit
BLM15BD601SN1□	600ohm ±25%	200mA	0.65ohm max.	-55°C to +125°C	Kit
BLM15BD102SN1□	1000ohm ±25%	200mA	0.90ohm max.	-55°C to +125°C	Kit
BLM15BD182SN1□	1800ohm ±25%	100mA	1.40ohm max.	-55°C to +125°C	Kit
BLM15BB050SN1□	5ohm ±25%	500mA	0.08ohm max.	-55°C to +125°C	Kit
BLM15BB100SN1□	10ohm ±25%	300mA	0.10ohm max.	-55°C to +125°C	Kit
BLM15BB220SN1□	22ohm ±25%	300mA	0.20ohm max.	-55°C to +125°C	Kit
BLM15BB470SN1□	47ohm ±25%	300mA	0.35ohm max.	-55°C to +125°C	Kit
BLM15BB750SN1□	75ohm ±25%	300mA	0.40ohm max.	-55°C to +125°C	Kit
BLM15BB121SN1□	120ohm ±25%	300mA	0.55ohm max.	-55°C to +125°C	Kit
BLM15BB221SN1□	220ohm ±25%	200mA	0.80ohm max.	-55°C to +125°C	Kit
BLM15BC121SN1□	120ohm ±25%	350mA	0.45ohm max.	-55°C to +125°C	Kit
BLM15BC241SN1□	240ohm ±25%	250mA	0.70ohm max.	-55°C to +125°C	Kit
BLM15BA050SN1□	5ohm ±25%	300mA	0.10ohm max.	-55°C to +125°C	Kit
BLM15BA100SN1□	10ohm ±25%	300mA	0.20ohm max.	-55°C to +125°C	Kit
BLM15BA220SN1□	22ohm ±25%	300mA	0.30ohm max.	-55°C to +125°C	Kit
BLM15BA330SN1□	33ohm ±25%	300mA	0.40ohm max.	-55°C to +125°C	Kit
BLM15BA470SN1□	47ohm ±25%	200mA	0.60ohm max.	-55°C to +125°C	Kit
BLM15BA750SN1□	75ohm ±25%	200mA	0.80ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

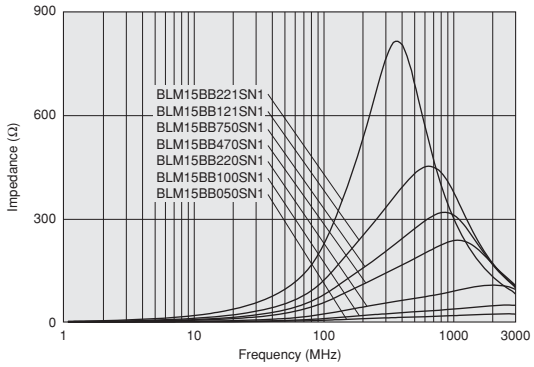
Continued on the following page.

■ Impedance-Frequency Characteristics (Main Items)

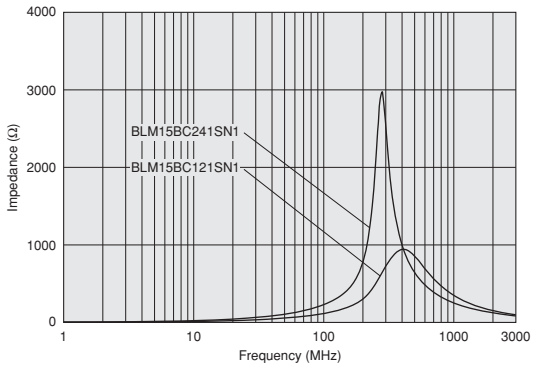
BLM15BD Series



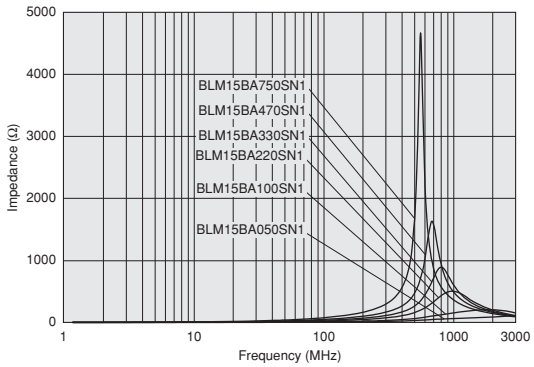
BLM15BB Series



BLM15BC Series



BLM15BA Series



■ Impedance-Frequency Characteristics

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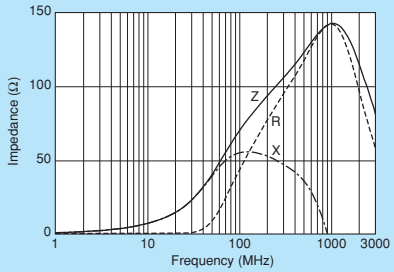
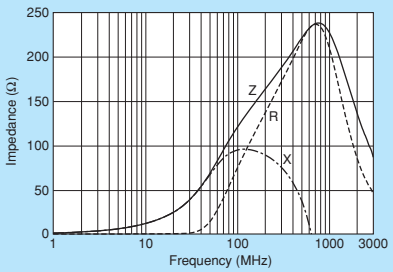
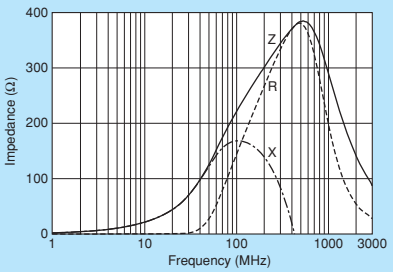


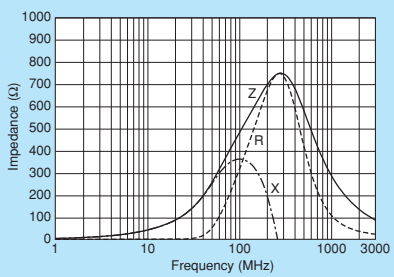
BLM15BD121SN1



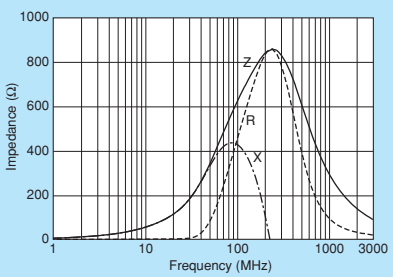
BLM15BD221SN1



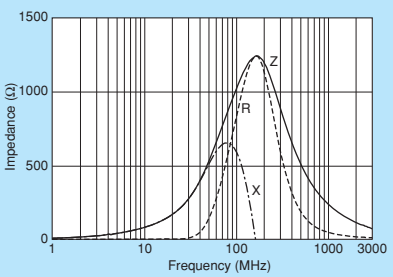
BLM15BD471SN1



BLM15BD601SN1



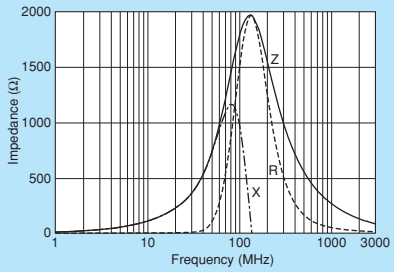
BLM15BD102SN1



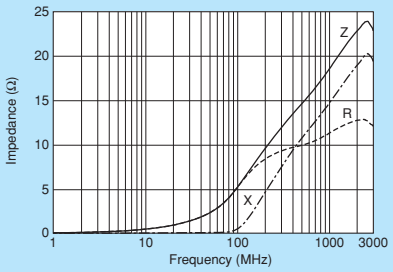
Continued on the following page.

■ Impedance-Frequency Characteristics

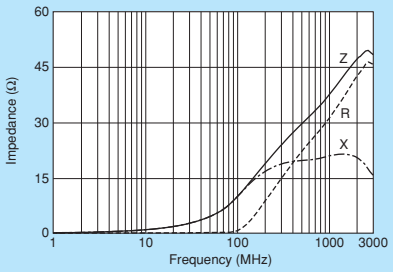
BLM15BD182SN1



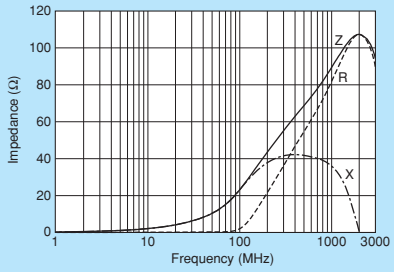
BLM15BB050SN1



BLM15BB100SN1



BLM15BB220SN1



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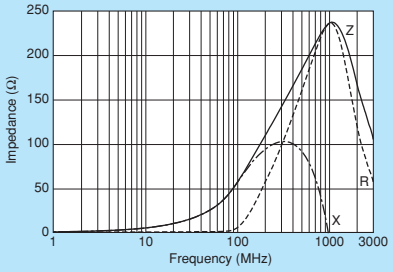

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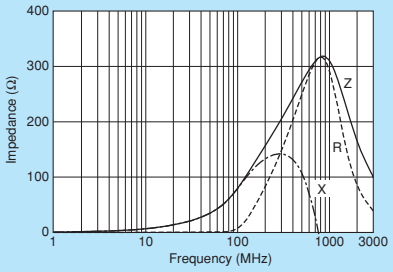
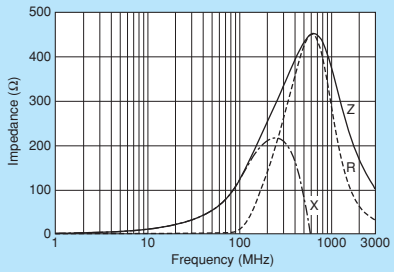


BLM15BB121SN1



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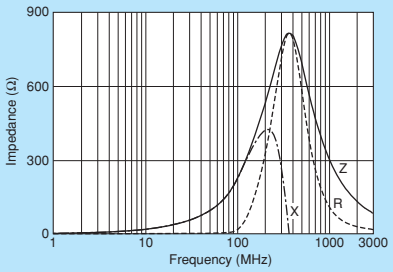
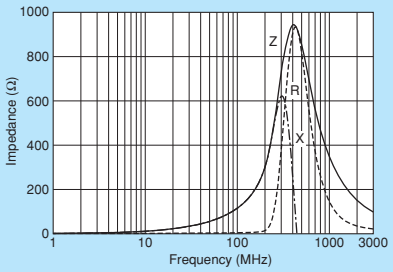
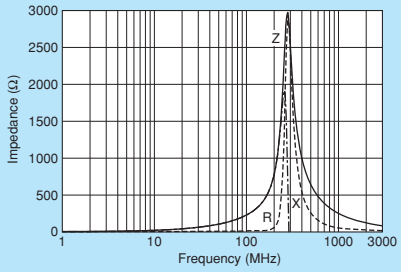


BLM15BC121SN1



BLM15BC241SN1



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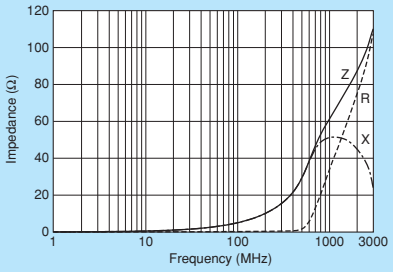
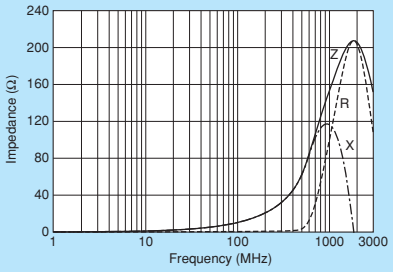
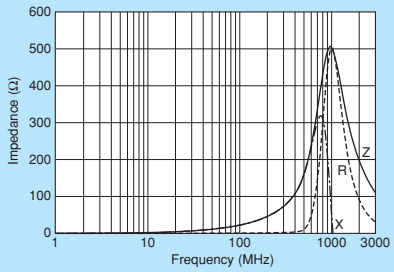


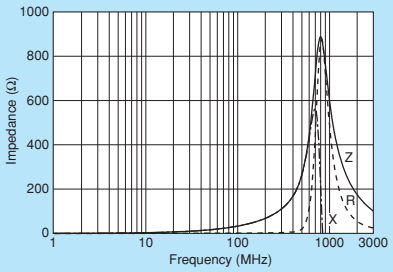
BLM15BA100SN1



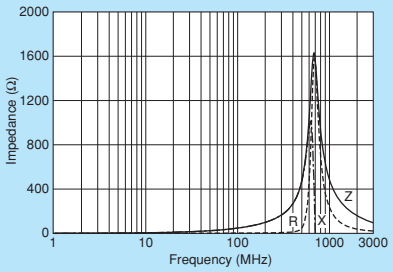
BLM15BA220SN1



BLM15BA330SN1



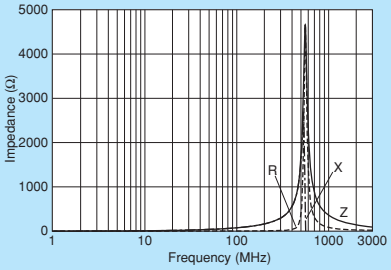
BLM15BA470SN1



Continued on the following page.

■ Impedance-Frequency Characteristics

BLM15BA750SN1



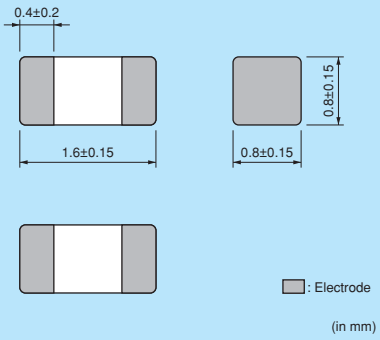
BLM18P Series (0603 Size)

Hi Power Flow OK Reflow OK

0603 size for power lines.

*Please refer to the products which are designed for both power lines and signal lines.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

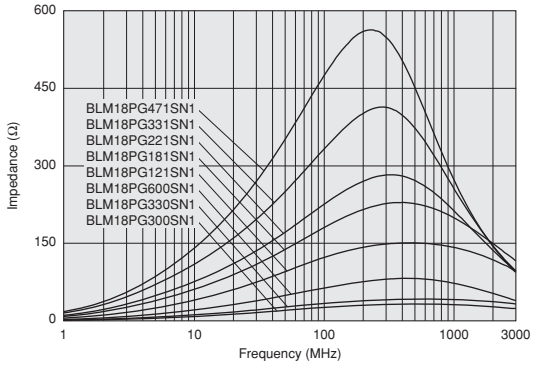
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18PG300SN1□	30ohm (Typ.)	1000mA	0.05ohm max.	-55°C to +125°C	Kit ≧1A
BLM18PG330SN1□	33ohm ±25%	3000mA	0.025ohm max.	-55°C to +125°C	Kit ≧3A
BLM18PG600SN1□	60ohm (Typ.)	500mA	0.10ohm max.	-55°C to +125°C	Kit
BLM18PG121SN1□	120ohm ±25%	2000mA	0.05ohm max.	-55°C to +125°C	Kit ≧1A
BLM18PG181SN1□	180ohm ±25%	1500mA	0.09ohm max.	-55°C to +125°C	Kit ≧1A
BLM18PG221SN1□	220ohm ±25%	1400mA	0.10ohm max.	-55°C to +125°C	Kit ≧1A
BLM18PG331SN1□	330ohm ±25%	1200mA	0.15ohm max.	-55°C to +125°C	Kit ≧1A
BLM18PG471SN1□	470ohm ±25%	1000mA	0.20ohm max.	-55°C to +125°C	Kit ≧1A

Number of Circuits: 1

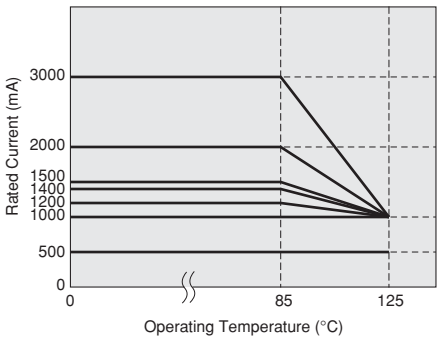
■ Impedance-Frequency Characteristics (Main Items)



■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM18PG series.
Please apply the derating curve shown in chart according to the operating temperature.

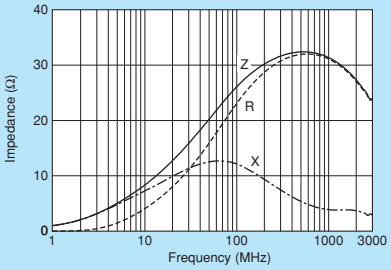
Derating of Rated Current



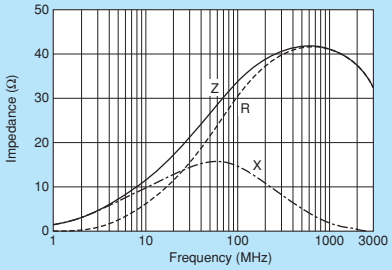
Continued on the following page.

■ Impedance-Frequency Characteristics

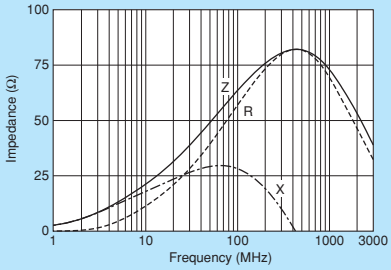
BLM18PG300SN1



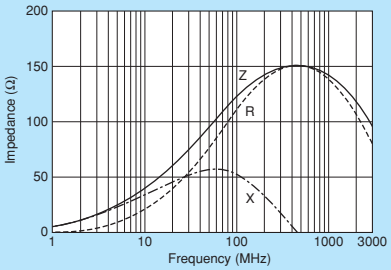
BLM18PG330SN1



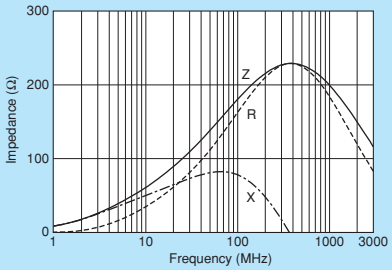
BLM18PG600SN1



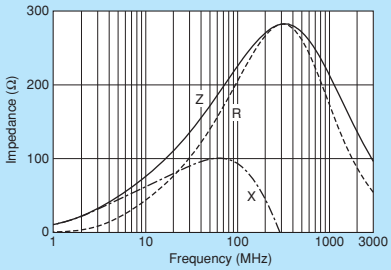
BLM18PG121SN1



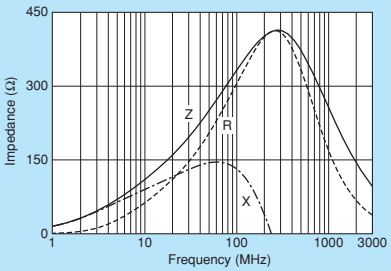
BLM18PG181SN1



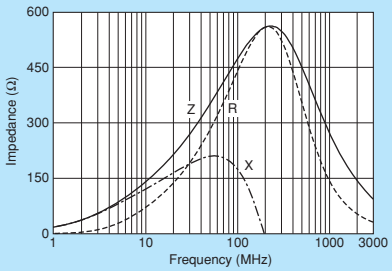
BLM18PG221SN1



BLM18PG331SN1



BLM18PG471SN1



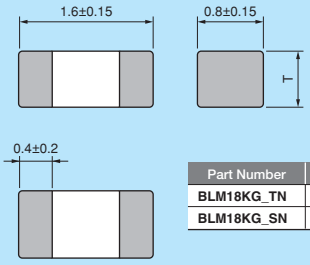
BLM18K Series (0603 Size)

Hi Power | Flow OK | Reflow OK

6A Max, high performance type for power lines up to 600ohm.

*Please refer to the products which are designed for both power lines and signal lines.

■ Dimensions



Part Number	T
BLM18KG_TN	0.6±0.15
BLM18KG_SN	0.8±0.15

: Electrode

(in mm)

■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

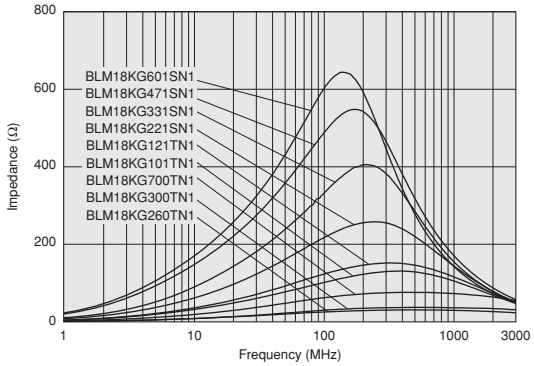
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18KG260TN1□	26ohm ±25%	6000mA	0.007ohm max.	-55°C to +125°C	Kit ≧3A
BLM18KG300TN1□	30ohm ±25%	5000mA	0.010ohm max.	-55°C to +125°C	Kit ≧3A
BLM18KG700TN1□	70ohm ±25%	3500mA	0.022ohm max.	-55°C to +125°C	Kit ≧3A
BLM18KG101TN1□	100ohm ±25%	3000mA	0.030ohm max.	-55°C to +125°C	Kit ≧3A
BLM18KG121TN1□	120ohm ±25%	3000mA	0.030ohm max.	-55°C to +125°C	Kit ≧3A
BLM18KG221SN1□	220ohm ±25%	2200mA	0.050ohm max.	-55°C to +125°C	Kit ≧1A
BLM18KG331SN1□	330ohm ±25%	1700mA	0.080ohm max.	-55°C to +125°C	Kit ≧1A
BLM18KG471SN1□	470ohm ±25%	1500mA	0.130ohm max.	-55°C to +125°C	Kit ≧1A
BLM18KG601SN1□	600ohm ±25%	1300mA	0.150ohm max.	-55°C to +125°C	Kit ≧1A

Number of Circuits: 1

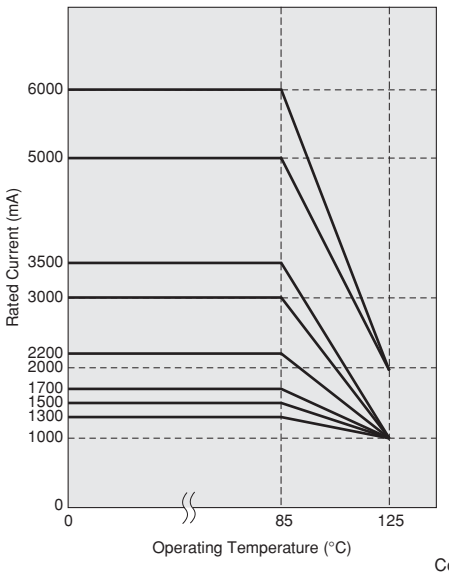
■ Impedance-Frequency Characteristics (Main Items)



■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM18KG series.
Please apply the derating curve shown in chart according to the operating temperature.

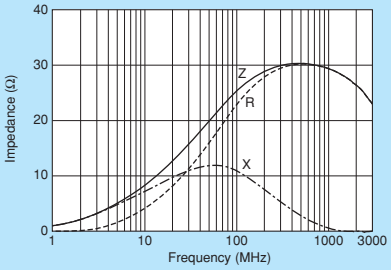
Derating of Rated Current



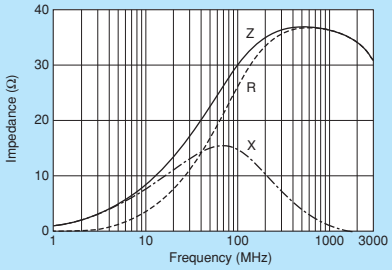
Continued on the following page.

■ Impedance-Frequency Characteristics

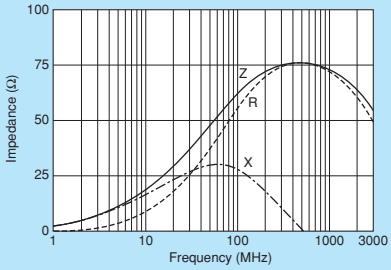
BLM18KG260TN1



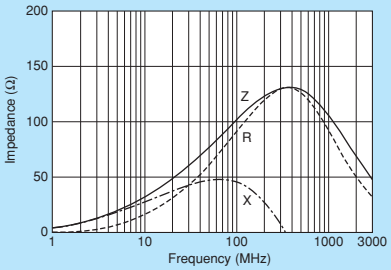
BLM18KG300TN1



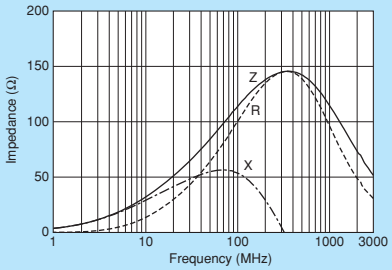
BLM18KG700TN1



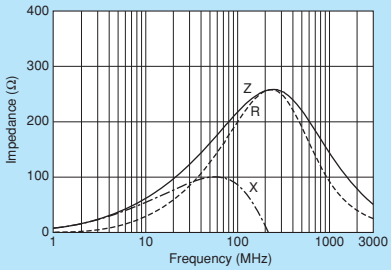
BLM18KG101TN1



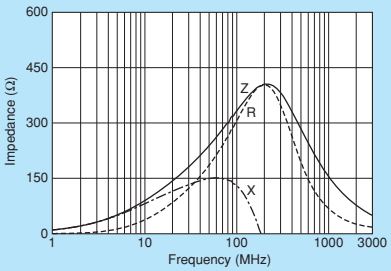
BLM18KG121TN1



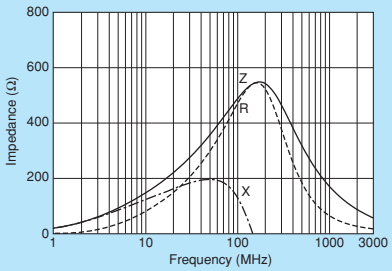
BLM18KG221SN1



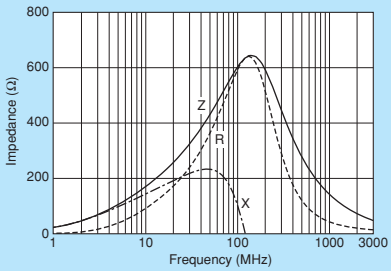
BLM18KG331SN1



BLM18KG471SN1



BLM18KG601SN1

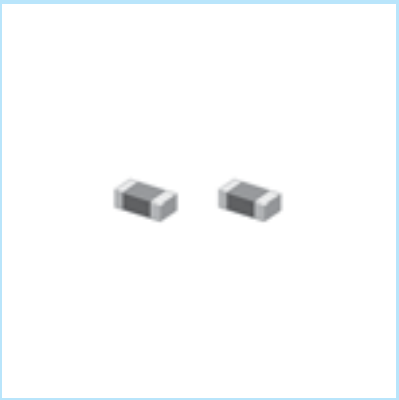


BLM18S Series (0603 Size)

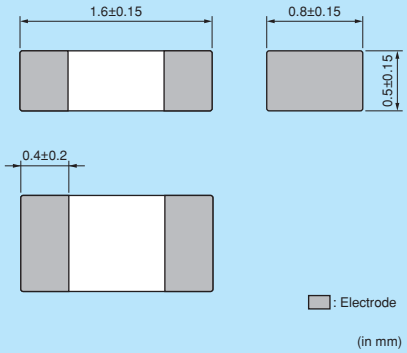
Hi Power Flow OK Reflow OK

6A Max, high performance type for power lines.

*Please refer to the products which are designed for both power lines and signal lines.



■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	30000
B	Bulk(Bag)	1000

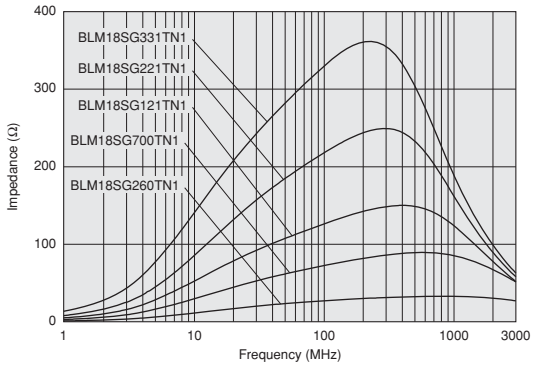
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18SG260TN1□	26ohm ±25%	6000mA	0.007ohm max.	-55°C to +125°C	Kit ≧3A
BLM18SG700TN1□	70ohm ±25%	4000mA	0.020ohm max.	-55°C to +125°C	Kit ≧3A
BLM18SG121TN1□	120ohm ±25%	3000mA	0.025ohm max.	-55°C to +125°C	Kit ≧3A
BLM18SG221TN1□	220ohm ±25%	2500mA	0.040ohm max.	-55°C to +125°C	Kit ≧1A
BLM18SG331TN1□	330ohm ±25%	1500mA	0.070ohm max.	-55°C to +125°C	Kit ≧1A

Number of Circuits: 1

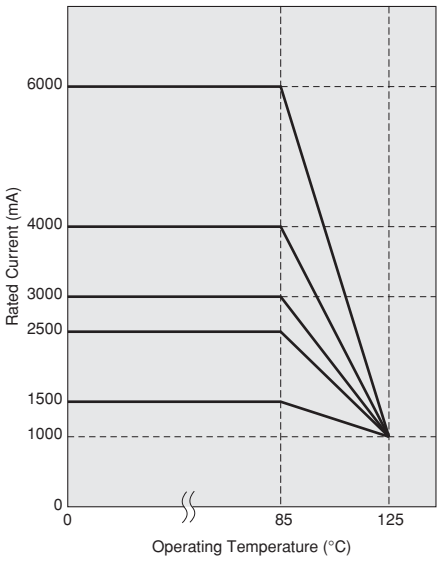
■ Impedance-Frequency Characteristics (Main Items)



■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM18SG series.
Please apply the derating curve shown in chart according to the operating temperature.

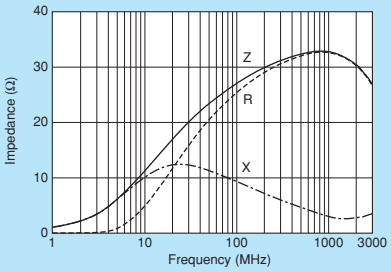
Derating of Rated Current



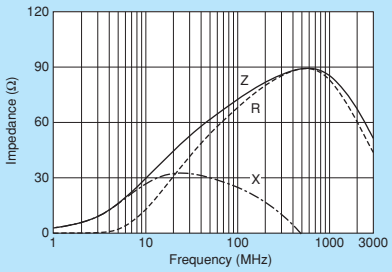
Continued on the following page.

■ Impedance-Frequency Characteristics

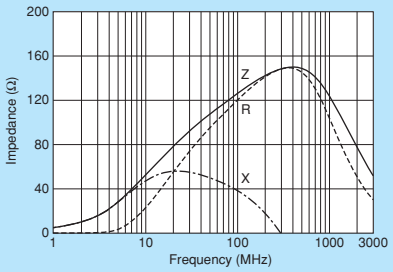
BLM18SG260TN1



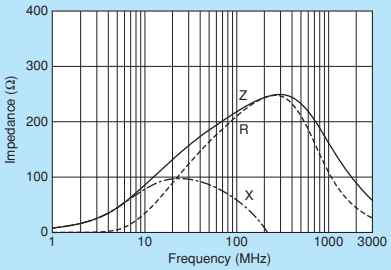
BLM18SG700TN1



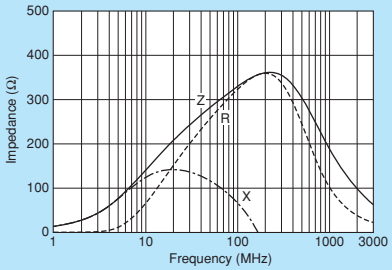
BLM18SG121TN1



BLM18SG221TN1



BLM18SG331TN1



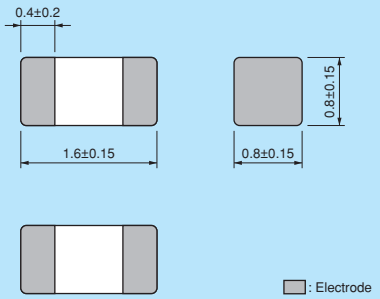
BLM18A Series (0603 Size)

Flow OK Reflow OK

0603 size for general signal lines.

*Please refer to BLM15A for downsizing.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

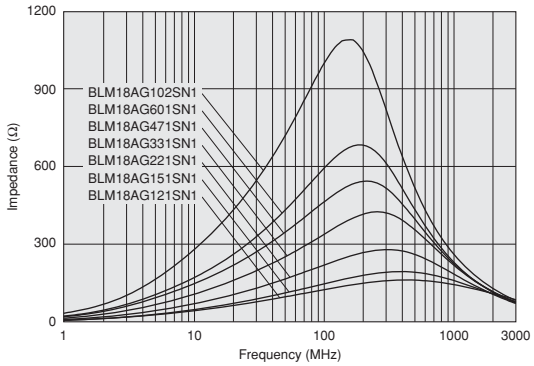
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18AG121SN1□	120ohm ±25%	500mA	0.18ohm max.	-55°C to +125°C	Kit
BLM18AG151SN1□	150ohm ±25%	500mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18AG221SN1□	220ohm ±25%	500mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18AG331SN1□	330ohm ±25%	500mA	0.30ohm max.	-55°C to +125°C	Kit
BLM18AG471SN1□	470ohm ±25%	500mA	0.35ohm max.	-55°C to +125°C	Kit
BLM18AG601SN1□	600ohm ±25%	500mA	0.38ohm max.	-55°C to +125°C	Kit
BLM18AG102SN1□	1000ohm ±25%	400mA	0.50ohm max.	-55°C to +125°C	Kit

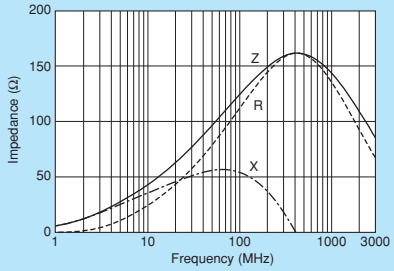
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

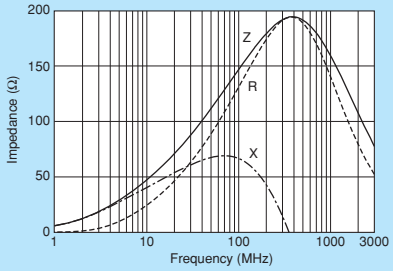


■ Impedance-Frequency Characteristics

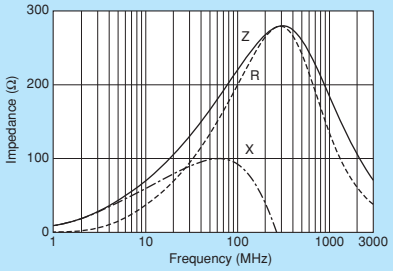
BLM18AG121SN1



BLM18AG151SN1



BLM18AG221SN1

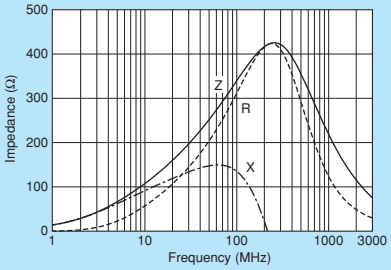


Continued on the following page.

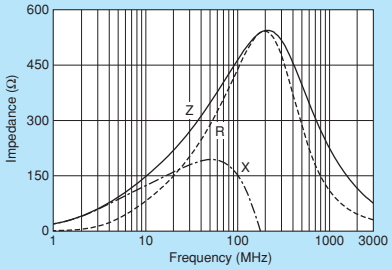
⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

■ Impedance-Frequency Characteristics

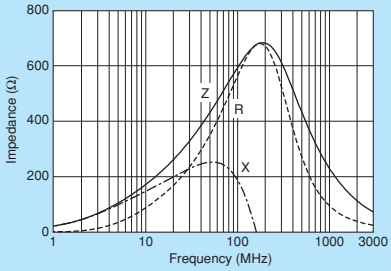
BLM18AG331SN1



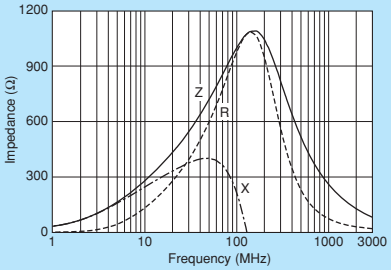
BLM18AG471SN1



BLM18AG601SN1



BLM18AG102SN1



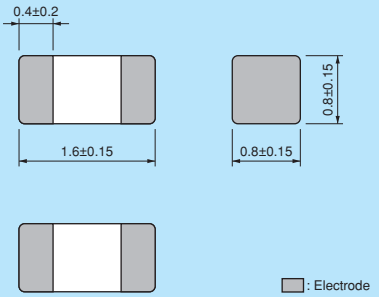
BLM18B Series (0603 Size)

Flow OK Reflow OK

0603 size for high speed signal lines.

*Please refer to BLM15B for downsizing.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

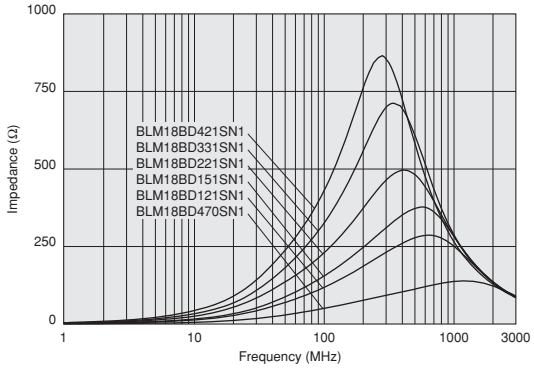
Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18BD470SN1□	47ohm ±25%	500mA	0.30ohm max.	-55°C to +125°C	Kit
BLM18BD121SN1□	120ohm ±25%	200mA	0.40ohm max.	-55°C to +125°C	Kit
BLM18BD151SN1□	150ohm ±25%	200mA	0.40ohm max.	-55°C to +125°C	Kit
BLM18BD221SN1□	220ohm ±25%	200mA	0.45ohm max.	-55°C to +125°C	Kit
BLM18BD331SN1□	330ohm ±25%	200mA	0.50ohm max.	-55°C to +125°C	Kit
BLM18BD421SN1□	420ohm ±25%	200mA	0.55ohm max.	-55°C to +125°C	Kit
BLM18BD471SN1□	470ohm ±25%	200mA	0.55ohm max.	-55°C to +125°C	Kit
BLM18BD601SN1□	600ohm ±25%	200mA	0.65ohm max.	-55°C to +125°C	Kit
BLM18BD102SN1□	1000ohm ±25%	100mA	0.85ohm max.	-55°C to +125°C	Kit
BLM18BD152SN1□	1500ohm ±25%	50mA	1.20ohm max.	-55°C to +125°C	Kit
BLM18BD182SN1□	1800ohm ±25%	50mA	1.50ohm max.	-55°C to +125°C	Kit
BLM18BD222SN1□	2200ohm ±25%	50mA	1.50ohm max.	-55°C to +125°C	Kit
BLM18BD252SN1□	2500ohm ±25%	50mA	1.50ohm max.	-55°C to +125°C	Kit
BLM18BB050SN1□	5ohm ±25%	700mA	0.05ohm max.	-55°C to +125°C	Kit
BLM18BB100SN1□	10ohm ±25%	700mA	0.10ohm max.	-55°C to +125°C	Kit
BLM18BB220SN1□	22ohm ±25%	600mA	0.20ohm max.	-55°C to +125°C	Kit
BLM18BB470SN1□	47ohm ±25%	550mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18BB600SN1□	60ohm ±25%	550mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18BB750SN1□	75ohm ±25%	500mA	0.30ohm max.	-55°C to +125°C	Kit
BLM18BB121SN1□	120ohm ±25%	500mA	0.30ohm max.	-55°C to +125°C	Kit
BLM18BB141SN1□	140ohm ±25%	450mA	0.35ohm max.	-55°C to +125°C	
BLM18BB151SN1□	150ohm ±25%	450mA	0.37ohm max.	-55°C to +125°C	Kit
BLM18BB221SN1□	220ohm ±25%	450mA	0.45ohm max.	-55°C to +125°C	Kit
BLM18BB331SN1□	330ohm ±25%	400mA	0.58ohm max.	-55°C to +125°C	Kit
BLM18BB471SN1□	470ohm ±25%	300mA	0.85ohm max.	-55°C to +125°C	Kit
BLM18BA050SN1□	5ohm ±25%	500mA	0.20ohm max.	-55°C to +125°C	Kit
BLM18BA100SN1□	10ohm ±25%	500mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18BA220SN1□	22ohm ±25%	500mA	0.35ohm max.	-55°C to +125°C	
BLM18BA470SN1□	47ohm ±25%	300mA	0.55ohm max.	-55°C to +125°C	Kit
BLM18BA750SN1□	75ohm ±25%	300mA	0.70ohm max.	-55°C to +125°C	Kit
BLM18BA121SN1□	120ohm ±25%	200mA	0.90ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

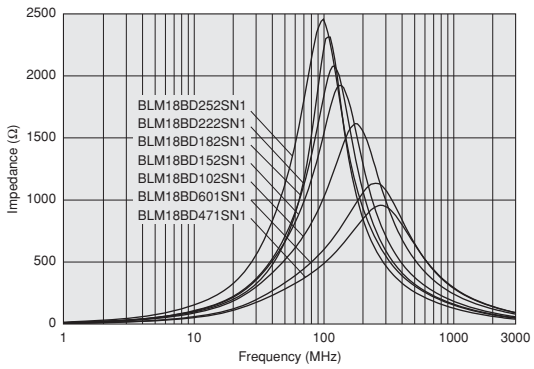
Continued on the following page.

■ Impedance-Frequency Characteristics (Main Items)

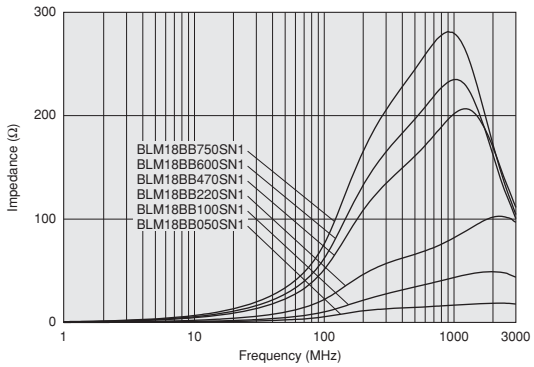
BLM18BD Series (47ohm to 420ohm)



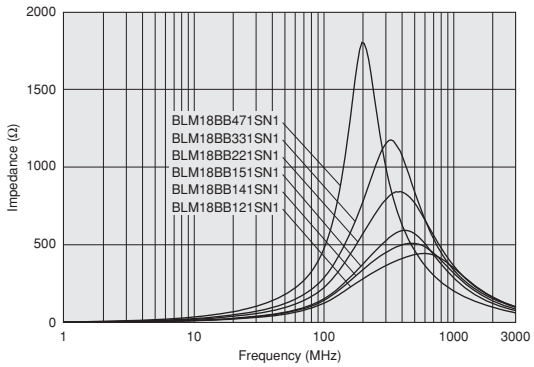
BLM18BD Series (470ohm to 2500ohm)



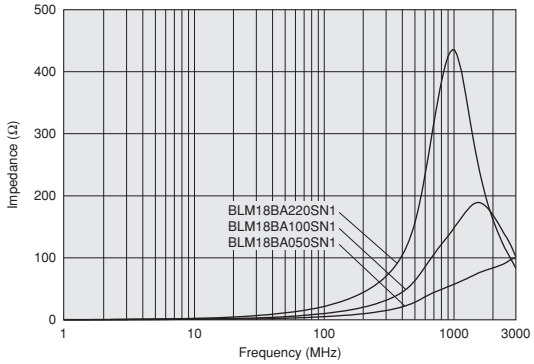
BLM18BB Series (5ohm to 75ohm)



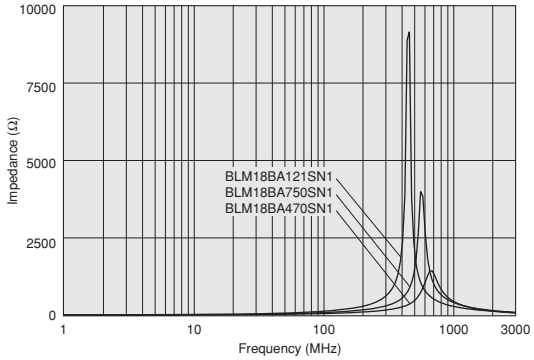
BLM18BB Series (120ohm to 470ohm)



BLM18BA Series (5ohm to 220ohm)

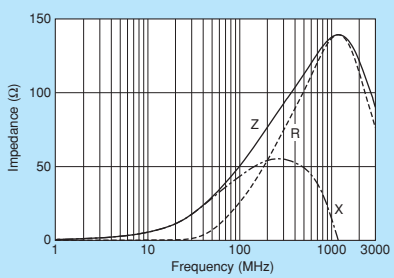


BLM18BA Series (47ohm to 120ohm)

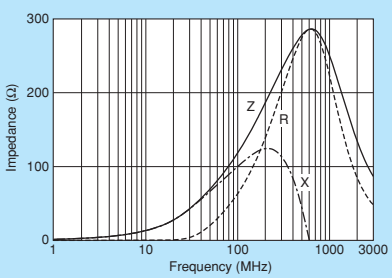


■ Impedance-Frequency Characteristics

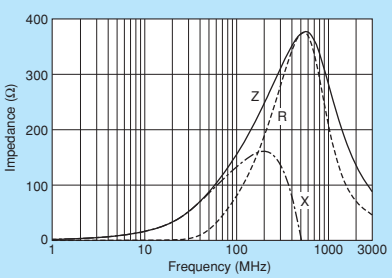
BLM18BD470SN1



BLM18BD121SN1



BLM18BD151SN1

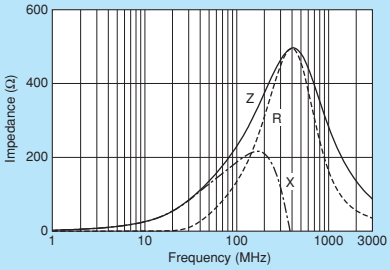


Continued on the following page.

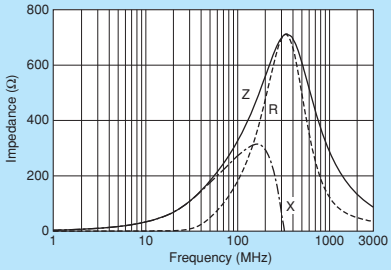
⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

■ Impedance-Frequency Characteristics

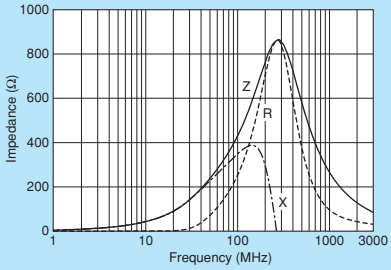
BLM18BD221SN1



BLM18BD331SN1



BLM18BD421SN1



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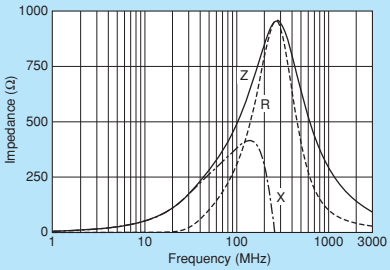

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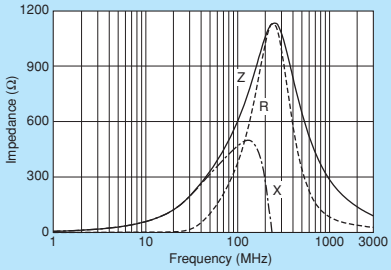
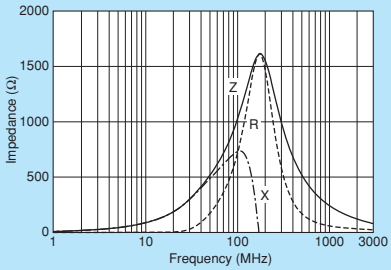
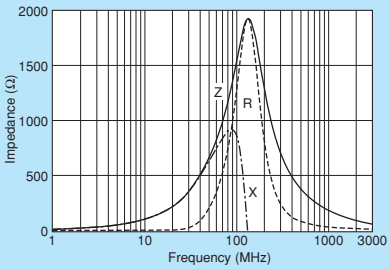


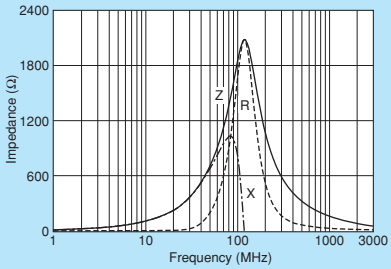
BLM18BD102SN1



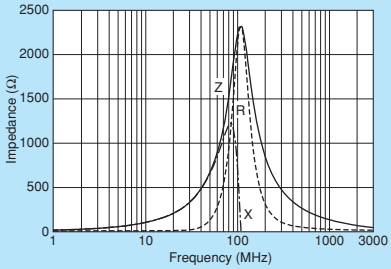
BLM18BD152SN1



BLM18BD182SN1



BLM18BD222SN1



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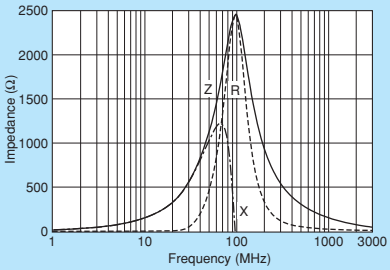
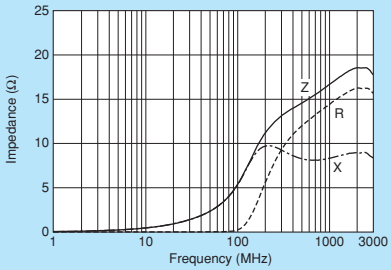


BLM18BB050SN1



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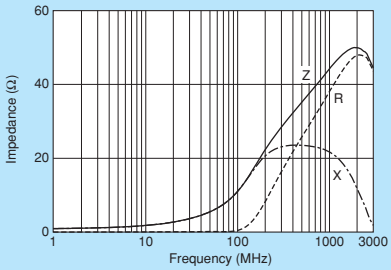

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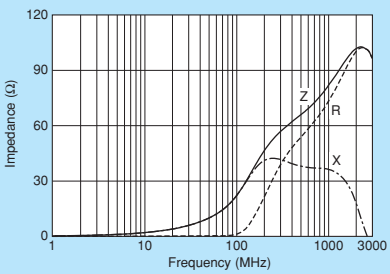

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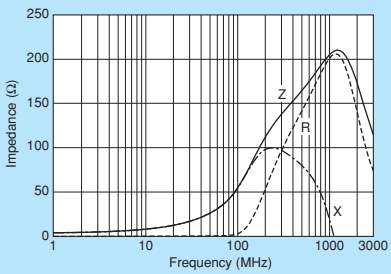

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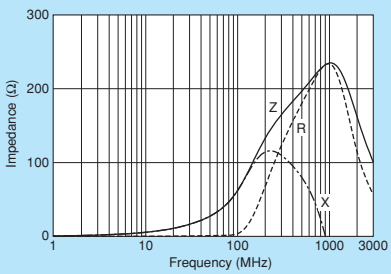

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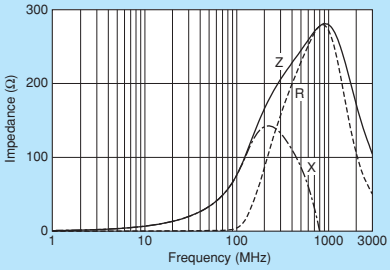
■ Impedance-Frequency Characteristics

BLM18BB750SN1



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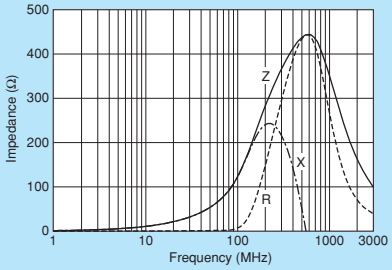
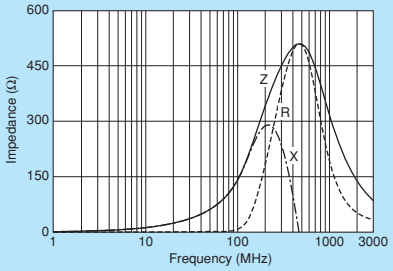
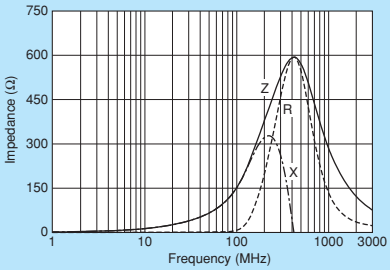


BLM18BB141SN1



BLM18BB151SN1



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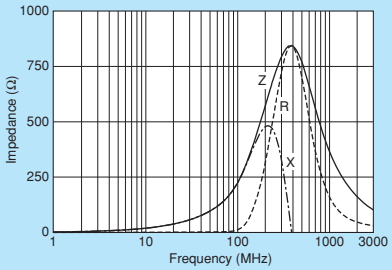

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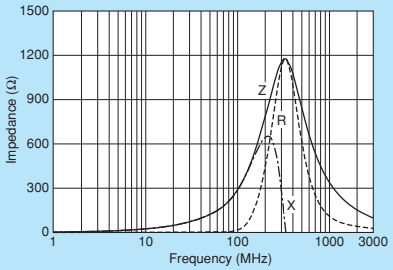
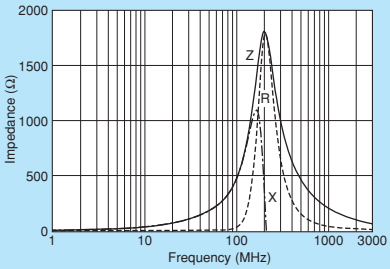
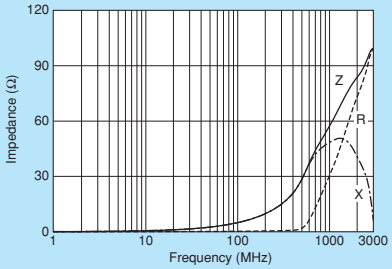


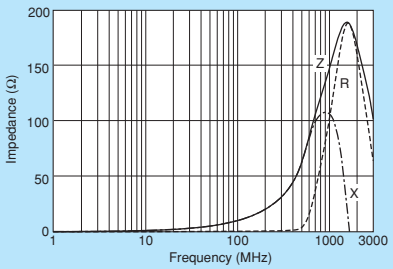
BLM18BB471SN1



BLM18BA050SN1



BLM18BA100SN1



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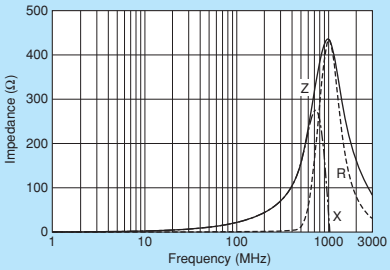

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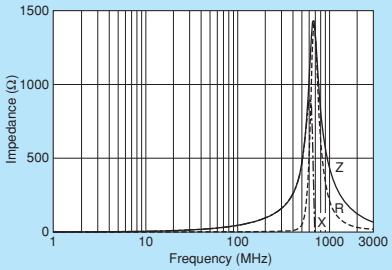

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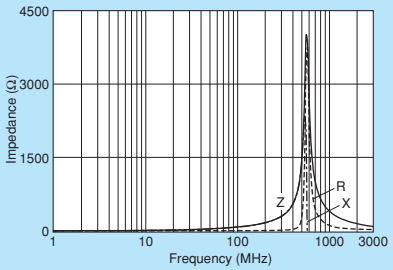

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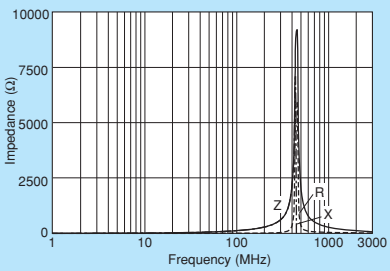
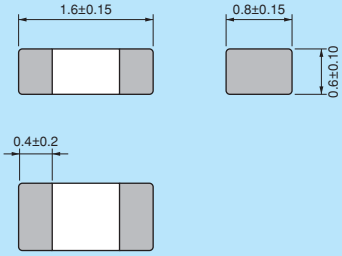


BLM18T Series (0603 Size)

Flow OK Reflow OK

Thin 0603 size for general signal lines.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

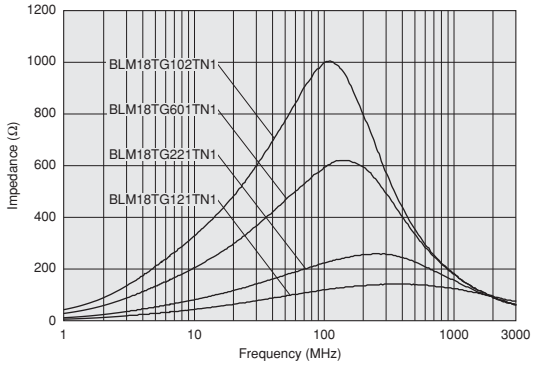
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range
BLM18TG121TN1□	120ohm ±25%	200mA	0.25ohm max.	-55°C to +125°C
BLM18TG221TN1□	220ohm ±25%	200mA	0.30ohm max.	-55°C to +125°C
BLM18TG601TN1□	600ohm ±25%	200mA	0.45ohm max.	-55°C to +125°C
BLM18TG102TN1□	1000ohm ±25%	100mA	0.60ohm max.	-55°C to +125°C

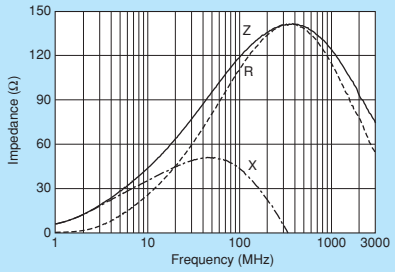
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

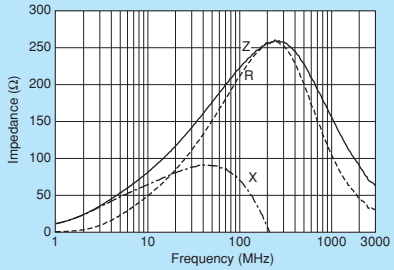


■ Impedance-Frequency Characteristics

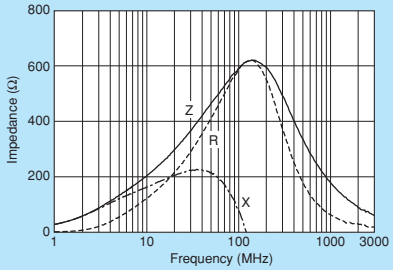
BLM18TG121TN1



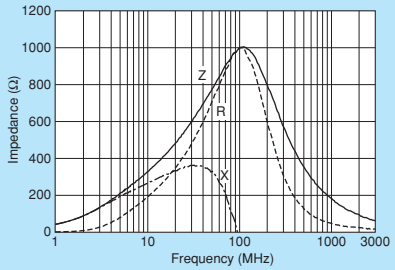
BLM18TG221TN1



BLM18TG601TN1



BLM18TG102TN1

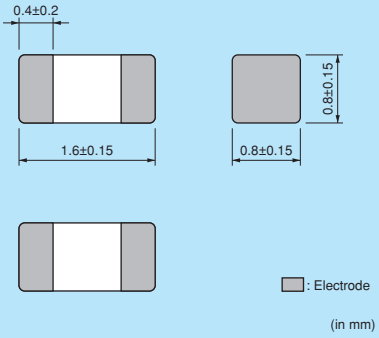


BLM18R Series (0603 Size)

Flow OK Reflow OK

For digital I/F. Reduce the distortion of waveform created by resonance.

Dimensions



Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

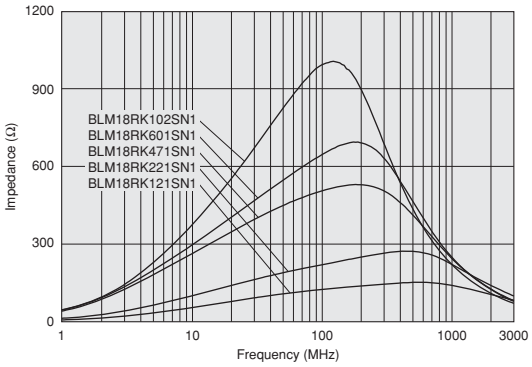
Refer to pages from p.91 to p.94 for mounting information.

Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18RK121SN1□	120ohm ±25%	200mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18RK221SN1□	220ohm ±25%	200mA	0.30ohm max.	-55°C to +125°C	
BLM18RK471SN1□	470ohm ±25%	200mA	0.50ohm max.	-55°C to +125°C	Kit
BLM18RK601SN1□	600ohm ±25%	200mA	0.60ohm max.	-55°C to +125°C	Kit
BLM18RK102SN1□	1000ohm ±25%	200mA	0.80ohm max.	-55°C to +125°C	Kit

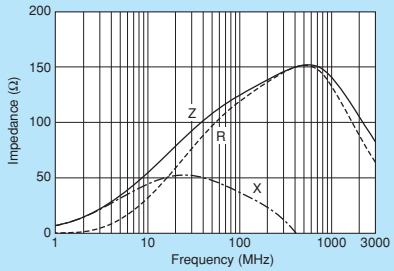
Number of Circuits: 1

Impedance-Frequency Characteristics (Main Items)

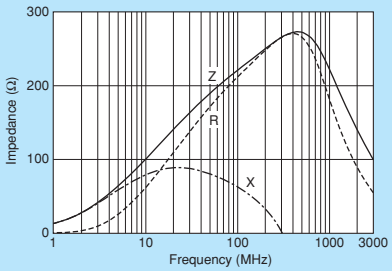


Impedance-Frequency Characteristics

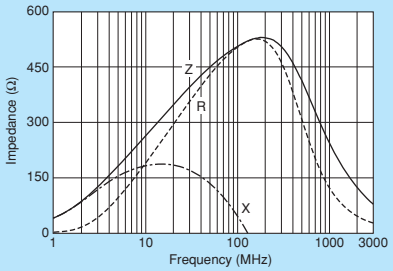
BLM18RK121SN1



BLM18RK221SN1



BLM18RK471SN1

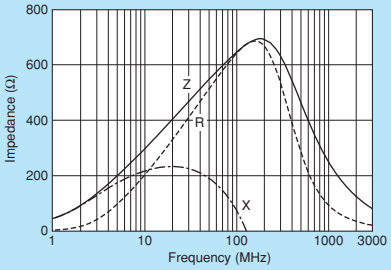


Continued on the following page.

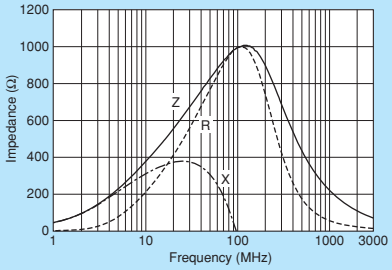
⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

■ Impedance-Frequency Characteristics

BLM18RK601SN1

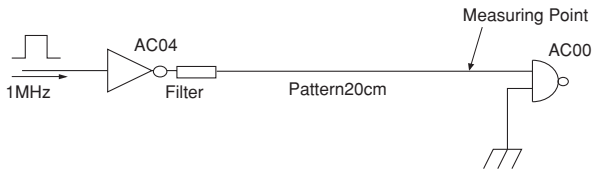


BLM18RK102SN1



Waveform Distortion Suppressing Performance of BLM□□R Series

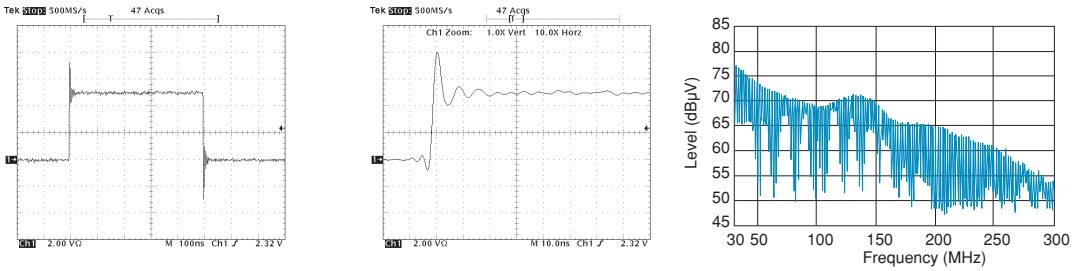
Measuring Circuits



Type of Filter	EMI Suppression Effect / Description

Initial (No filter)

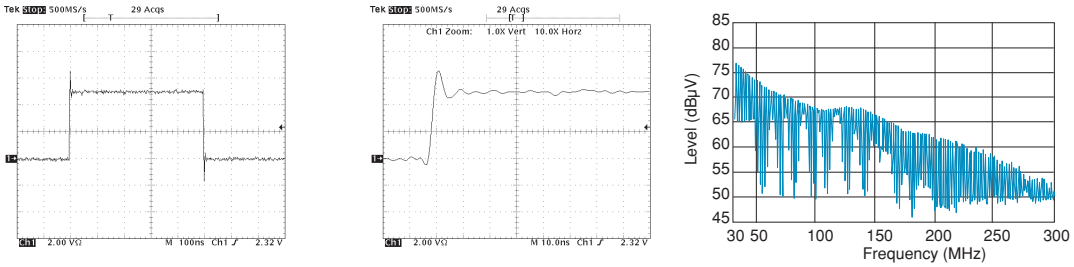
Signal waveform (100nsec/div, 2V/div) | Expand (10nsec/div, 2V/div) | Spectrum



Ringing is caused on the signal waveform.
Such ringing contains several hundred MHz harmonic components and generates noise.

Resister (47Ω) is used

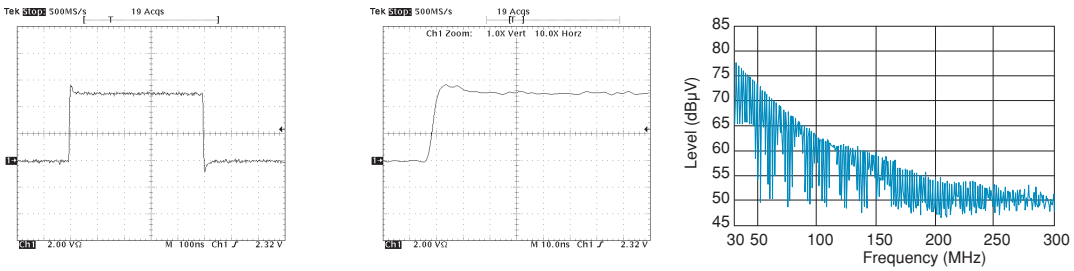
Signal waveform (100nsec/div, 2V/div) | Expand (10nsec/div, 2V/div) | Spectrum



Comparing initial waveform, ringing is suppressed a little.
However there still remains high level waveform distortion.

BLM18RK221SN1 (220Ω at 100MHz) is used

Signal waveform (100nsec/div, 2V/div) | Expand (10nsec/div, 2V/div) | Spectrum



BLM18R has excellent performance for noise suppression and waveform distortion suppression.
BLM18R suppresses drastically not only spectrum level in more than 100MHz range but waveform distortion.

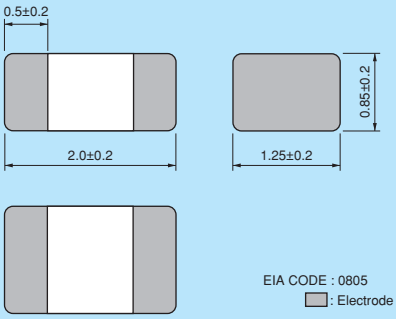
BLM21P Series (0805 Size)

Hi Power | Flow OK | Reflow OK

0805 size for power lines.

*Please refer to the products which are designed for both power lines and signal lines. *Please refer to BLM18K for downsizing.

■ Dimensions



EIA CODE : 0805
: Electrode

(in mm)

■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

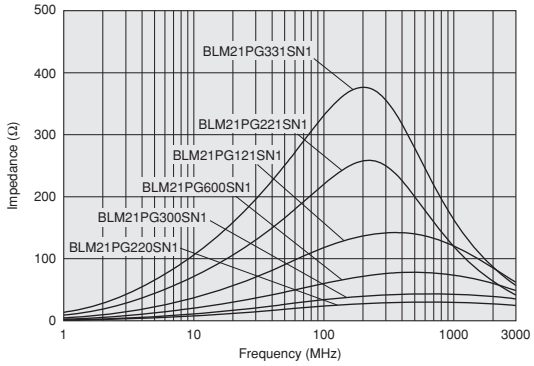
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM21PG220SN1□	22ohm ±25%	6000mA	0.009ohm max.	-55°C to +125°C	Kit ≧3A
BLM21PG300SN1□	30ohm (Typ.)	4000mA	0.014ohm max.	-55°C to +125°C	Kit ≧3A
BLM21PG600SN1□	60ohm ±25%	3500mA	0.02ohm max.	-55°C to +125°C	Kit ≧3A
BLM21PG121SN1□	120ohm ±25%	3000mA	0.03ohm max.	-55°C to +125°C	Kit ≧3A
BLM21PG221SN1□	220ohm ±25%	2000mA	0.045ohm max.	-55°C to +125°C	Kit ≧1A
BLM21PG331SN1□	330ohm ±25%	1500mA	0.07ohm max.	-55°C to +125°C	Kit ≧1A

Number of Circuits: 1

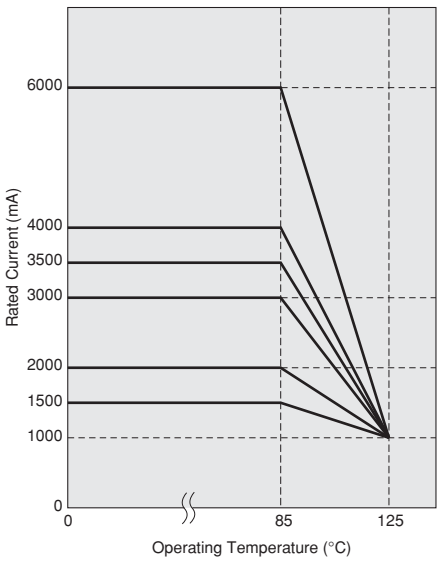
■ Impedance-Frequency Characteristics (Main Items)



■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM21PG series.
Please apply the derating curve shown in chart according to the operating temperature.

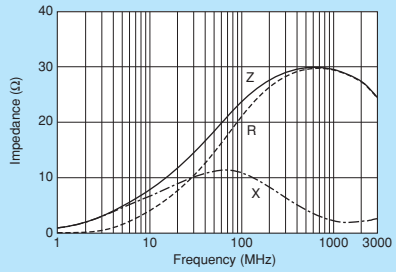
Derating of Rated Current



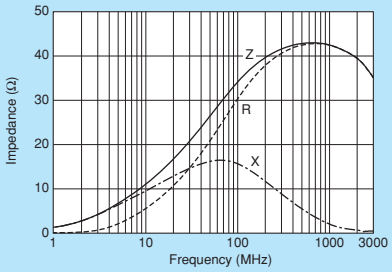
Continued on the following page.

■ Impedance-Frequency Characteristics

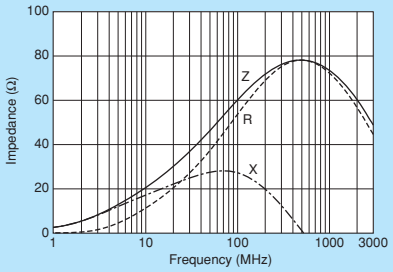
BLM21PG220SN1



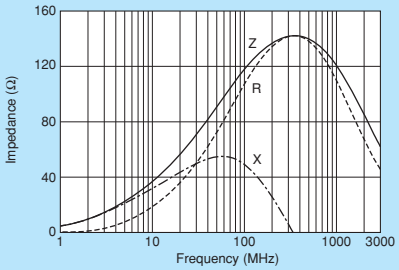
BLM21PG300SN1



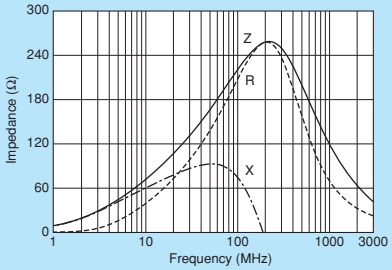
BLM21PG600SN1



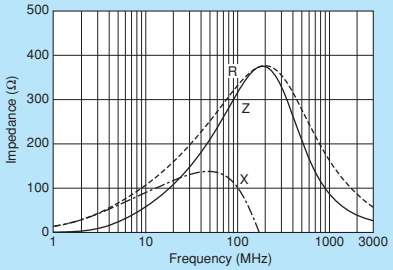
BLM21PG121SN1



BLM21PG221SN1



BLM21PG331SN1

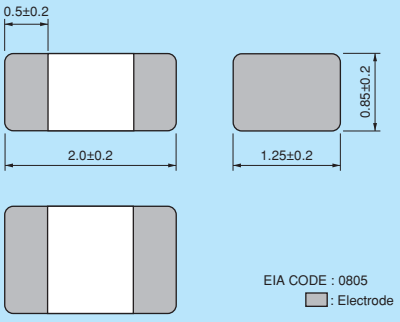


BLM21A Series (0805 Size)

Flow OK Reflow OK

0805 size for general signal lines.

■ Dimensions



EIA CODE : 0805
: Electrode

(in mm)

■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

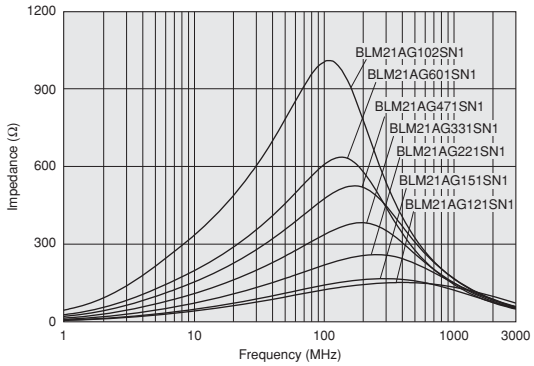
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM21AG121SN1□	120ohm ±25%	800mA	0.10ohm max.	-55°C to +125°C	Kit
BLM21AG151SN1□	150ohm ±25%	800mA	0.10ohm max.	-55°C to +125°C	Kit
BLM21AG221SN1□	220ohm ±25%	800mA	0.13ohm max.	-55°C to +125°C	Kit
BLM21AG331SN1□	330ohm ±25%	700mA	0.16ohm max.	-55°C to +125°C	Kit
BLM21AG471SN1□	470ohm ±25%	700mA	0.19ohm max.	-55°C to +125°C	Kit
BLM21AG601SN1□	600ohm ±25%	600mA	0.21ohm max.	-55°C to +125°C	Kit
BLM21AG102SN1□	1000ohm ±25%	500mA	0.28ohm max.	-55°C to +125°C	Kit

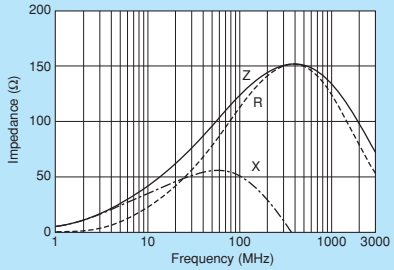
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

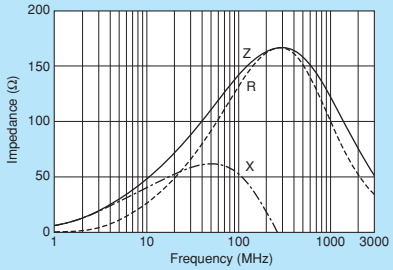


■ Impedance-Frequency Characteristics

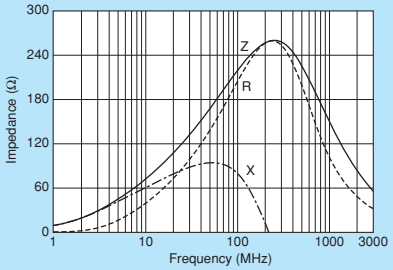
BLM21AG121SN1



BLM21AG151SN1



BLM21AG221SN1



Continued on the following page.

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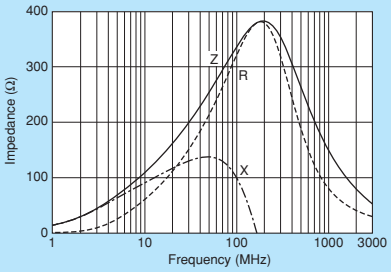
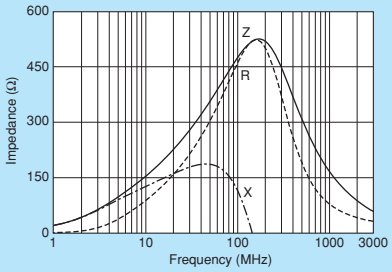
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

■ Impedance-Frequency Characteristics

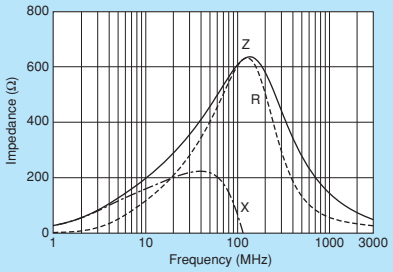
BLM21AG331SN1



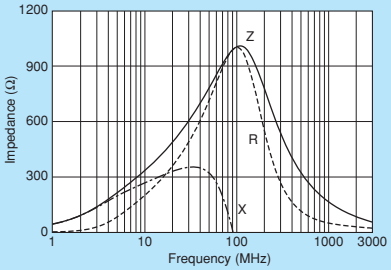
BLM21AG471SN1



BLM21AG601SN1



BLM21AG102SN1

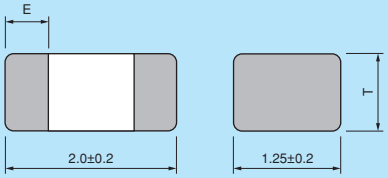


BLM21B Series (0805 Size)

Flow OK Reflow OK

0805 size for high speed signal lines.

■ Dimensions



Part Number	T	E
BLM21B (exclude items below)	0.85±0.2	0.5±0.2
BLM21BD222SN1	1.25±0.2	0.5±0.2
BLM21BD272SN1	1.25±0.2	0.3±0.2

: Electrode

(in mm)

■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

• All except **BLM21BD222SN1/21BD272SN1**

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

• **BLM21BD222SN1/21BD272SN1** only

Code	Packaging	Minimum Quantity
L	180mm Reel Plastic Tape	3000
K	330mm Reel Plastic Tape	10000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

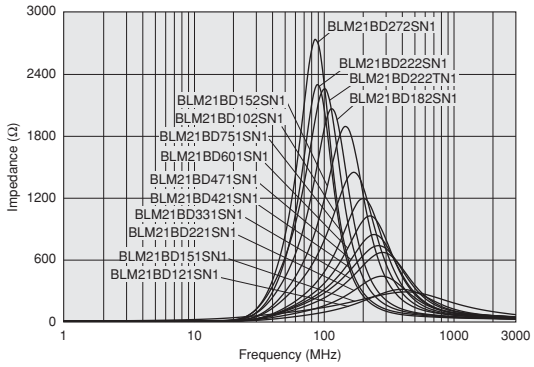
Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM21BD121SN1□	120ohm ±25%	200mA	0.25ohm max.	-55°C to +125°C	Kit
BLM21BD151SN1□	150ohm ±25%	200mA	0.25ohm max.	-55°C to +125°C	
BLM21BD221SN1□	220ohm ±25%	200mA	0.25ohm max.	-55°C to +125°C	Kit
BLM21BD331SN1□	330ohm ±25%	200mA	0.30ohm max.	-55°C to +125°C	
BLM21BD421SN1□	420ohm ±25%	200mA	0.30ohm max.	-55°C to +125°C	Kit
BLM21BD471SN1□	470ohm ±25%	200mA	0.35ohm max.	-55°C to +125°C	Kit
BLM21BD601SN1□	600ohm ±25%	200mA	0.35ohm max.	-55°C to +125°C	Kit
BLM21BD751SN1□	750ohm ±25%	200mA	0.40ohm max.	-55°C to +125°C	
BLM21BD102SN1□	1000ohm ±25%	200mA	0.40ohm max.	-55°C to +125°C	Kit
BLM21BD152SN1□	1500ohm ±25%	200mA	0.45ohm max.	-55°C to +125°C	Kit
BLM21BD182SN1□	1800ohm ±25%	200mA	0.50ohm max.	-55°C to +125°C	Kit
BLM21BD222TN1□	2200ohm ±25%	200mA	0.60ohm max.	-55°C to +125°C	Kit
BLM21BD222SN1□	2250ohm (Typ.)	200mA	0.60ohm max.	-55°C to +125°C	Kit
BLM21BD272SN1□	2700ohm ±25%	200mA	0.80ohm max.	-55°C to +125°C	Kit
BLM21BB050SN1□	5ohm ±25%	1000mA	0.02ohm max.	-55°C to +125°C	Kit
BLM21BB600SN1□	60ohm ±25%	800mA	0.13ohm max.	-55°C to +125°C	Kit
BLM21BB750SN1□	75ohm ±25%	700mA	0.16ohm max.	-55°C to +125°C	Kit
BLM21BB121SN1□	120ohm ±25%	600mA	0.19ohm max.	-55°C to +125°C	Kit
BLM21BB151SN1□	150ohm ±25%	600mA	0.21ohm max.	-55°C to +125°C	
BLM21BB201SN1□	200ohm ±25%	500mA	0.26ohm max.	-55°C to +125°C	
BLM21BB221SN1□	220ohm ±25%	500mA	0.26ohm max.	-55°C to +125°C	Kit
BLM21BB331SN1□	330ohm ±25%	400mA	0.33ohm max.	-55°C to +125°C	Kit
BLM21BB471SN1□	470ohm ±25%	400mA	0.40ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

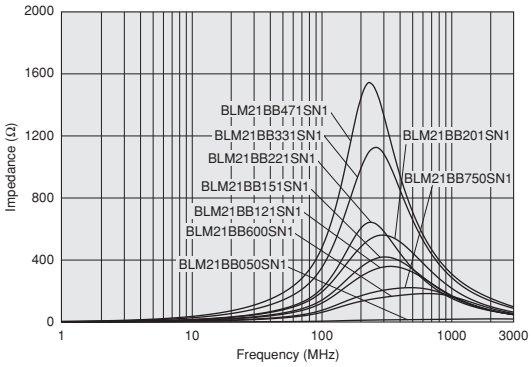
Continued on the following page.

■ Impedance-Frequency Characteristics (Main Items)

BLM21BD Series

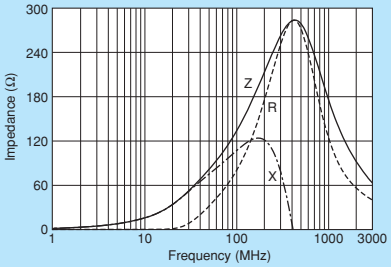


BLM21BB Series

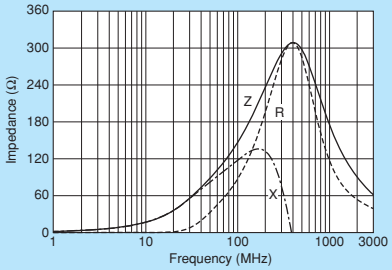


■ Impedance-Frequency Characteristics

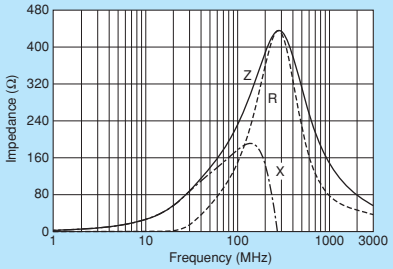
BLM21BD121SN1



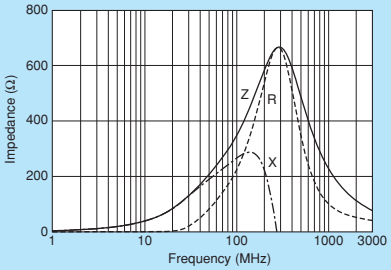
BLM21BD151SN1



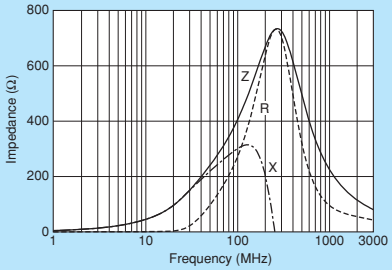
BLM21BD221SN1



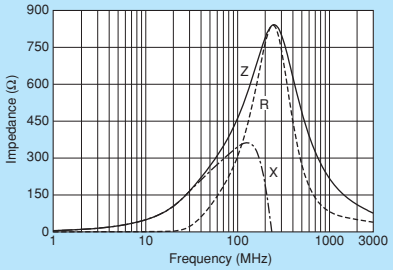
BLM21BD331SN1



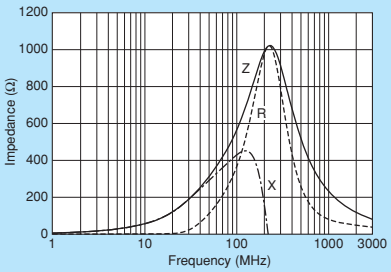
BLM21BD421SN1



BLM21BD471SN1



BLM21BD601SN1



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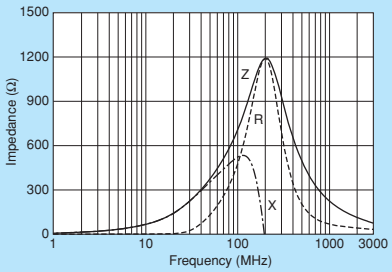
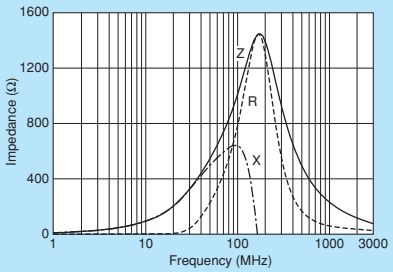


BLM21BD102SN1

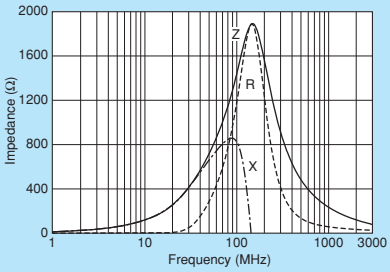


Continued on the following page.

⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

■ Impedance-Frequency Characteristics

BLM21BD152SN1



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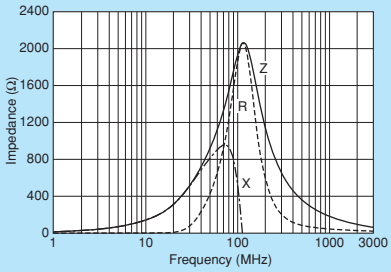
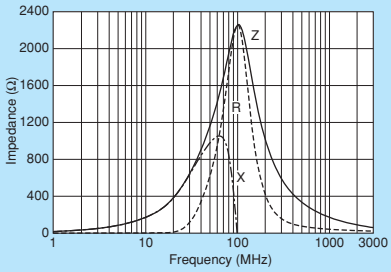


BLM21BD222TN1



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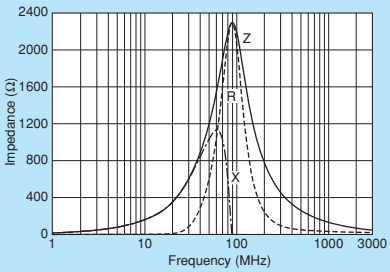
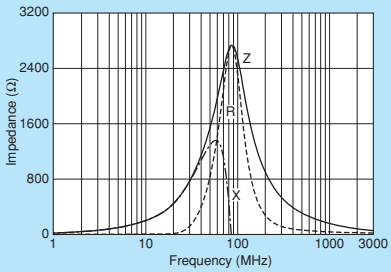
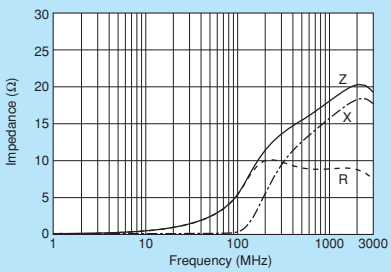


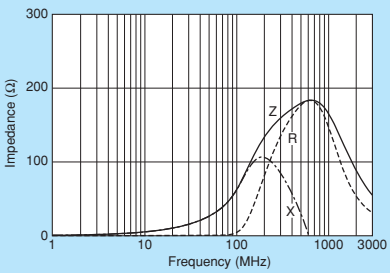
BLM21BD272SN1



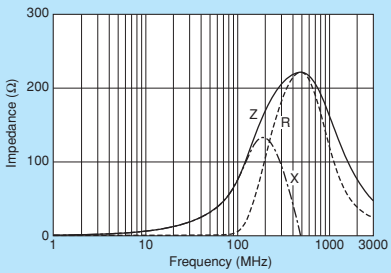
BLM21BB050SN1



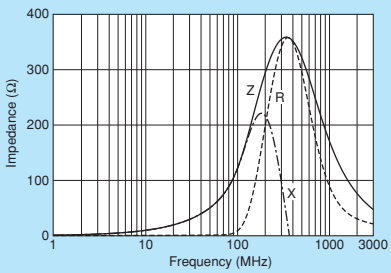
BLM21BB600SN1



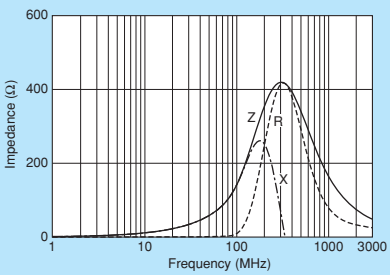
BLM21BB750SN1



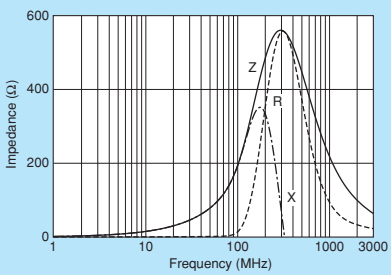
BLM21BB121SN1



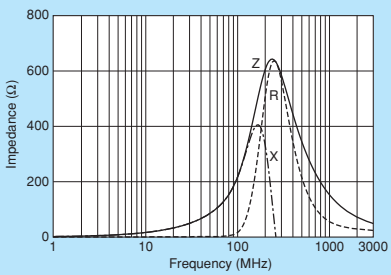
BLM21BB151SN1



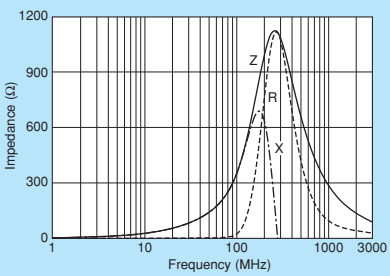
BLM21BB201SN1



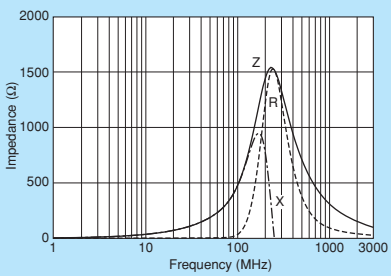
BLM21BB221SN1



BLM21BB331SN1



BLM21BB471SN1

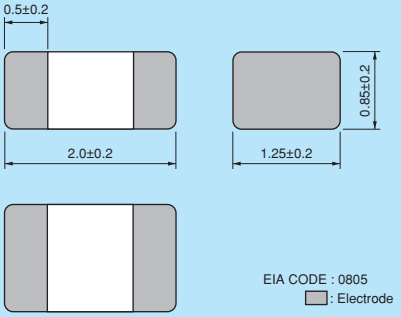


BLM21R Series (0805 Size)

Flow OK Reflow OK

For digital I/F. Reduce the distortion of waveform created by resonance.

■ Dimensions



EIA CODE : 0805
: Electrode

(in mm)

■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

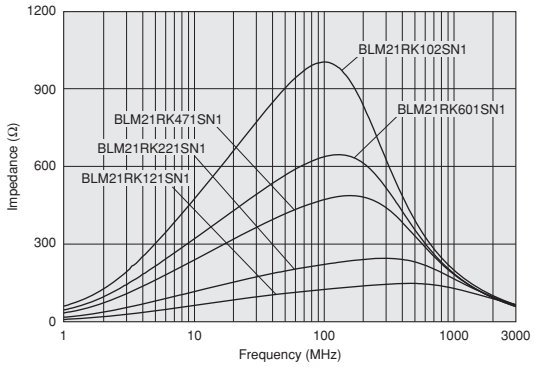
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range
BLM21RK121SN1□	120ohm ±25%	200mA	0.15ohm max.	-55°C to +125°C
BLM21RK221SN1□	220ohm ±25%	200mA	0.20ohm max.	-55°C to +125°C
BLM21RK471SN1□	470ohm ±25%	200mA	0.25ohm max.	-55°C to +125°C
BLM21RK601SN1□	600ohm ±25%	200mA	0.30ohm max.	-55°C to +125°C
BLM21RK102SN1□	1000ohm ±25%	200mA	0.50ohm max.	-55°C to +125°C

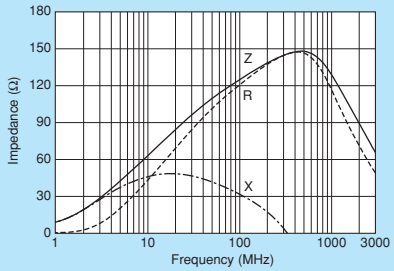
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

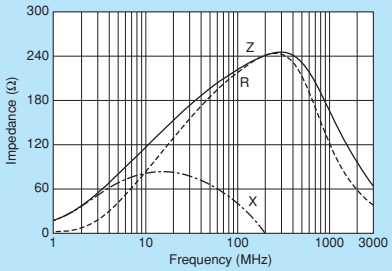


■ Impedance-Frequency Characteristics

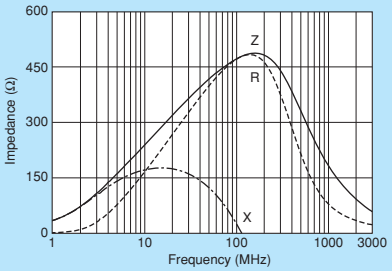
BLM21RK121SN1



BLM21RK221SN1



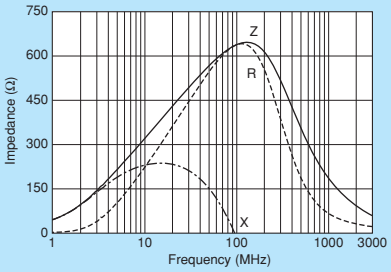
BLM21RK471SN1



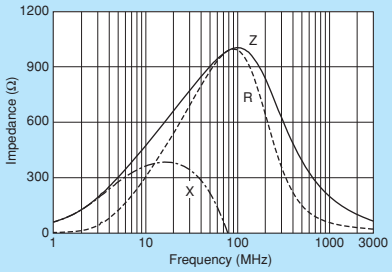
Continued on the following page.

■ Impedance-Frequency Characteristics

BLM21RK601SN1



BLM21RK102SN1



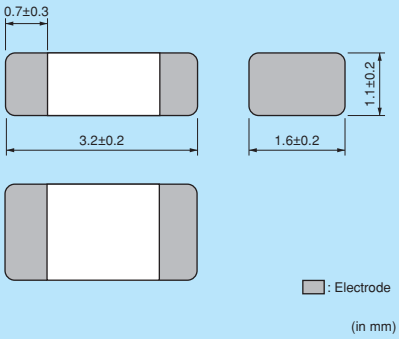
BLM31P Series (1206 Size)

Hi Power Flow OK Reflow OK

1206 size for power lines.

*Please refer to the products which are designed for both power lines and signal lines.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
K	330mm Reel Embossed Tape	10000
B	Bulk(Bag)	1000

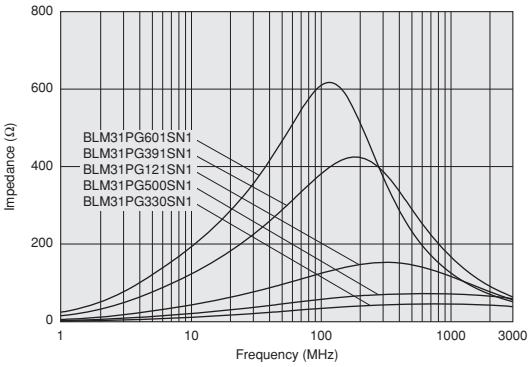
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM31PG330SN1□	33ohm ±25%	6000mA	0.009ohm max.	-55°C to +125°C	Kit ≧3A
BLM31PG500SN1□	50ohm (Typ.)	3500mA	0.015ohm max.	-55°C to +125°C	Kit ≧3A
BLM31PG121SN1□	120ohm ±25%	3500mA	0.02ohm max.	-55°C to +125°C	Kit ≧3A
BLM31PG391SN1□	390ohm ±25%	2000mA	0.05ohm max.	-55°C to +125°C	Kit ≧1A
BLM31PG601SN1□	600ohm ±25%	1500mA	0.08ohm max.	-55°C to +125°C	Kit ≧1A

Number of Circuits: 1

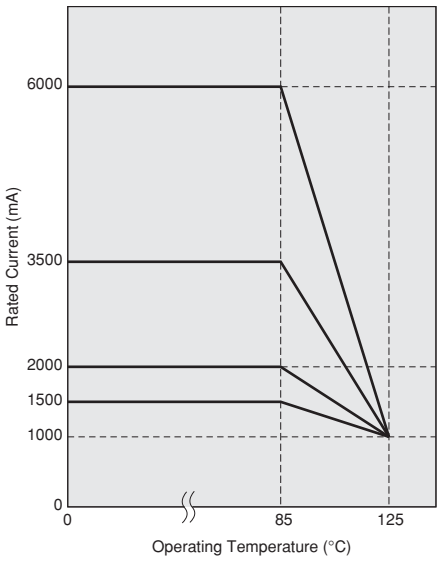
■ Impedance-Frequency Characteristics (Main Items)



■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM31PG series.
Please apply the derating curve shown in chart according to the operating temperature.

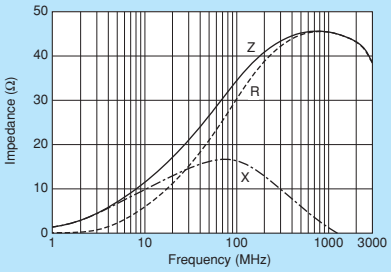
Derating of Rated Current



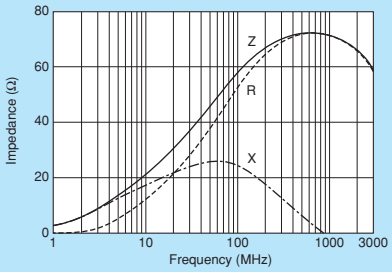
Continued on the following page.

■ Impedance-Frequency Characteristics

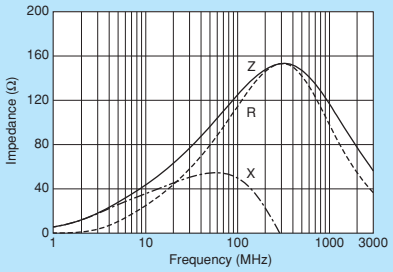
BLM31PG330SN1



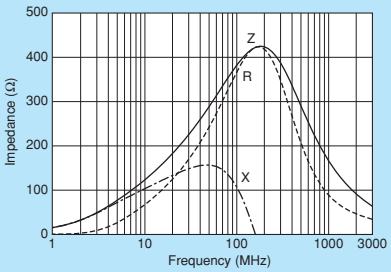
BLM31PG500SN1



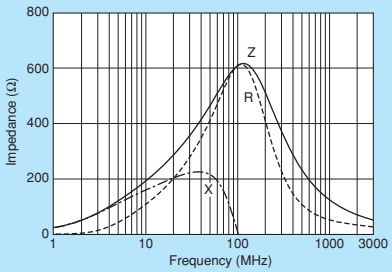
BLM31PG121SN1



BLM31PG391SN1



BLM31PG601SN1



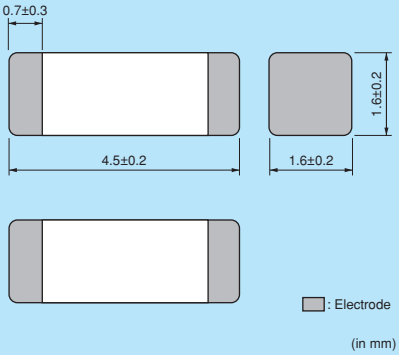
BLM41P Series (1806 Size)

Hi Power | Flow OK | Reflow OK

1806 size for power lines.

*Please refer to the products which are designed for both power lines and signal lines.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	2500
K	330mm Reel Embossed Tape	8000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

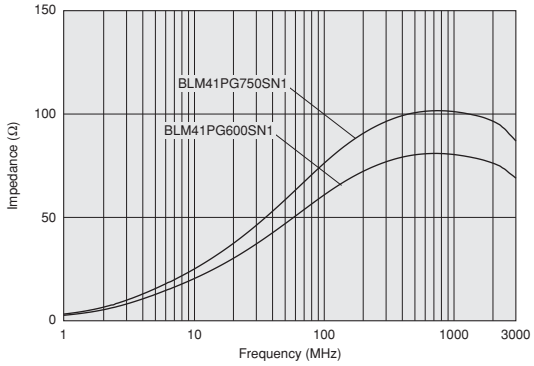
■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM41PG600SN1□	60ohm (Typ.)	6000mA	0.009ohm max.	-55°C to +125°C	Kit ≧3A
BLM41PG750SN1□	75ohm (Typ.)	3500mA	0.015ohm max.	-55°C to +125°C	Kit ≧3A
BLM41PG181SN1□	180ohm ±25%	3500mA	0.02ohm max.	-55°C to +125°C	Kit ≧3A
BLM41PG471SN1□	470ohm ±25%	2000mA	0.05ohm max.	-55°C to +125°C	Kit ≧1A
BLM41PG102SN1□	1000ohm ±25%	1500mA	0.09ohm max.	-55°C to +125°C	Kit ≧1A

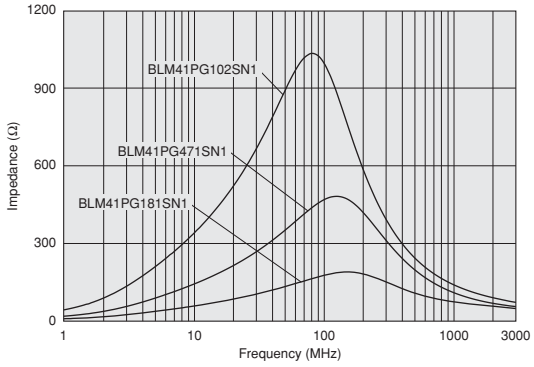
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

BLM41PG Series (60ohm to 70ohm)



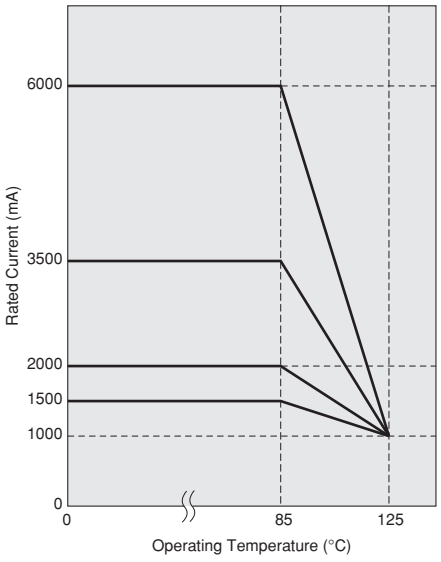
BLM41PG Series (180ohm to 1000ohm)



■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM41PG series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



Continued on the following page.

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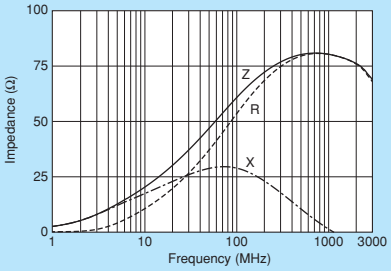
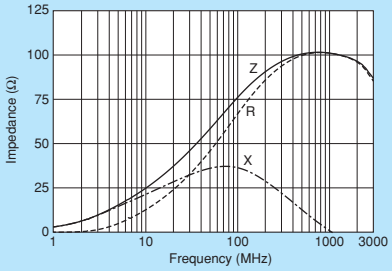
■ Impedance-Frequency Characteristics

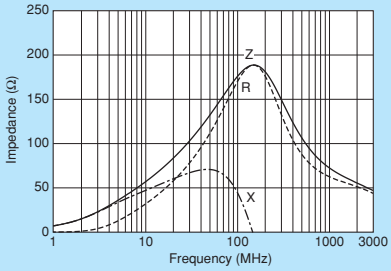
BLM41PG600SN1



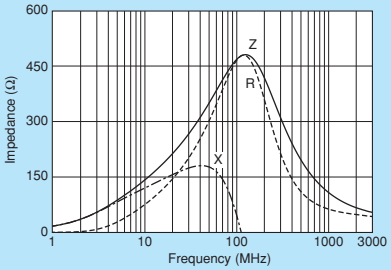
BLM41PG750SN1



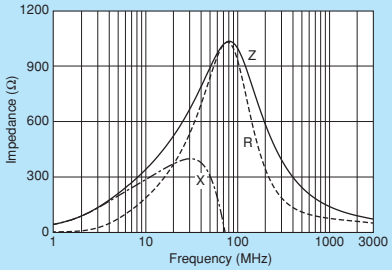
BLM41PG181SN1



BLM41PG471SN1



BLM41PG102SN1

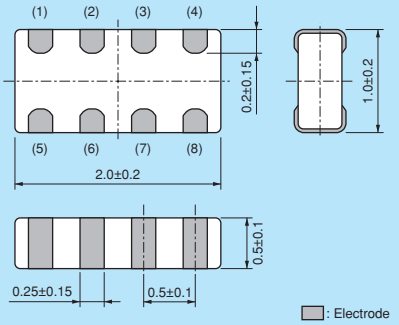


BLA2AA/BLA2AB Series (0804 Size)

Reflow OK

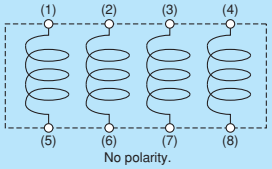
4-lines array, 0804 size.

Dimensions



(in mm)

Equivalent Circuit



No polarity.

Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

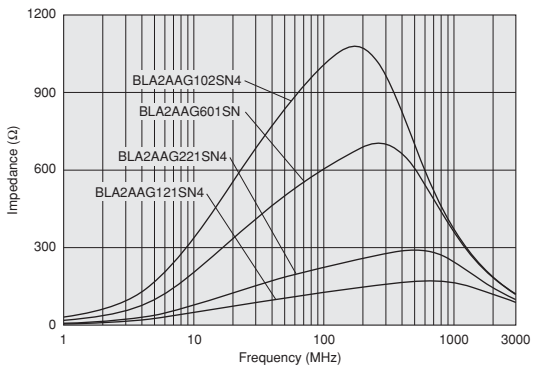
Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range
BLA2AAG121SN4□	120ohm ±25%	100mA	0.50ohm max.	-55°C to +125°C
BLA2AAG221SN4□	220ohm ±25%	50mA	0.70ohm max.	-55°C to +125°C
BLA2AAG601SN4□	600ohm ±25%	50mA	1.10ohm max.	-55°C to +125°C
BLA2AAG102SN4□	1000ohm ±25%	50mA	1.30ohm max.	-55°C to +125°C
BLA2ABD750SN4□	75ohm ±25%	200mA	0.20ohm max.	-55°C to +125°C
BLA2ABD121SN4□	120ohm ±25%	200mA	0.35ohm max.	-55°C to +125°C
BLA2ABD221SN4□	220ohm ±25%	100mA	0.40ohm max.	-55°C to +125°C
BLA2ABD471SN4□	470ohm ±25%	100mA	0.65ohm max.	-55°C to +125°C
BLA2ABD601SN4□	600ohm ±25%	100mA	0.80ohm max.	-55°C to +125°C
BLA2ABD102SN4□	1000ohm ±25%	50mA	1.00ohm max.	-55°C to +125°C
BLA2ABB100SN4□	10ohm ±25%	200mA	0.1ohm max.	-55°C to +125°C
BLA2ABB220SN4□	22ohm ±25%	200mA	0.2ohm max.	-55°C to +125°C
BLA2ABB470SN4□	47ohm ±25%	200mA	0.35ohm max.	-55°C to +125°C
BLA2ABB121SN4□	120ohm ±25%	50mA	0.60ohm max.	-55°C to +125°C
BLA2ABB221SN4□	220ohm ±25%	50mA	0.90ohm max.	-55°C to +125°C

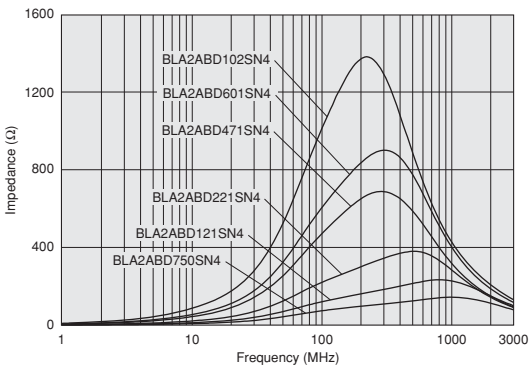
Number of Circuits: 4

Impedance-Frequency Characteristics (Main Items)

BLA2AAG Series



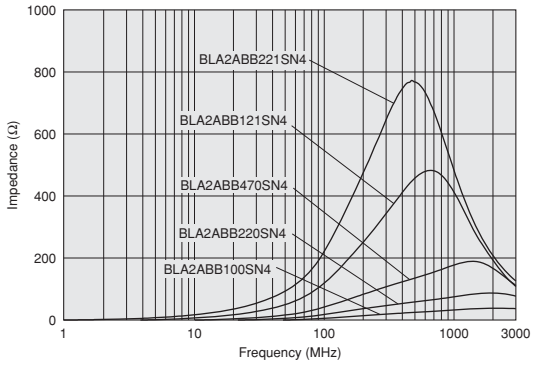
BLA2ABD Series



Continued on the following page.

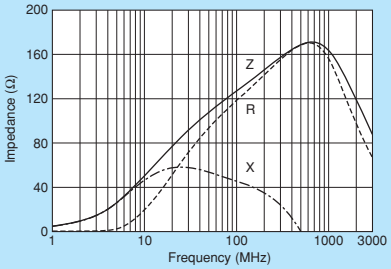
■ Impedance-Frequency Characteristics (Main Items)

BLA2ABB Series

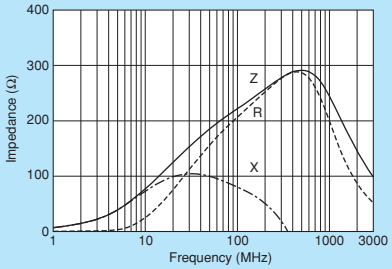


■ Impedance-Frequency Characteristics

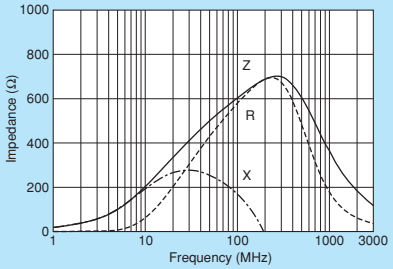
BLA2AAG121SN4



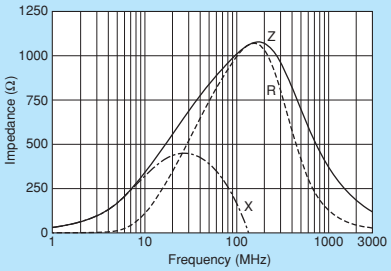
BLA2AAG221SN4



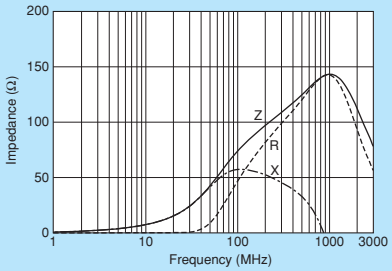
BLA2AAG601SN4



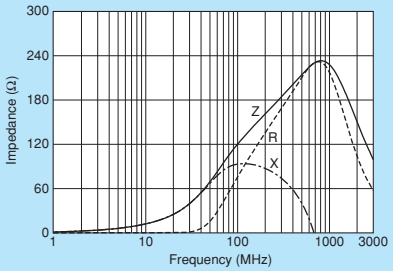
BLA2AAG102SN4



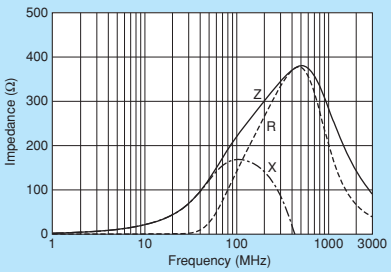
BLA2ABD750SN4



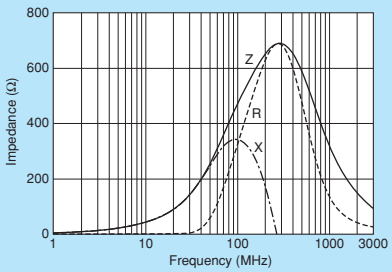
BLA2ABD121SN4



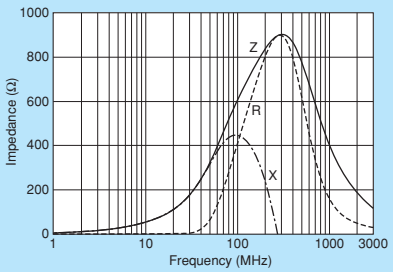
BLA2ABD221SN4



BLA2ABD471SN4



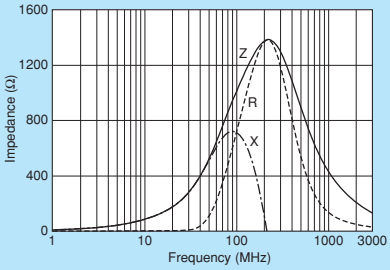
BLA2ABD601SN4



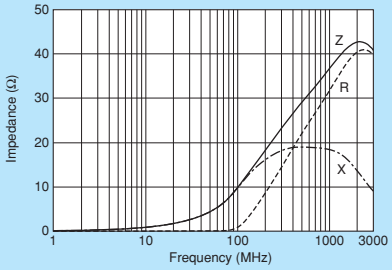
Continued on the following page.

■ Impedance-Frequency Characteristics

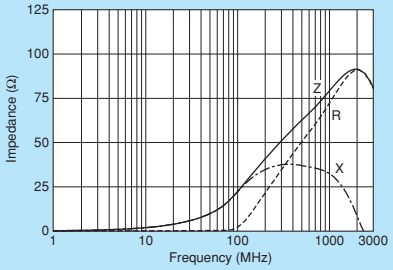
BLA2ABD102SN4



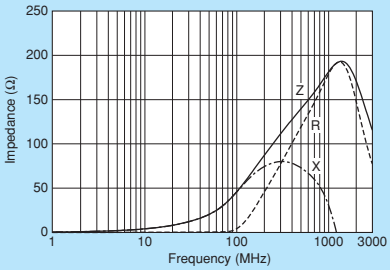
BLA2ABB100SN4



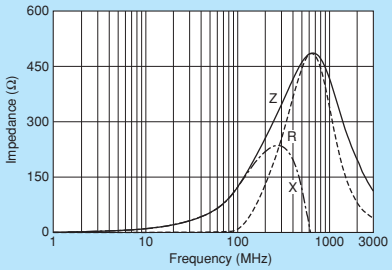
BLA2ABB220SN4



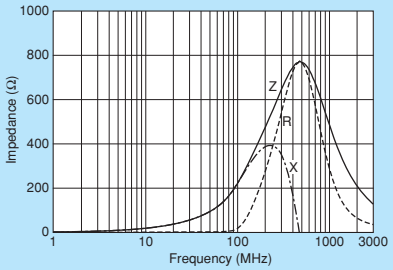
BLA2ABB470SN4



BLA2ABB121SN4



BLA2ABB221SN4

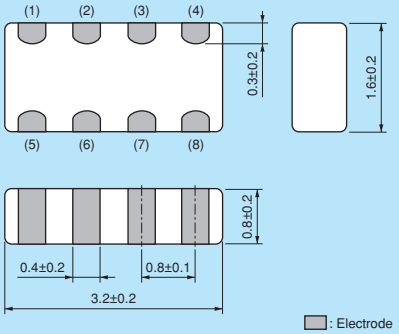


BLA31A/BLA31B Series (1206 Size)

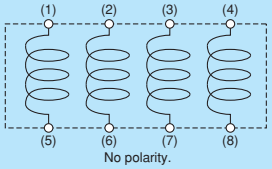
Flow OK Reflow OK

4-lines array, 1206 size.

Dimensions



Equivalent Circuit



Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

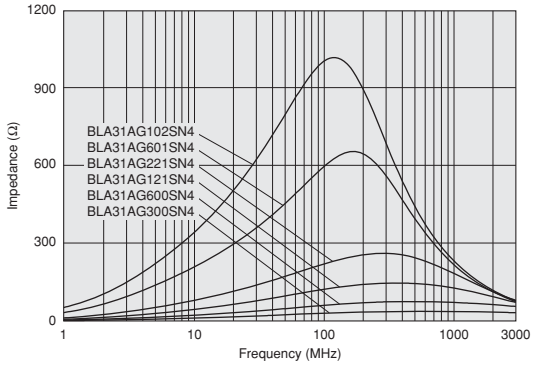
Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range
BLA31AG300SN4□	30ohm ±25%	200mA	0.10ohm max.	-55°C to +125°C
BLA31AG600SN4□	60ohm ±25%	200mA	0.15ohm max.	-55°C to +125°C
BLA31AG121SN4□	120ohm ±25%	150mA	0.20ohm max.	-55°C to +125°C
BLA31AG221SN4□	220ohm ±25%	150mA	0.25ohm max.	-55°C to +125°C
BLA31AG601SN4□	600ohm ±25%	100mA	0.35ohm max.	-55°C to +125°C
BLA31AG102SN4□	1000ohm ±25%	50mA	0.45ohm max.	-55°C to +125°C
BLA31BD121SN4□	120ohm ±25%	150mA	0.30ohm max.	-55°C to +125°C
BLA31BD221SN4□	220ohm ±25%	150mA	0.35ohm max.	-55°C to +125°C
BLA31BD471SN4□	470ohm ±25%	100mA	0.40ohm max.	-55°C to +125°C
BLA31BD601SN4□	600ohm ±25%	100mA	0.45ohm max.	-55°C to +125°C
BLA31BD102SN4□	1000ohm ±25%	50mA	0.55ohm max.	-55°C to +125°C

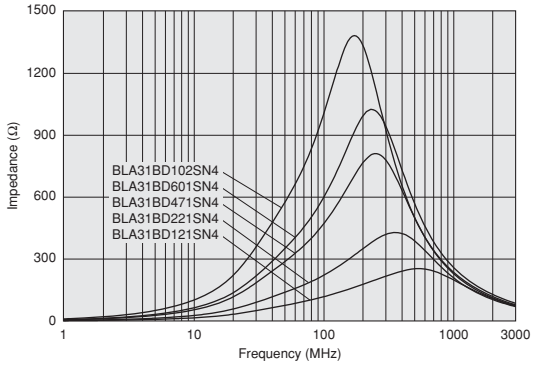
Number of Circuits: 4

Impedance-Frequency Characteristics (Main Items)

BLA31AG Series



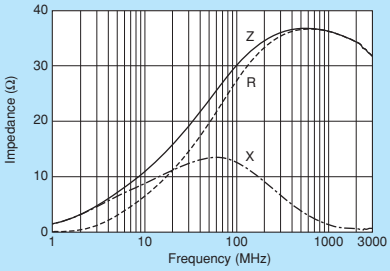
BLA31BD Series



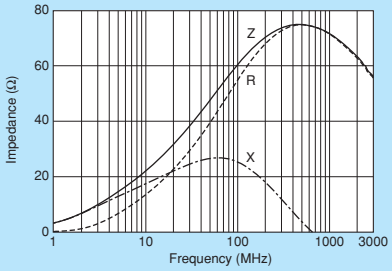
Continued on the following page.

■ Impedance-Frequency Characteristics

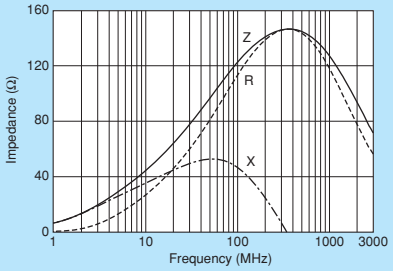
BLA31AG300SN4



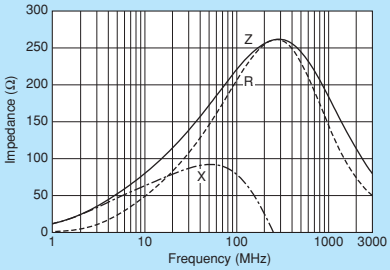
BLA31AG600SN4



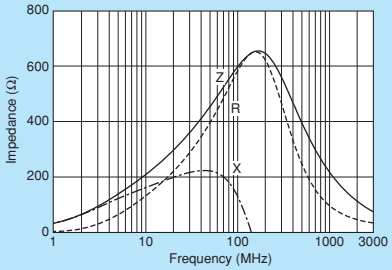
BLA31AG121SN4



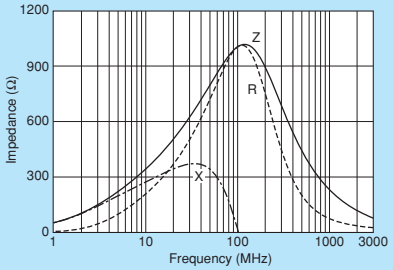
BLA31AG221SN4



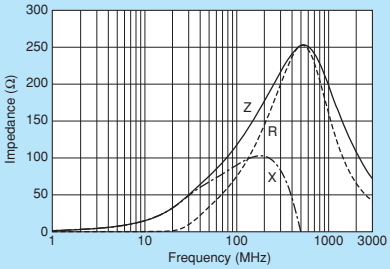
BLA31AG601SN4



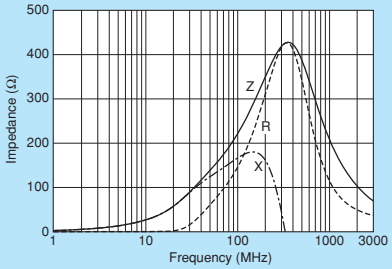
BLA31AG102SN4



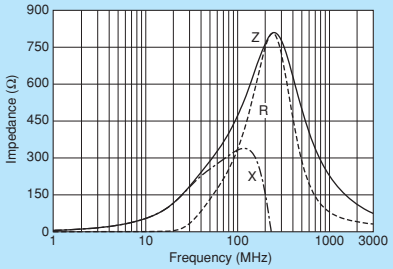
BLA31BD121SN4



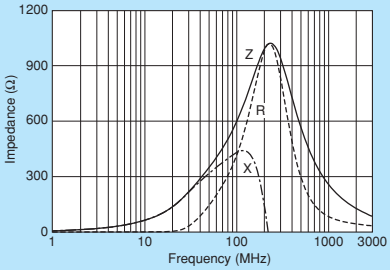
BLA31BD221SN4



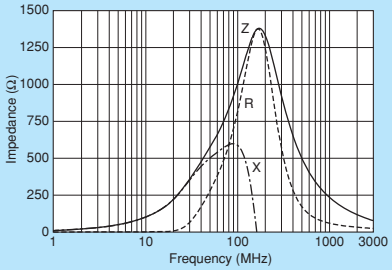
BLA31BD471SN4



BLA31BD601SN4



BLA31BD102SN4

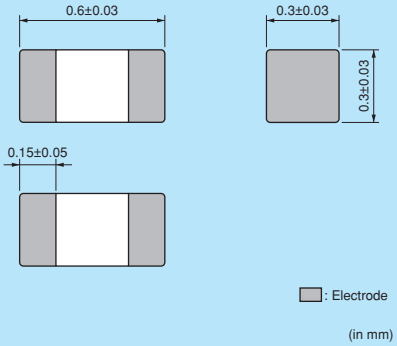


BLM03H Series (0201 Size)

GHz Reflow OK

0201 size for GHz band noise.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	15000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

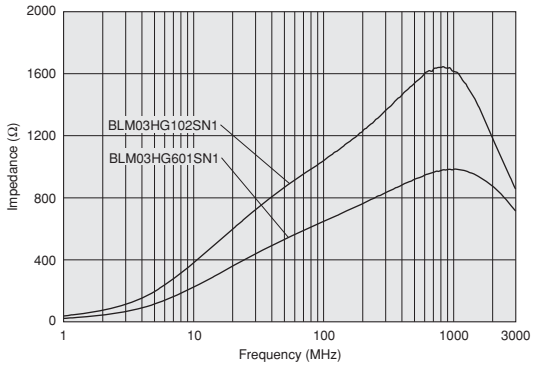
■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM03HG601SN1□	600ohm ±25%	1000ohm ±40%	150mA	1.6ohm max.	-55°C to +125°C	Kit
BLM03HG102SN1□	1000ohm ±25%	1800ohm ±40%	125mA	2.6ohm max.	-55°C to +125°C	Kit
BLM03HD331SN1□	330ohm ±25%	750ohm ±40%	200mA	1.0ohm max.	-55°C to +125°C	Kit
BLM03HD471SN1□	470ohm ±25%	1000ohm ±40%	175mA	1.3ohm max.	-55°C to +125°C	Kit
BLM03HD601SN1□	600ohm ±25%	1500ohm ±40%	150mA	1.7ohm max.	-55°C to +125°C	Kit
BLM03HD102SN1□	1000ohm ±25%	2300ohm ±40%	120mA	2.9ohm max.	-55°C to +125°C	Kit

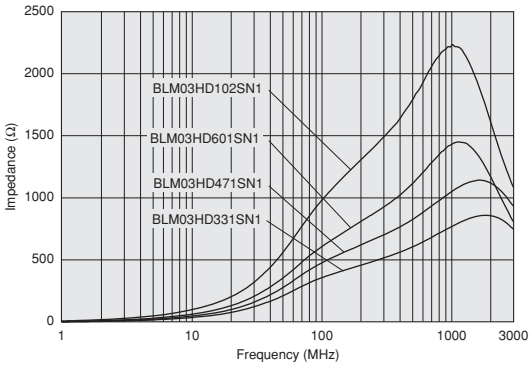
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

BLM03HG Series

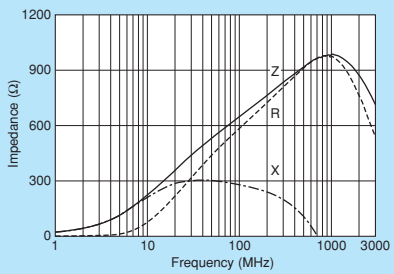


BLM03HD Series

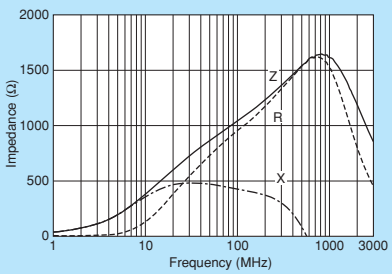


■ Impedance-Frequency Characteristics

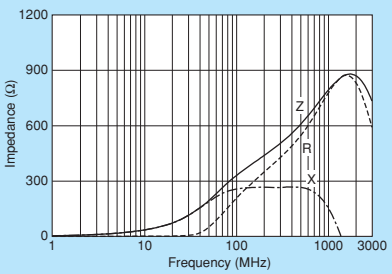
BLM03HG601SN1



BLM03HG102SN1



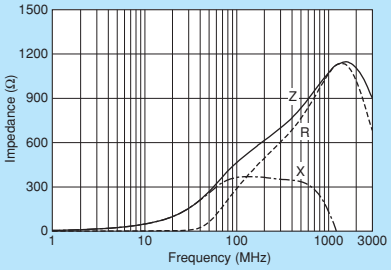
BLM03HD331SN1



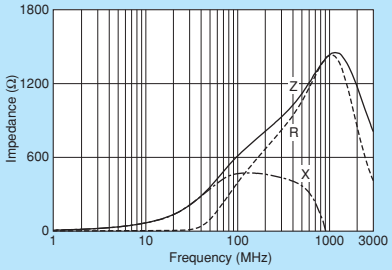
Continued on the following page.

■ Impedance-Frequency Characteristics

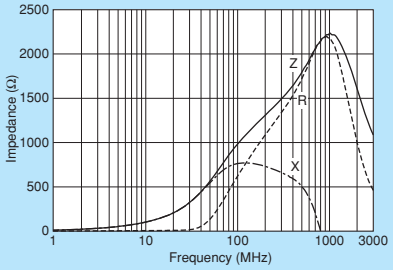
BLM03HD471SN1



BLM03HD601SN1



BLM03HD102SN1

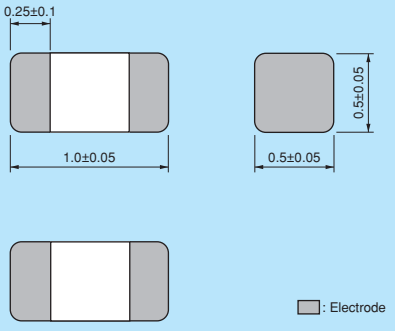


BLM15H Series (0402 Size)

GHz Reflow OK

0402 size for GHz band noise.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

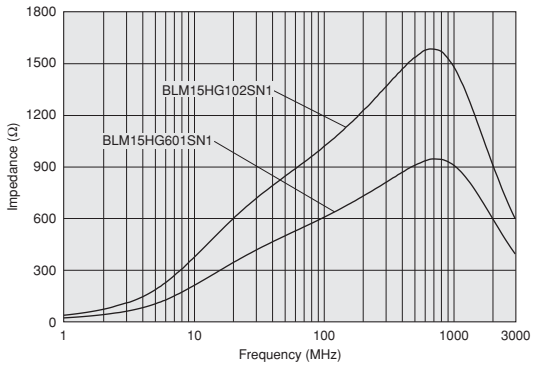
■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15HG601SN1□	600ohm ±25%	1000ohm ±40%	300mA	0.7ohm max.	-55°C to +125°C	Kit
BLM15HG102SN1□	1000ohm ±25%	1400ohm ±40%	250mA	1.1ohm max.	-55°C to +125°C	Kit
BLM15HD601SN1□	600ohm ±25%	1400ohm ±40%	300mA	0.85ohm max.	-55°C to +125°C	Kit
BLM15HD102SN1□	1000ohm ±25%	2000ohm ±40%	250mA	1.25ohm max.	-55°C to +125°C	Kit
BLM15HD182SN1□	1800ohm ±25%	2700ohm ±40%	200mA	2.2ohm max.	-55°C to +125°C	Kit
BLM15HB121SN1□	120ohm ±25%	500ohm ±40%	300mA	0.7ohm max.	-55°C to +125°C	Kit
BLM15HB221SN1□	220ohm ±25%	900ohm ±40%	250mA	1.0ohm max.	-55°C to +125°C	Kit

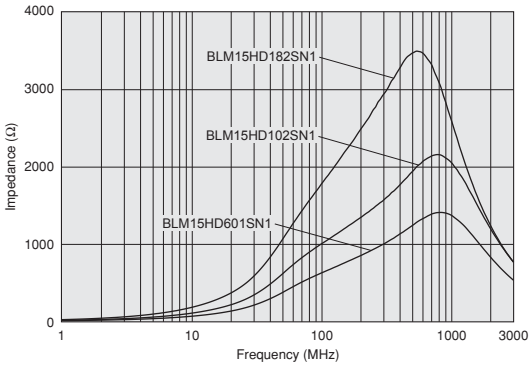
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

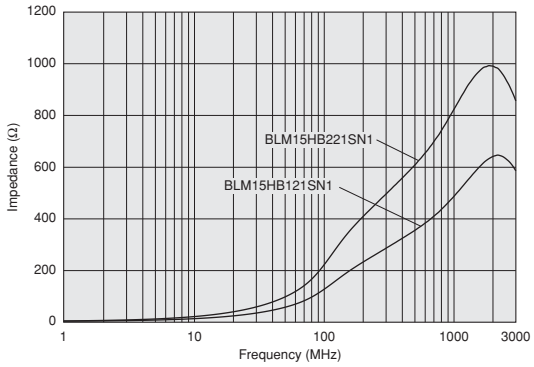
BLM15HG Series (For General Signal Lines)



BLM15HDSeries (For High Speed Signal Lines)



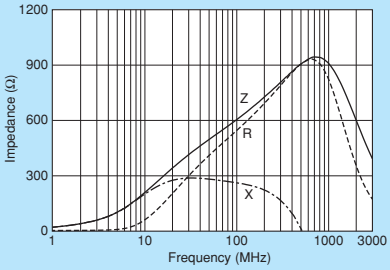
BLM15HBSeries (For High Speed Signal Lines)



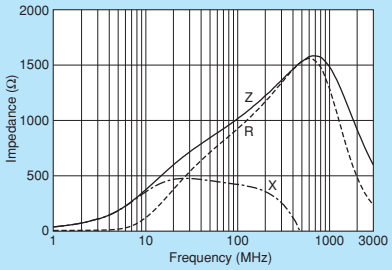
Continued on the following page.

■ Impedance-Frequency Characteristics

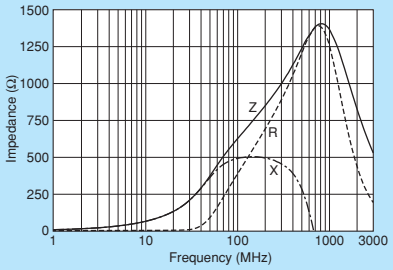
BLM15HG601SN1



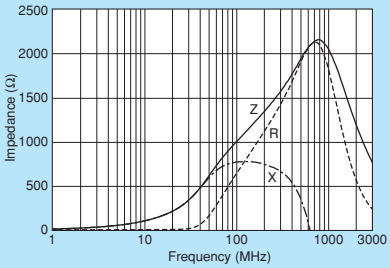
BLM15HG102SN1



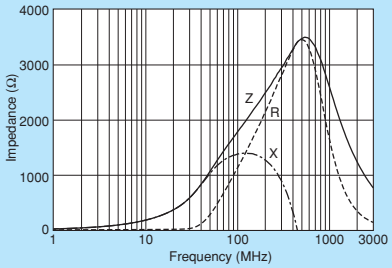
BLM15HD601SN1



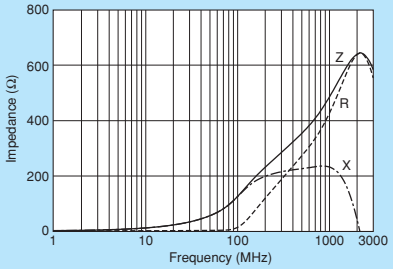
BLM15HD102SN1



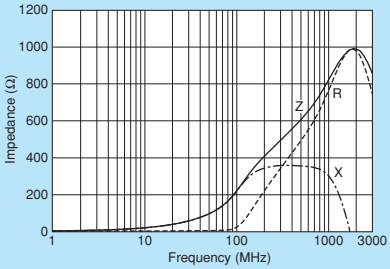
BLM15HD182SN1



BLM15HB121SN1



BLM15HB221SN1

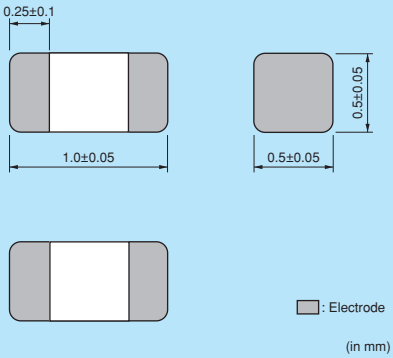


BLM15E Series (0402 Size)

GHz Hi Power Reflow OK

For GHz band noise, also capable to large current.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

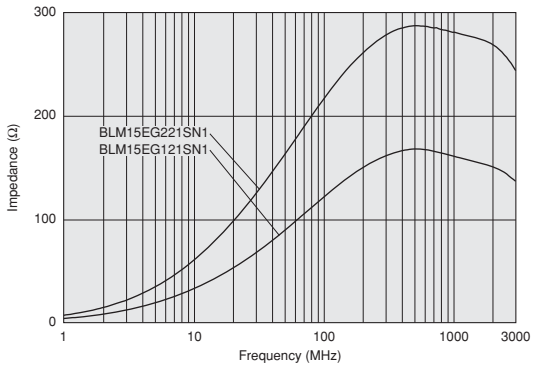
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15EG121SN1□	120ohm ±25%	145ohm (Typ.)	1500mA	0.095ohm max.	-55°C to +125°C	Kit ≧1A
BLM15EG221SN1□	220ohm ±25%	270ohm (Typ.)	700mA	0.28ohm max.	-55°C to +125°C	Kit

Number of Circuits: 1

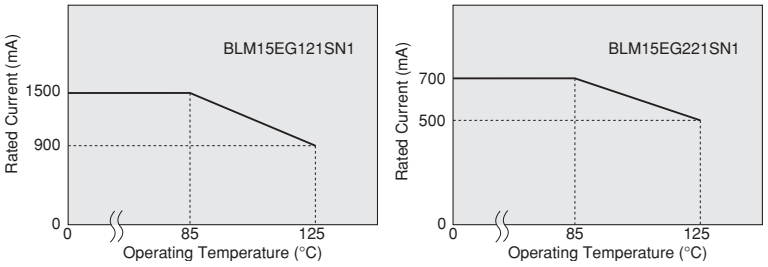
■ Impedance-Frequency Characteristics (Main Items)



■ Notice (Rating)

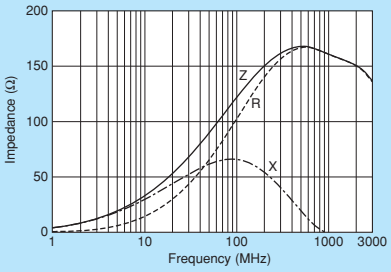
In operating temperature exceeding +85°C, derating of current is necessary for BLM15E series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current

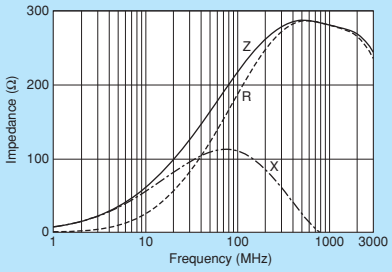


■ Impedance-Frequency Characteristics

BLM15EG121SN1



BLM15EG221SN1

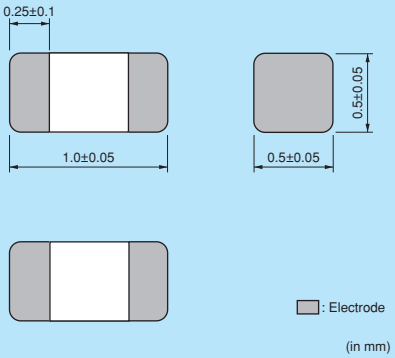


BLM15G Series (0402 Size)

Hi-GHz Reflow OK

Available up to high-GHz band noise.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
J	330mm Reel Paper Tape	50000
B	Bulk(Bag)	1000

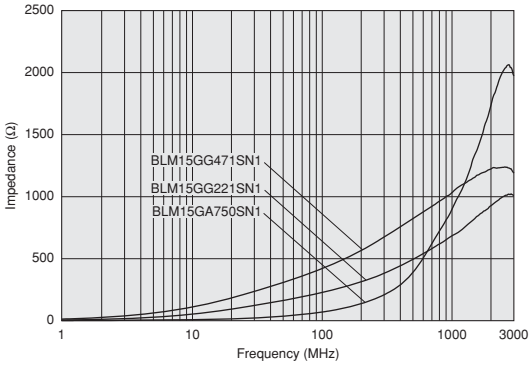
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM15GG221SN1□	220ohm ±25%	600ohm ±40%	300mA	0.7ohm max.	-55°C to +125°C	Kit
BLM15GG471SN1□	470ohm ±25%	1200ohm ±40%	200mA	1.3ohm max.	-55°C to +125°C	Kit
BLM15GA750SN1□	75ohm ±25%	1000ohm ±40%	200mA	1.3ohm max.	-55°C to +125°C	Kit

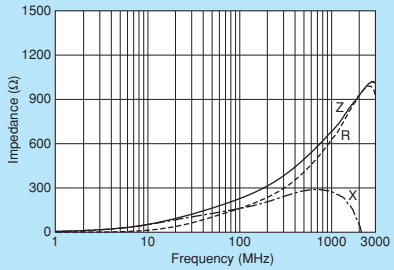
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

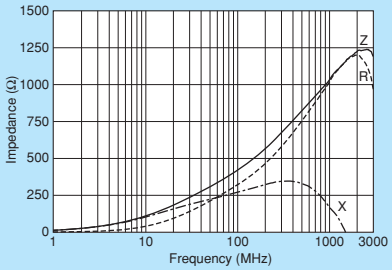


■ Impedance-Frequency Characteristics

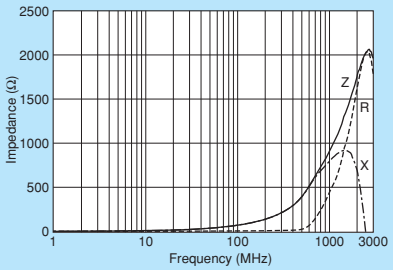
BLM15GG221SN1



BLM15GG471SN1



BLM15GA750SN1



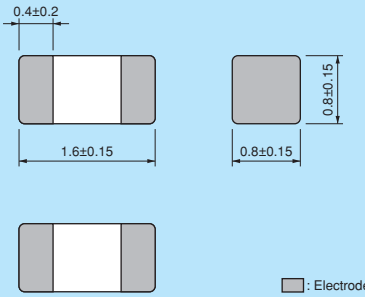
BLM18H Series (0603 Size)

GHz Flow OK Reflow OK

0603 size for GHz band noise. BLM18HE also supports power lines.

*Please refer to BLM15H for downsizing.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

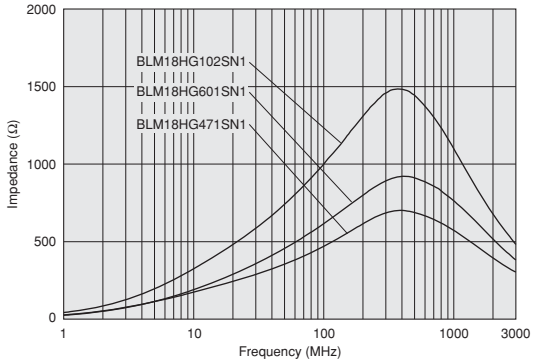
■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18HG471SN1□	470ohm ±25%	600ohm (Typ.)	200mA	0.85ohm max.	-55°C to +125°C	Kit
BLM18HG601SN1□	600ohm ±25%	700ohm (Typ.)	200mA	1.00ohm max.	-55°C to +125°C	Kit
BLM18HG102SN1□	1000ohm ±25%	1000ohm (Typ.)	100mA	1.60ohm max.	-55°C to +125°C	Kit
BLM18HE601SN1□	600ohm ±25%	600ohm (Typ.)	800mA	0.25ohm max.	-55°C to +125°C	Kit
BLM18HE102SN1□	1000ohm ±25%	1000ohm (Typ.)	600mA	0.35ohm max.	-55°C to +125°C	Kit
BLM18HE152SN1□	1500ohm ±25%	1500ohm (Typ.)	500mA	0.50ohm max.	-55°C to +125°C	Kit
BLM18HD471SN1□	470ohm ±25%	1000ohm (Typ.)	100mA	1.20ohm max.	-55°C to +125°C	Kit
BLM18HD601SN1□	600ohm ±25%	1200ohm (Typ.)	100mA	1.50ohm max.	-55°C to +125°C	Kit
BLM18HD102SN1□	1000ohm ±25%	1700ohm (Typ.)	50mA	1.80ohm max.	-55°C to +125°C	Kit
BLM18HB121SN1□	120ohm ±25%	500ohm ±40%	200mA	0.50ohm max.	-55°C to +125°C	Kit
BLM18HB221SN1□	220ohm ±25%	1100ohm ±40%	100mA	0.80ohm max.	-55°C to +125°C	Kit
BLM18HB331SN1□	330ohm ±25%	1600ohm ±40%	50mA	1.20ohm max.	-55°C to +125°C	Kit
BLM18HK331SN1□	330ohm ±25%	400ohm ±40%	200mA	0.50ohm max.	-55°C to +125°C	Kit
BLM18HK471SN1□	470ohm ±25%	600ohm ±40%	200mA	0.70ohm max.	-55°C to +125°C	Kit
BLM18HK601SN1□	600ohm ±25%	700ohm ±40%	100mA	0.90ohm max.	-55°C to +125°C	Kit
BLM18HK102SN1□	1000ohm ±25%	1200ohm ±40%	50mA	1.50ohm max.	-55°C to +125°C	Kit

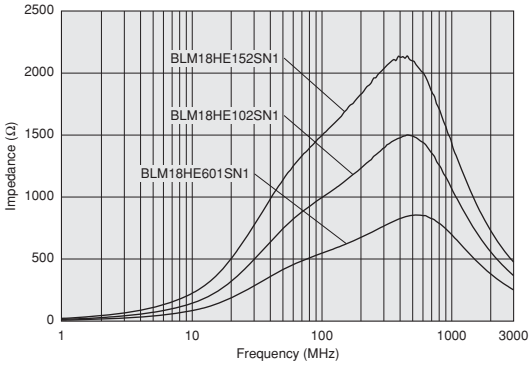
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

BLM18HG Series (For General Signal Lines)



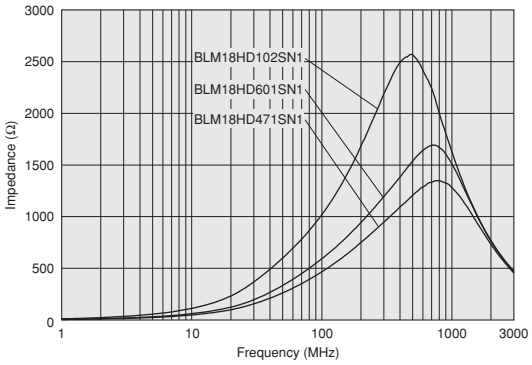
BLM18HE Series (For High Speed Signal Lines)



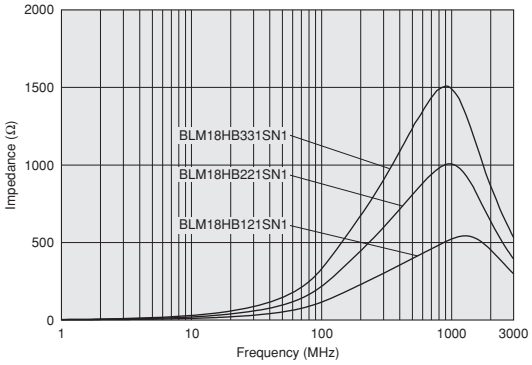
Continued on the following page.

■ Impedance-Frequency Characteristics (Main Items)

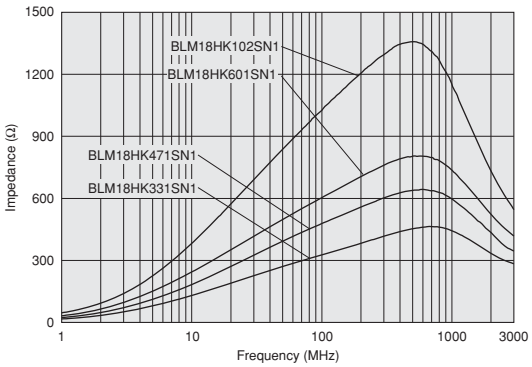
BLM18HD Series (For High Speed Signal Lines)



BLM18HB Series (For High Speed Signal Lines)



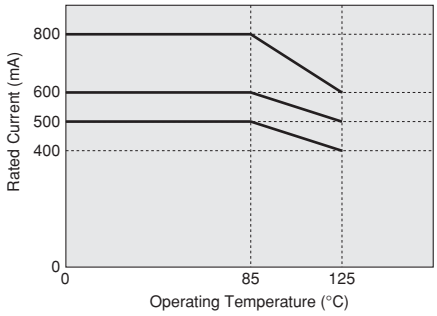
BLM18HK Series (For Digital Interface Lines)



■ Notice (Rating)

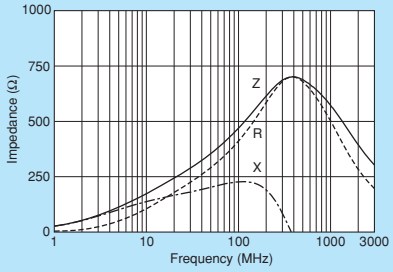
In operating temperature exceeding +85°C, derating of current is necessary for BLM18HE series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current

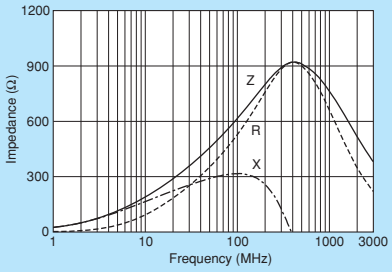


■ Impedance-Frequency Characteristics

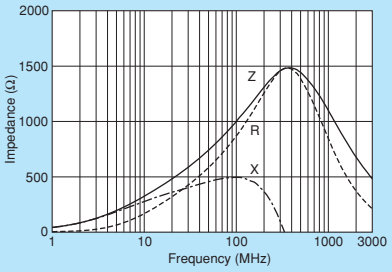
BLM18HG471SN1



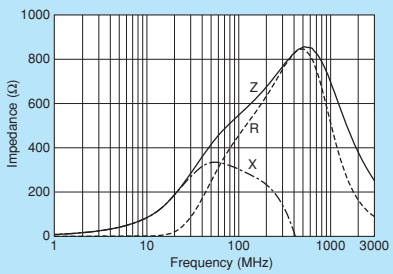
BLM18HG601SN1



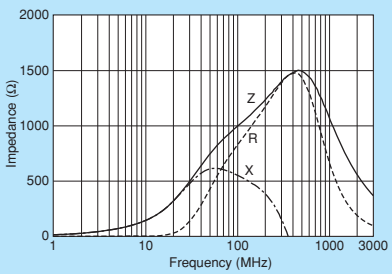
BLM18HG102SN1



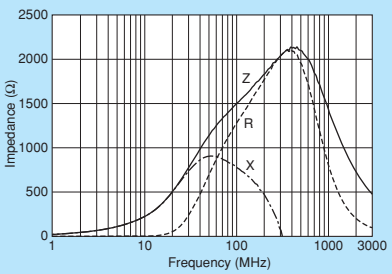
BLM18HE601SN1



BLM18HE102SN1



BLM18HE152SN1

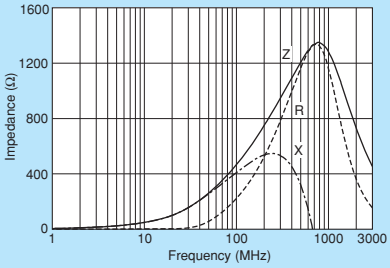


Continued on the following page.

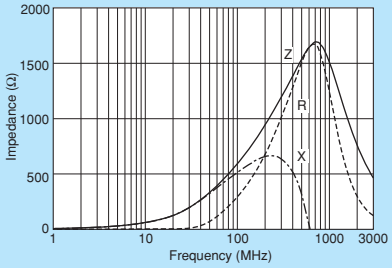
⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

■ Impedance-Frequency Characteristics

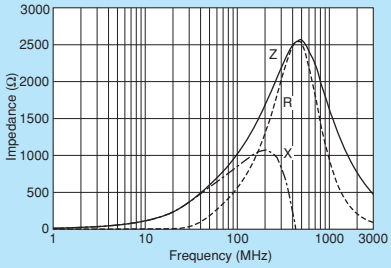
BLM18HD471SN1



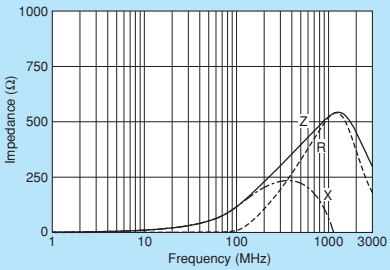
BLM18HD601SN1



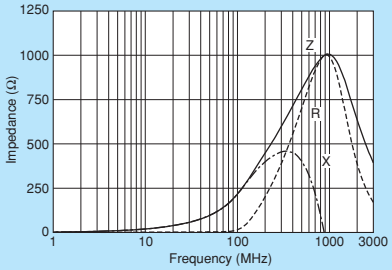
BLM18HD102SN1



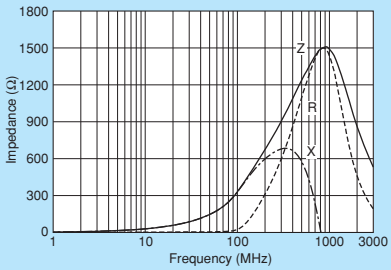
BLM18HB121SN1



BLM18HB221SN1



BLM18HB331SN1



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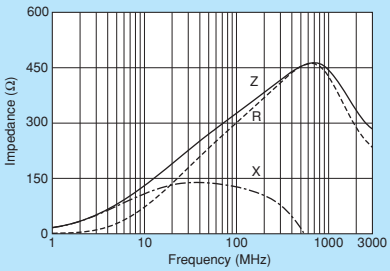
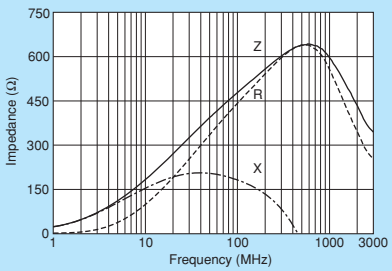
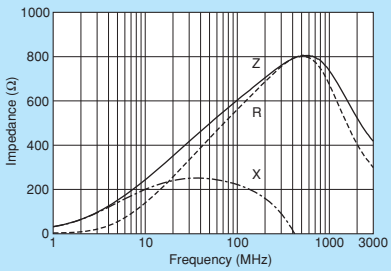


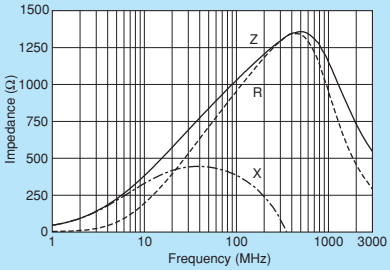
BLM18HK471SN1



BLM18HK601SN1

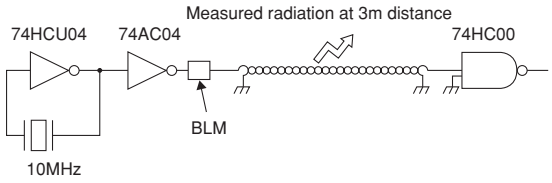


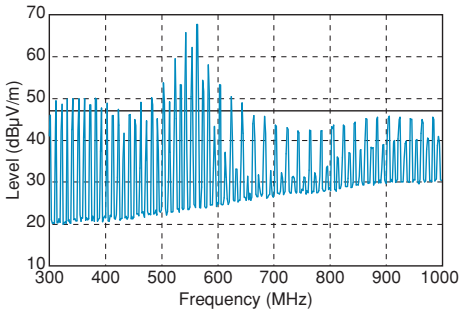
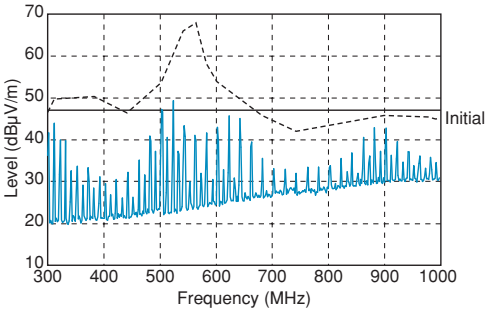
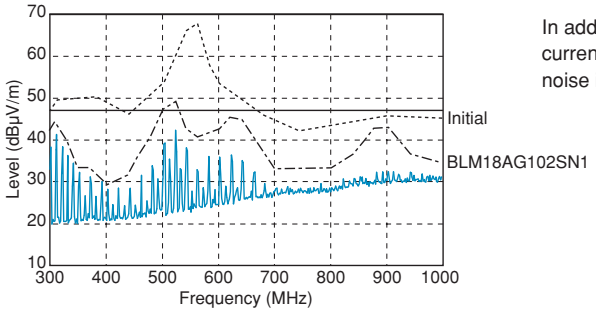
BLM18HK102SN1



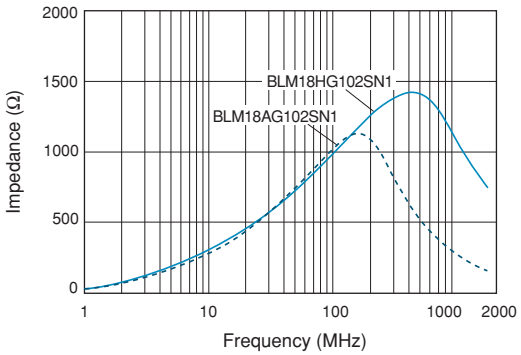
Noise Suppression of BLM18H in UHF Range

Testing Circuit



Type of Filter	EMI Suppression Effect / Description
Initial (No filter)	
Conventional Type **BLM18AG102SN1** (1000Ω at 100MHz)	 Current BLM18AG are effective in suppressing noise in the range between 300MHz and 700MHz.
for GHz Noise Suppression **BLM18HG102SN1** (1000Ω at 100MHz)	 In addition to the effectiveness of current BLM, BLM18HG suppresses noise in the range beyond 700MHz.

Comparison between BLM18HG102SN1 and BLM18AG102SN1 (Current Item)

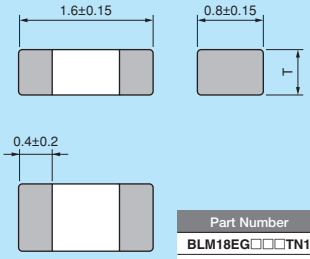


BLM18E Series (0603 Size)

GHz | Hi Power | Flow OK | Reflow OK

For GHz band noise, also capable to large current.

■ Dimensions



Part Number	T
BLM18EG□□□TN1	0.5±0.15
BLM18EG□□□SN1	0.8±0.15

: Electrode

(in mm)

■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

Refer to pages from p.91 to p.94 for mounting information.

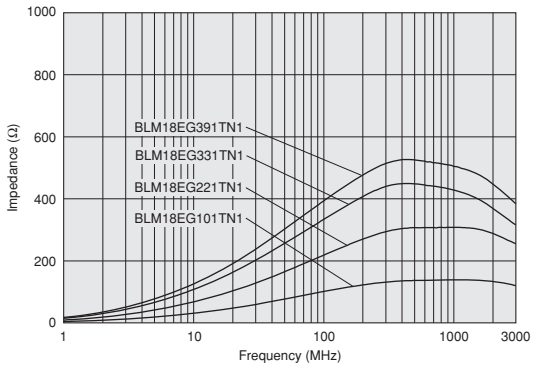
■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18EG101TN1□	100ohm ±25%	140ohm (Typ.)	2000mA	0.045ohm max.	-55°C to +125°C	Kit ≧1A
BLM18EG121SN1□	120ohm ±25%	145ohm (Typ.)	2000mA	0.04ohm max.	-55°C to +125°C	Kit ≧1A
BLM18EG221SN1□	220ohm ±25%	260ohm (Typ.)	2000mA	0.05ohm max.	-55°C to +125°C	Kit ≧1A
BLM18EG221TN1□	220ohm ±25%	300ohm (Typ.)	1000mA	0.15ohm max.	-55°C to +125°C	Kit ≧1A
BLM18EG331TN1□	330ohm ±25%	450ohm (Typ.)	500mA	0.21ohm max.	-55°C to +125°C	Kit
BLM18EG391TN1□	390ohm ±25%	520ohm (Typ.)	500mA	0.3ohm max.	-55°C to +125°C	Kit
BLM18EG471SN1□	470ohm ±25%	550ohm (Typ.)	500mA	0.21ohm max.	-55°C to +125°C	Kit
BLM18EG601SN1□	600ohm ±25%	700ohm (Typ.)	500mA	0.35ohm max.	-55°C to +125°C	Kit

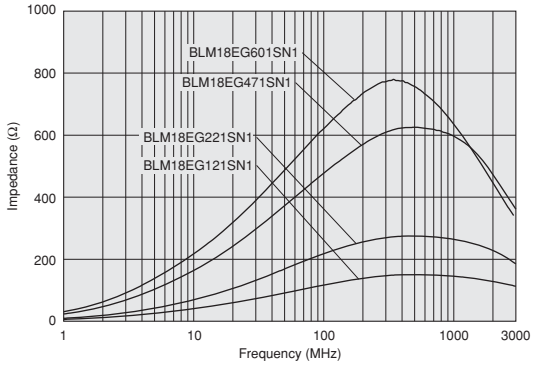
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)

BLM18EG_TN1 Series



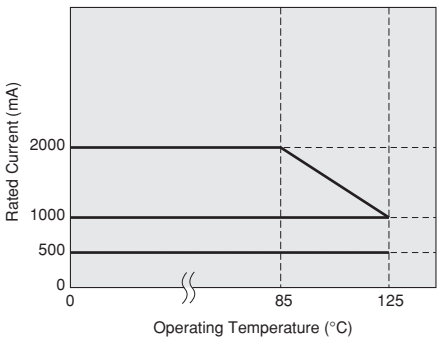
BLM18EG_SN1 Series



■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BLM18EG series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current

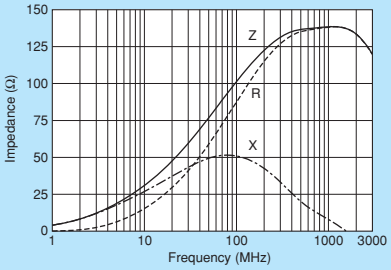


Continued on the following page.

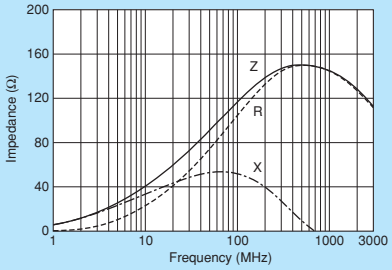
⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

■ Impedance-Frequency Characteristics

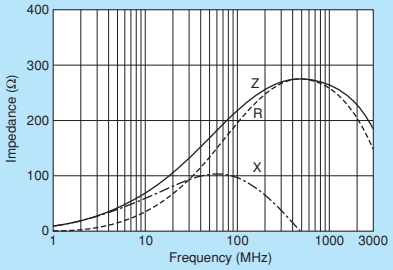
BLM18EG101TN1



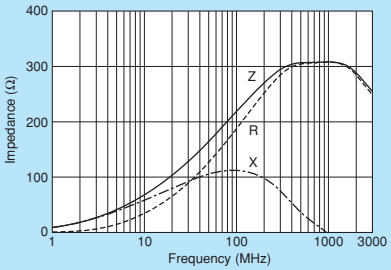
BLM18EG121SN1



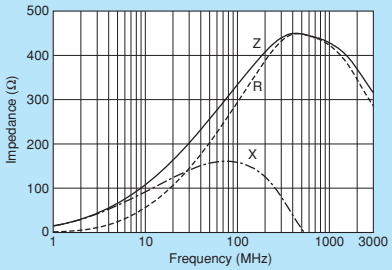
BLM18EG221SN1



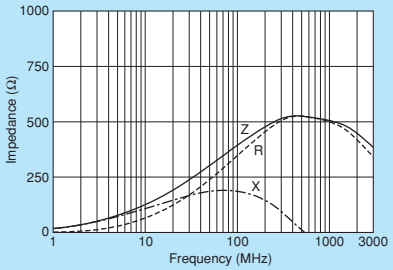
BLM18EG221TN1



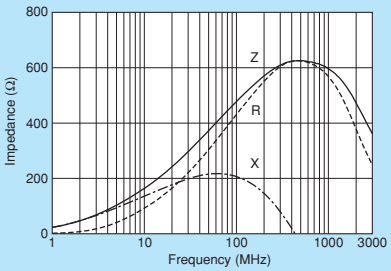
BLM18EG331TN1



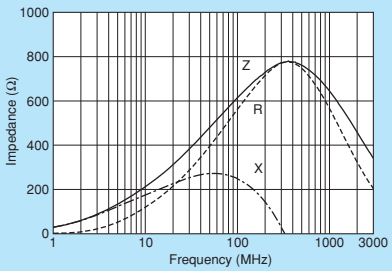
BLM18EG391TN1



BLM18EG471SN1



BLM18EG601SN1

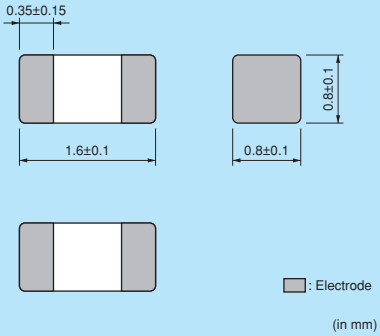


BLM18G Series (0603 Size)

Hi-GHz Reflow OK

Available up to high-GHz band noise.

■ Dimensions



■ Equivalent Circuit

(Resistance element becomes dominant at high frequencies.)

■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
J	330mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

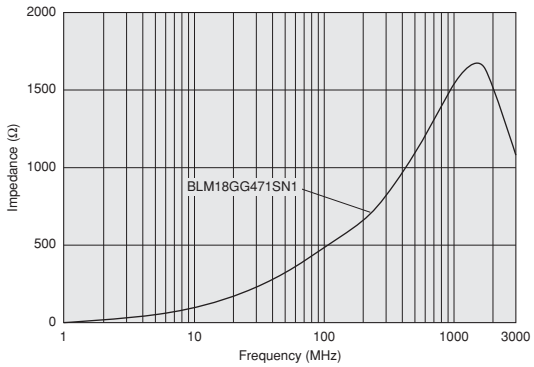
Refer to pages from p.91 to p.94 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Impedance (at 100MHz/20°C)	Impedance (at 1GHz/20°C)	Rated Current	DC Resistance	Operating Temperature Range	
BLM18GG471SN1□	470ohm ±25%	1800ohm ±30%	200mA	1.0ohm ±0.3ohm	-55°C to +125°C	Kit

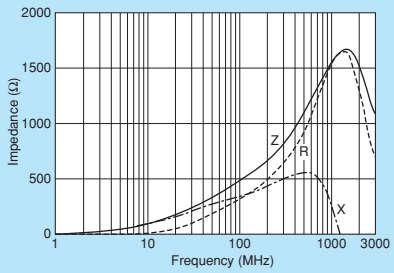
Number of Circuits: 1

■ Impedance-Frequency Characteristics (Main Items)



■ Impedance-Frequency Characteristics

BLM18GG471SN1



⚠Caution

● Rating

1. About the Rated Current
   Do not use products beyond the rated current as this may create excessive heat and deteriorate the insulation resistance.
2. About the Excessive Surge Current
   Excessive surge current (pulse current or rush current) than specified rated current applied to the product may cause a critical failure, such as an open circuit, burnout caused by excessive temperature rise.Please contact us in advance in case of applying the surge current.

● Soldering and Mounting

• Self-heating
Please provide special attention when mounting chip ferrite beads BLM_AX/P/K/S series in close proximity to other products that radiate heat.
The heat generated by other products may deteriorate the insulation resistance and cause excessive heat in this component.

Notice

● Storage and Operating Conditions

<Operating Environment>
Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
Do not use products in the environment close to the organic solvent.
<Storage and Handling Requirements>

1. Storage Period
   BLM15E/15H/15G series should be used within 12 months, the other series should be used within 6 months.
   Solderability should be checked if this period is exceeded.
2. Storage Conditions
   (1) Storage temperature: -10 to +40˚C
   Relative humidity: 15 to 85%
   Avoid sudden changes in temperature and humidity.
   (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

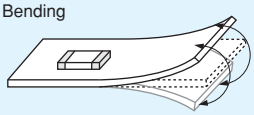
● Notice (Soldering and Mounting)

1. Cleaning
   Failure and degradation of a product are caused by the cleaning method. When you clean in conditions that are not in mounting information, please contact Murata engineering.
2. Soldering
   Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in mounting information.
3. Other
   Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

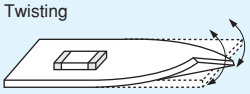
● Handling

1. Resin Coating
   Using resin for coating/molding products may affect the products performance.
   So please pay careful attention in selecting resin.
   Prior to use, please make the reliability evaluation with the product mounted in your application set.
2. Handling of a Substrate
   After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting to the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening screw to the substrate.
   Excessive mechanical stress may cause cracking in the Product.

Bending



Twisting



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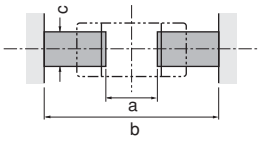
1. Standard Land Pattern Dimensions

Land Pattern + Solder Resist
Land Pattern Solder Resist
(in mm)

BLM02
BLM03
BLM15
BLM18
BLM21
BLM31
BLM41

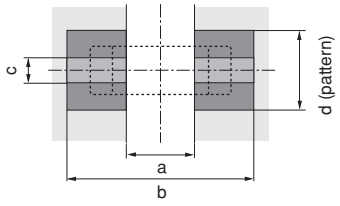
●Reflow and Flow
BLM Series



Type	Soldering	a	b	c
BLM02 (All items)	Reflow	0.16-0.2	0.4-0.56	0.2-0.23
BLM03	Reflow	0.2-0.3	0.6-0.9	0.3
BLM15	Reflow	0.4	1.2-1.4	0.5
BLM18	Flow (except 18G)	0.7	2.2-2.6	0.7
	Reflow		1.8-2.0	
BLM21	Flow/ Reflow	1.2	3.0-4.0	1.0

• Except BLM03PG·PX/15AX·PD·PG/18PG·KG·SG/21PG. And BLM02 (All items)/03/15/18G is specially adapted for reflow soldering.

BLM□□AX/P/K/S



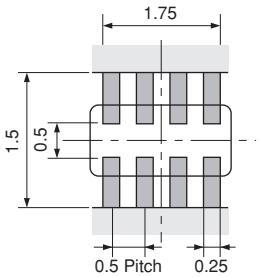
Type	Rated Current (A)	Soldering	a	b	c	Land Pad Thickness and Dimension d 18μm	35μm	70μm
BLM03AX	0.9max.	Reflow	0.2-0.3	0.6-0.9	0.3	0.3	0.3	0.3
BLM03P□	1.8max.					1.2	0.7	0.3
BLM15AX	1.5max.	Reflow	0.4	1.2-1.4	0.5	0.5	0.5	0.5
BLM15P□	2.2max.					1.2	0.7	0.5
BLM18PG	0.5-1.5	Flow/ Reflow	0.7	Flow 2.2-2.6 Reflow 1.8-2.0	0.7	0.7	0.7	0.7
	1.7-2.5					1.2	0.7	0.7
BLM18KG	3-4					2.4	1.2	0.7
BLM18SG	5-6					6.4	3.3	1.65
BLM21PG	1.5		1.2	3.0-4.0	1.0	1.0	1.0	1.0
	2					1.2	1.0	1.0
	3-4					2.4	1.2	1.0
	6					6.4	3.3	1.65
BLM31PG	1.5-2		2.0	4.2-5.2	1.2	1.2	1.2	1.2
	3.5					2.4	1.2	1.2
	6					6.4	3.3	1.65
BLM41PG	1.5-2		3.0	5.5-6.5		1.2	1.2	1.2
	3.5					2.4	1.2	1.2
	6					6.4	3.3	1.65

• Do not apply narrower pattern than listed above to BLM□□AX/P/K/S.
Narrow pattern can cause excessive heat or open circuit.

BLA2A
BLA31

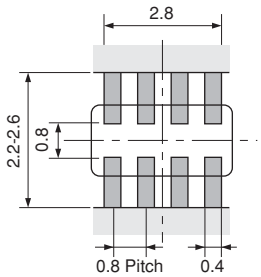
●Reflow Soldering

BLA2A



●Reflow and Flow

BLA31

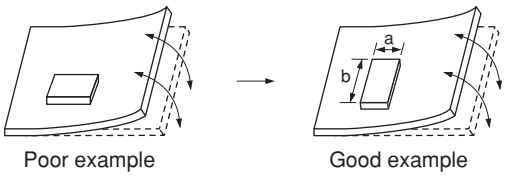


• If there are high amounts of self-heating on pattern, the contact points of PCB and part may become damaged.

● PCB Warping

PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.

Products should be located in the sideways direction (Length: a<b) to the mechanical stress.

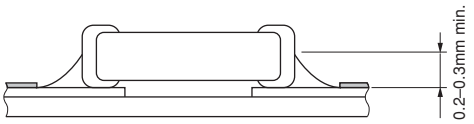
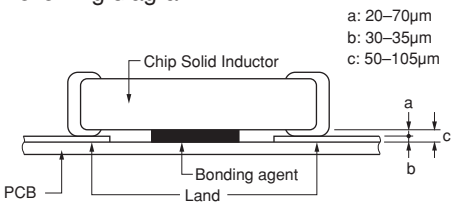
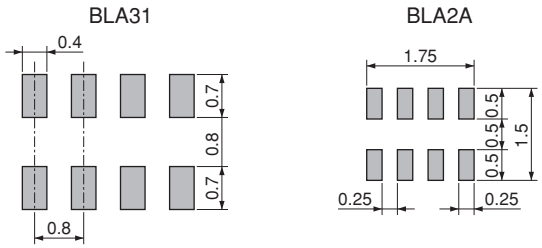
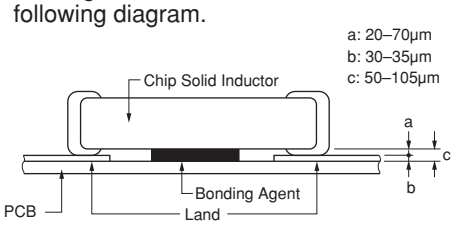


2. Solder Paste Printing and Adhesive Application

When reflow soldering the chip ferrite beads, the printing must be conducted in accordance with the following cream solder printing conditions.
If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.
Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the chip ferrite beads, apply the adhesive in accordance with the following conditions.
If too much adhesive is applied, then it may overflow into the land or termination areas and yield poor solderability. In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during flow soldering process.

(in mm)

Series	Solder Paste Printing	Adhesive Application
BLM	●Ensure that solder is applied smoothly to a minimum height of 0.2mm to 0.3mm at the end surface of the part. ●Guideline of solder paste thickness: 50-80μm: BLM02 100-150μm: BLM03 100-200μm: BLM15/18/21/31/41 	■BLM18/21/31/41 Series (Except BLM18G Series) Coating amount is illustrated in the following diagram. 
BLA	●Guideline of solder paste thickness: 100-150μm: BLA2A 150-200μm: BLA31 	■BLA31 Series Coating amount is illustrated in the following diagram. 

3. Standard Soldering Conditions

(1) Soldering Methods

Use flow and reflow soldering methods only.
Use standard soldering conditions when soldering chip ferrite beads.
In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products. If using BLA series with Sn-Zn based solder, please contact Murata in advance.

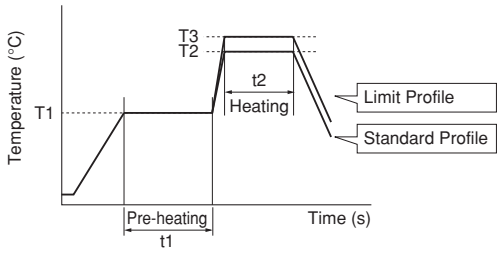
Flux:

- Use Rosin-based flux.
  In case of using RA type solder, products should be cleaned completely with no residual flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

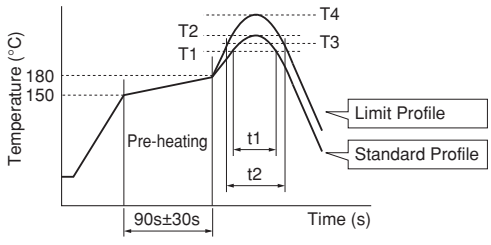
(2) Soldering Profile

●Flow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Pre-heating		Standard Profile			Limit Profile		
			Heating		Cycle of Flow	Heating		Cycle of Flow
	Temp. (T1)	Time. (t1)	Temp. (T2)	Time. (t2)		Temp. (T3)	Time. (t2)	
BLM (Except BLM02/03/15/18G) BLA31	150°C	60s min.	250°C	4 to 6s	2 times max.	265±3°C	5s max.	2 times max.

●Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Standard Profile				Limit Profile			
	Heating		Peak Temperature (T2)	Cycle of Reflow	Heating		Peak Temperature (T4)	Cycle of Reflow
	Temp. (T1)	Time. (t1)			Temp. (T3)	Time. (t2)		
BLM BLA	220°C min.	30 to 60s	245±3°C	2 times max.	230°C min.	60s max.	260°C/10s	2 times max.

(3) Reworking with Solder Iron

The following conditions must be strictly followed when using a soldering iron.(Except BLM02 Series)

Pre-heating: 150°C 60s min.

Soldering iron power output / Tip diameter:
80W max. / ø3mm max.

Temperature of soldering iron tip / Soldering time / Times:
350°C max. / 3-4s / 2 times

Do not allow the tip of the soldering iron to directly contact the chip.

For additional methods of reworking with a soldering iron, please contact Murata engineering.

4. Cleaning

Following conditions should be observed when cleaning chip ferrite beads.

(1) Cleaning Temperature: 60°C max. (40°C max. for alcohol type cleaner)

(2) Ultrasonic
Output: 20W/liter max.
Duration: 5 minutes max.
Frequency: 28 to 40kHz

(3) Cleaning Agent
The following list of cleaning agents have been tested on the individual components. Evaluation of final assembly should be completed prior to production.

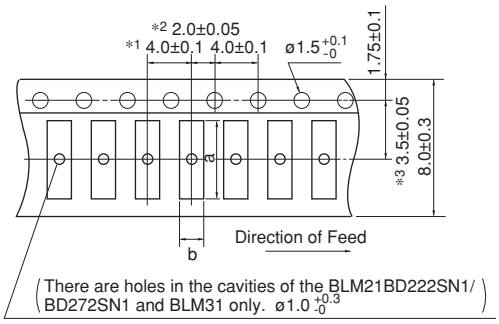
(a) Alcohol cleaning agent
Isopropyl alcohol (IPA)

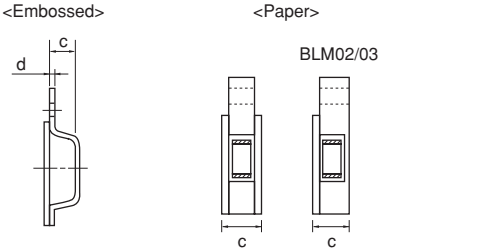
(b) Aqueous cleaning agent
Pine Alpha ST-100S

(4) Ensure that flux residue is completely removed.
Component should be thoroughly dried after aqueous agent has been removed with deionized water.

(5) BLM_G type is processed with resin. On rinsing the product, using water for ultrasonic cleaning may affect the resin quality used for the product by water element. In case of set cleaning conditions, please make sure the reliability according to the cleaning conditions.

■ Minimum Quantity and Dimensions of 8mm Width Paper / Embossed Tape





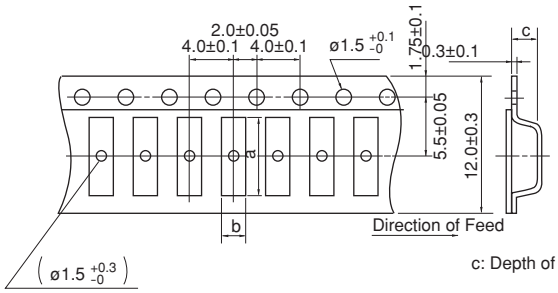
*1 BLM02/03/15: 2.0±0.05
BLM18S/18T/BLA2A: 2.0±0.1
*2 BLA2A/31: 2.0±0.1
*3 BLA2A/31: 3.5±0.1

Dimension of the cavity of embossed tape is measured at the bottom side.

Part Number	Dimensions				Minimum Qty. (pcs.)				
					ø180mm Reel		ø330mm Reel		Bulk
	a	b	c	d	Paper Tape	Embossed Tape	Paper Tape	Embossed Tape	
BLM02	0.45	0.25	0.40 max.	-	20000	-	-	-	1000
BLM03	0.70	0.40	0.55 max.	-	15000	-	50000	-	1000
BLM15	1.15	0.65	0.8 max.	-	10000	-	50000	-	1000
BLM18	1.85	1.05	1.1 max.	-	4000	-	10000	-	1000
BLM18EG/KG_TN	1.85	1.05	0.85 max.	-	4000	-	10000	-	1000
BLM18EG/KG_SN			1.1 max.						
BLM18S	1.85	1.05	0.90 max.	-	10000	-	30000	-	1000
BLM18T	1.85	1.05	0.90 max.	-	10000	-	-	-	1000
BLM21	2.25	1.45	1.1 max.	-	4000	-	10000	-	1000
BLM31	3.5	1.9	1.3	0.2	-	3000	-	10000	1000
BLM21BD222SN1/272SN1	2.25	1.45	1.3	0.2	-	3000	-	10000	1000
BLA2A	2.2	1.2	0.8 max.	-	10000	-	50000	-	1000
BLA31	3.4	1.8	1.1 max.	-	4000	-	10000	-	1000

(in mm)

■ Minimum Quantity and Dimensions of 12mm Width Embossed Tape



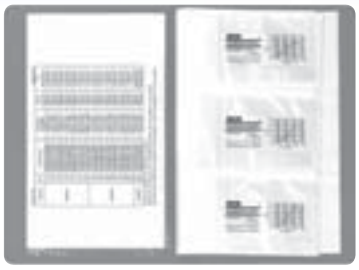
c: Depth of Cavity

Dimension of the cavity is measured at the bottom side.

Part Number	Dimensions			Minimum Qty. (pcs.)		
	a	b	c	ø180mm Reel	ø330mm Reel	Bulk
BLM41	4.8	1.9	1.75	2500	8000	1000

(in mm)

"Minimum Quantity" means the number of units of each delivery or order. Thequantity should be an integral multiple of the "Minimum Quantity".



●EKEMBL03J (Chip Ferrite Beads 01005 Size / 0201 Size)

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
1	BLM03AG100SN1	20	10Ω (Typ.)	500	0.1
2	BLM03AG700SN1	20	70Ω (Typ.)	200	0.4
3	BLM03AG800SN1	20	80Ω±25%	200	0.4
4	BLM03AG121SN1	20	120Ω±25%	200	0.5
5	BLM03AG241SN1	20	240Ω±25%	200	0.8
6	BLM03AG601SN1	20	600Ω±25%	100	1.5
7	BLM03AG102SN1	20	1000Ω±25%	100	2.5
8	BLM03AX100SN1	20	10Ω (Typ.)	1000	0.05
9	BLM03AX800SN1	20	80Ω±25%	500	0.18
10	BLM03AX121SN1	20	120Ω±25%	450	0.23
11	BLM03AX241SN1	20	240Ω±25%	350	0.38
12	BLM03AX601SN1	20	600Ω±25%	250	0.85
13	BLM03AX102SN1	20	1000Ω±25%	200	1.25
14	BLM03BB100SN1	20	10Ω±25%	300	0.4
15	BLM03BB220SN1	20	22Ω±25%	200	0.5
16	BLM03BB470SN1	20	47Ω±25%	200	0.7
17	BLM03BB750SN1	20	75Ω±25%	200	1.0
18	BLM03BB121SN1	20	120Ω±25%	100	1.5
19	BLM03BD750SN1	20	75Ω±25%	300	0.4
20	BLM03BD121SN1	20	120Ω±25%	250	0.5
21	BLM03BD241SN1	20	240Ω±25%	200	0.8
22	BLM03BD471SN1	20	470Ω±25%	215	1.5
23	BLM03BD601SN1	20	600Ω±25%	200	1.7
24	BLM03BC330SN1	20	33Ω±25%	150	0.85
25	BLM03BC560SN1	20	56Ω±25%	100	1.05
26	BLM03BC800SN1	20	80Ω±25%	100	1.40
27	BLM03HG601SN1	20	600Ω±25%	150	1.6
28	BLM03HG102SN1	20	1000Ω±25%	125	2.6
29	BLM03HD331SN1	20	330Ω±25%	200	1.0
30	BLM03HD471SN1	20	470Ω±25%	175	1.3
31	BLM03HD601SN1	20	600Ω±25%	150	1.7
32	BLM03HD102SN1	20	1000Ω±25%	120	2.9
33	BLM03PG220SN1	20	22Ω±25%	900	0.065
34	BLM03PG330SN1	20	33Ω±25%	750	0.090
35	BLM03PX220SN1	20	22Ω±25%	1800	0.040
36	BLM03PX330SN1	20	33Ω±25%	1500	0.055
37	BLM03PX800SN1	20	80Ω±25%	1000	0.130

●EKEMBL15P (Chip Ferrite Beads 0402 Size)

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
1	BLM15AG100SN1	20	10Ω (Typ.)	1000	0.05
2	BLM15AG700SN1	20	70Ω (Typ.)	500	0.15
3	BLM15AG121SN1	20	120Ω±25%	500	0.25
4	BLM15AG221SN1	20	220Ω±25%	300	0.35
5	BLM15AG601SN1	20	600Ω±25%	300	0.60
6	BLM15AG102SN1	20	1000Ω±25%	200	1.00
7	BLM15AX100SN1	20	10Ω (Typ.)	1740	0.015
8	BLM15AX300SN1	20	30Ω±25%	1100	0.06
9	BLM15AX700SN1	20	70Ω±25%	780	0.10
10	BLM15AX121SN1	20	120Ω±25%	680	0.13
11	BLM15AX221SN1	20	220Ω±25%	580	0.18
12	BLM15AX601SN1	20	600Ω±25%	420	0.34
13	BLM15AX102SN1	20	1000Ω±25%	350	0.49
14	BLM15BA050SN1	20	5Ω±25%	300	0.10

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No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
15	BLM15BA100SN1	20	10Ω±25%	300	0.20
16	BLM15BA220SN1	20	22Ω±25%	300	0.30
17	BLM15BA330SN1	20	33Ω±25%	300	0.40
18	BLM15BA470SN1	20	47Ω±25%	200	0.60
19	BLM15BA750SN1	20	75Ω±25%	200	0.80
20	BLM15BB050SN1	20	5Ω±25%	500	0.08
21	BLM15BB100SN1	20	10Ω±25%	300	0.10
22	BLM15BB220SN1	20	22Ω±25%	300	0.20
23	BLM15BB470SN1	20	47Ω±25%	300	0.35
24	BLM15BB750SN1	20	75Ω±25%	300	0.40
25	BLM15BB121SN1	20	120Ω±25%	300	0.55
26	BLM15BB221SN1	20	220Ω±25%	200	0.80
27	BLM15BC121SN1	20	120Ω±25%	350	0.45
28	BLM15BC241SN1	20	240Ω±25%	250	0.70
29	BLM15BD750SN1	20	75Ω±25%	300	0.20
30	BLM15BD121SN1	20	120Ω±25%	300	0.30
31	BLM15BD221SN1	20	220Ω±25%	300	0.40
32	BLM15BD471SN1	20	470Ω±25%	200	0.60
33	BLM15BD601SN1	20	600Ω±25%	200	0.65
34	BLM15BD102SN1	20	1000Ω±25%	200	0.90
35	BLM15BD182SN1	20	1800Ω±25%	100	1.40
36	BLM15HD601SN1	20	600Ω±25%	300	0.85
37	BLM15HD102SN1	20	1000Ω±25%	250	1.25
38	BLM15HD182SN1	20	1800Ω±25%	200	2.20
39	BLM15HG601SN1	20	600Ω±25%	300	0.70
40	BLM15HG102SN1	20	1000Ω±25%	250	1.10
41	BLM15HB121SN1	20	120Ω±25%	300	0.70
42	BLM15HB221SN1	20	220Ω±25%	250	1.00
43	BLM15EG121SN1	20	120Ω±25%	1500	0.095
44	BLM15EG221SN1	20	220Ω±25%	700	0.28
45	BLM15GG221SN1	20	220Ω±25%	300	0.70
46	BLM15GG471SN1	20	470Ω±25%	200	1.30
47	BLM15GA750SN1	20	75Ω±25%	200	1.30
48	BLM15PG100SN1	20	10Ω (Typ.)	1000	0.05
49	BLM15PD300SN1	20	30Ω±25%	2200	0.035
50	BLM15PD600SN1	20	60Ω±25%	1700	0.06
51	BLM15PD800SN1	20	80Ω±25%	1500	0.07
52	BLM15PD121SN1	20	120Ω±25%	1300	0.09

●EKEMBL18J (Chip Ferrite Beads 0603 Size)

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
1	BLM18AG121SN1	20	120Ω±25%	500	0.18
2	BLM18AG151SN1	20	150Ω±25%	500	0.25
3	BLM18AG221SN1	20	220Ω±25%	500	0.25
4	BLM18AG331SN1	20	330Ω±25%	500	0.30
5	BLM18AG471SN1	20	470Ω±25%	500	0.35
6	BLM18AG601SN1	20	600Ω±25%	500	0.38
7	BLM18AG102SN1	20	1000Ω±25%	400	0.50
8	BLM18BA050SN1	20	5Ω±25%	500	0.20
9	BLM18BA100SN1	20	10Ω±25%	500	0.25
10	BLM18BA470SN1	20	47Ω±25%	300	0.55
11	BLM18BA750SN1	20	75Ω±25%	300	0.70
12	BLM18BA121SN1	20	120Ω±25%	200	0.90
13	BLM18BB050SN1	20	5Ω±25%	700	0.05
14	BLM18BB100SN1	20	10Ω±25%	700	0.10
15	BLM18BB220SN1	20	22Ω±25%	600	0.20
16	BLM18BB470SN1	20	47Ω±25%	550	0.25
17	BLM18BB600SN1	20	60Ω±25%	550	0.25
18	BLM18BB750SN1	20	75Ω±25%	500	0.30
19	BLM18BB121SN1	20	120Ω±25%	500	0.30
20	BLM18BB151SN1	20	150Ω±25%	450	0.37
21	BLM18BB221SN1	20	220Ω±25%	450	0.45
22	BLM18BB331SN1	20	330Ω±25%	400	0.58
23	BLM18BB471SN1	20	470Ω±25%	300	0.85

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Design Kits
Chip Ferrite Bead
Chip EMIFIL®
Chip Common Mode Choke Coil
Block Type EMIFIL®
Microwave Absorber

Continued from the preceding page.

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
24	BLM18BD470SN1	20	47Ω±25%	500	0.30
25	BLM18BD121SN1	20	120Ω±25%	200	0.40
26	BLM18BD151SN1	20	150Ω±25%	200	0.40
27	BLM18BD221SN1	20	220Ω±25%	200	0.45
28	BLM18BD331SN1	20	330Ω±25%	200	0.50
29	BLM18BD421SN1	20	420Ω±25%	200	0.55
30	BLM18BD471SN1	20	470Ω±25%	200	0.55
31	BLM18BD601SN1	20	600Ω±25%	200	0.65
32	BLM18BD102SN1	20	1000Ω±25%	100	0.85
33	BLM18BD152SN1	20	1500Ω±25%	50	1.20
34	BLM18BD182SN1	20	1800Ω±25%	50	1.50
35	BLM18BD222SN1	20	2200Ω±25%	50	1.50
36	BLM18BD252SN1	20	2500Ω±25%	50	1.50
37	BLM18PG300SN1	20	30Ω (Typ.)	1000	0.05
38	BLM18PG330SN1	20	33Ω±25%	3000	0.025
39	BLM18PG600SN1	20	60Ω (Typ.)	500	0.10
40	BLM18PG121SN1	20	120Ω±25%	2000	0.05
41	BLM18PG181SN1	20	180Ω±25%	1500	0.09
42	BLM18PG221SN1	20	220Ω±25%	1400	0.10
43	BLM18PG331SN1	20	330Ω±25%	1200	0.15
44	BLM18PG471SN1	20	470Ω±25%	1000	0.20
45	BLM18KG260TN1	20	26Ω±25%	6000	0.007
46	BLM18KG300TN1	20	30Ω±25%	5000	0.010
47	BLM18KG700TN1	20	70Ω±25%	3500	0.022
48	BLM18KG101TN1	20	100Ω±25%	3000	0.030
49	BLM18KG121TN1	20	120Ω±25%	3000	0.030
50	BLM18KG221SN1	20	220Ω±25%	2200	0.050
51	BLM18KG331SN1	20	330Ω±25%	1700	0.080
52	BLM18KG471SN1	20	470Ω±25%	1500	0.130
53	BLM18KG601SN1	20	600Ω±25%	1300	0.150
54	BLM18SG260TN1	20	26Ω±25%	6000	0.007
55	BLM18SG700TN1	20	70Ω±25%	4000	0.020
56	BLM18SG121TN1	20	120Ω±25%	3000	0.025
57	BLM18SG221TN1	20	220Ω±25%	2500	0.040
58	BLM18SG331TN1	20	330Ω±25%	1500	0.070

●EKEMBL8GB (Chip Ferrite Beads 0603 Size / for High Frequency Type)

No.	Part Number	Quantity (pcs.)	Impedance (at 100MHz, 20 degrees C)	Impedance (at 1GHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
1	BLM18HG471SN1	20	470Ω±25%	600Ω (Typ.)	200	0.85
2	BLM18HG601SN1	20	600Ω±25%	700Ω (Typ.)	200	1.00
3	BLM18HG102SN1	20	1000Ω±25%	1000Ω (Typ.)	100	1.60
4	BLM18HB121SN1	20	120Ω±25%	500Ω±40%	200	0.50
5	BLM18HB221SN1	20	220Ω±25%	1100Ω±40%	100	0.80
6	BLM18HB331SN1	20	330Ω±25%	1600Ω±40%	50	1.20
7	BLM18HD471SN1	20	470Ω±25%	1000Ω (Typ.)	100	1.20
8	BLM18HD601SN1	20	600Ω±25%	1200Ω (Typ.)	100	1.50
9	BLM18HD102SN1	20	1000Ω±25%	1700Ω (Typ.)	50	1.80
10	BLM18HE601SN1	20	600Ω±25%	600Ω (Typ.)	800	0.25
11	BLM18HE102SN1	20	1000Ω±25%	1000Ω (Typ.)	600	0.35
12	BLM18HE152SN1	20	1500Ω±25%	1500Ω (Typ.)	500	0.50
13	BLM18HK331SN1	20	330Ω±25%	400Ω (Typ.)	200	0.50
14	BLM18HK471SN1	20	470Ω±25%	600Ω (Typ.)	200	0.70
15	BLM18HK601SN1	20	600Ω±25%	700Ω (Typ.)	100	0.90
16	BLM18HK102SN1	20	1000Ω±25%	1200Ω (Typ.)	50	1.50
17	BLM18EG101TN1	20	100Ω±25%	140Ω (Typ.)	2000	0.045
18	BLM18EG121SN1	20	120Ω±25%	145Ω (Typ.)	2000	0.04
19	BLM18EG221TN1	20	220Ω±25%	300Ω (Typ.)	1000	0.15
20	BLM18EG221SN1	20	220Ω±25%	260Ω (Typ.)	2000	0.05
21	BLM18EG331TN1	20	330Ω±25%	450Ω (Typ.)	500	0.21
22	BLM18EG391TN1	20	390Ω±25%	520Ω (Typ.)	500	0.30
23	BLM18EG471SN1	20	470Ω±25%	550Ω (Typ.)	500	0.21
24	BLM18EG601SN1	20	600Ω±25%	700Ω (Typ.)	500	0.35
25	BLM18GG471SN1	20	470Ω±25%	1800Ω±30%	200	1.30

⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

●EKEMBL21F (Chip Ferrite Beads 0805 Size / for Large-current P Type)

No.	Part Number	Quantity (pcs.)	Impedance typ. (at 100MHz, 20 degrees C)	Rated Current (mA)	DC Resistance (Ω) max.
1	**BLM21AG121SN1**	20	120Ω±25%	800	0.10
2	**BLM21AG151SN1**	20	150Ω±25%	800	0.10
3	**BLM21AG221SN1**	20	220Ω±25%	800	0.13
4	**BLM21AG331SN1**	20	330Ω±25%	700	0.16
5	**BLM21AG471SN1**	20	470Ω±25%	700	0.19
6	**BLM21AG601SN1**	20	600Ω±25%	600	0.21
7	**BLM21AG102SN1**	20	1000Ω±25%	500	0.28
8	**BLM21BB050SN1**	20	5Ω±25%	1000	0.02
9	**BLM21BB600SN1**	20	60Ω±25%	800	0.13
10	**BLM21BB750SN1**	20	75Ω±25%	700	0.16
11	**BLM21BB121SN1**	20	120Ω±25%	600	0.19
12	**BLM21BB221SN1**	20	220Ω±25%	500	0.26
13	**BLM21BB331SN1**	20	330Ω±25%	400	0.33
14	**BLM21BB471SN1**	20	470Ω±25%	400	0.40
15	**BLM21BD121SN1**	20	120Ω±25%	200	0.25
16	**BLM21BD221SN1**	20	220Ω±25%	200	0.25
17	**BLM21BD421SN1**	20	420Ω±25%	200	0.30
18	**BLM21BD471SN1**	20	470Ω±25%	200	0.35
19	**BLM21BD601SN1**	20	600Ω±25%	200	0.35
20	**BLM21BD102SN1**	20	1000Ω±25%	200	0.40
21	**BLM21BD152SN1**	20	1500Ω±25%	200	0.45
22	**BLM21BD182SN1**	20	1800Ω±25%	200	0.50
23	**BLM21BD222SN1**	20	2250Ω (Typ.)	200	0.60
24	**BLM21BD222TN1**	20	2200Ω±25%	200	0.60
25	**BLM21BD272SN1**	20	2700Ω±25%	200	0.80
26	**BLM21PG220SN1**	20	22Ω±25%	6000	0.009
27	**BLM21PG300SN1**	20	30Ω (Typ.)	4000	0.014
28	**BLM21PG600SN1**	20	60Ω±25%	3500	0.02
29	**BLM21PG121SN1**	20	120Ω±25%	3000	0.03
30	**BLM21PG221SN1**	20	220Ω±25%	2000	0.045
31	**BLM21PG331SN1**	20	330Ω±25%	1500	0.07
32	**BLM31PG330SN1**	20	33Ω±25%	6000	0.009
33	**BLM31PG500SN1**	20	50Ω (Typ.)	3500	0.015
34	**BLM31PG121SN1**	20	120Ω±25%	3500	0.02
35	**BLM31PG391SN1**	20	390Ω (Typ.)	2000	0.05
36	**BLM31PG601SN1**	20	600Ω (Typ.)	1500	0.08
37	**BLM41PG600SN1**	20	60Ω (Typ.)	6000	0.009
38	**BLM41PG750SN1**	20	75Ω (Typ.)	3500	0.015
39	**BLM41PG181SN1**	20	180Ω (Typ.)	3500	0.02
40	**BLM41PG471SN1**	20	470Ω (Typ.)	2000	0.05
41	**BLM41PG102SN1**	20	1000Ω (Typ.)	1500	0.09

Memo

NF□

Chip EMIFIL®

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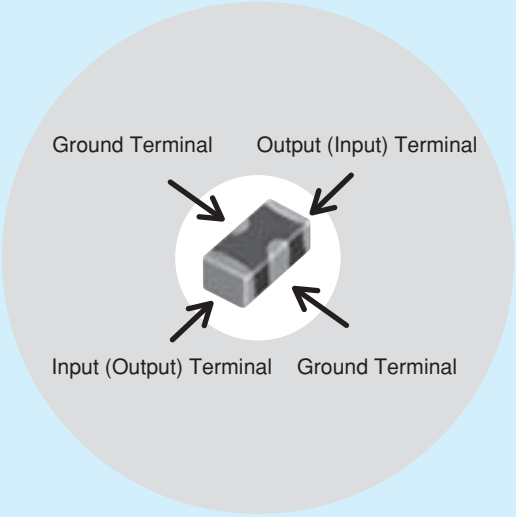
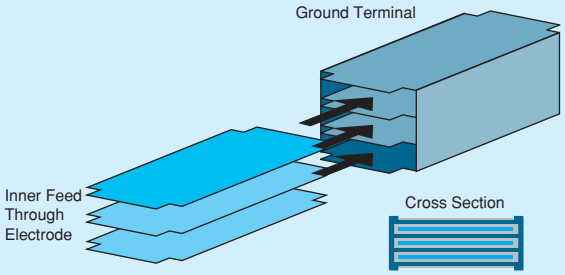
C31E.pdf
Jul.27,2012

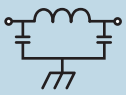
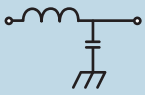
muRata

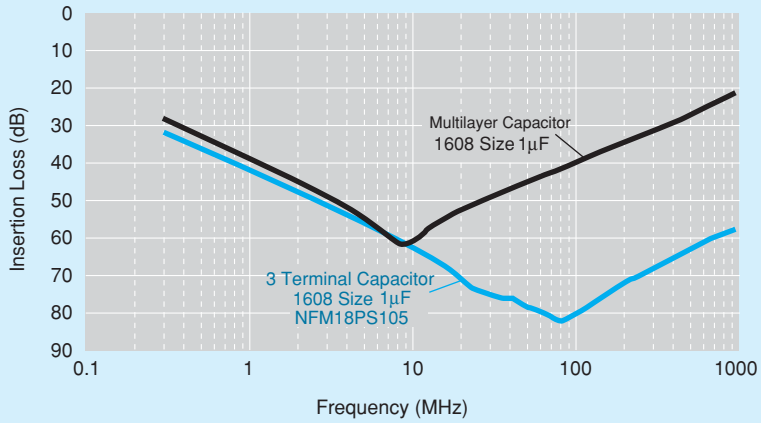


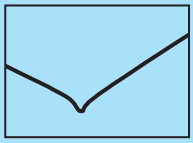
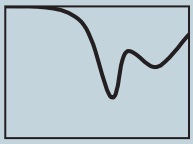
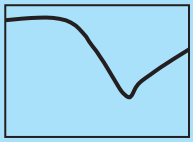
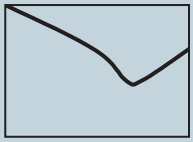
Example of 3 Terminal Capacitor Structure

Chip 3 terminal capacitor is chip shaped 3 terminal capacitor designed for noise suppression. Its inner structure like feed through capacitor makes its ground impedance quite low. Owing to this structure, 3 terminal capacitor has good noise suppression effect at high frequency range up to several hundred MHz.



Series	Equivalent Circuit	Part Number
NFM Series (3 terminal capacitor)		**NFM18CC** **NFM21CC** **NFM18PC** **NFM18PS** **NFM21PC**
NFL / NFW Series (LC filter)		**NFL15ST** **NFL18ST**
		**NFL18SP** **NFL21SP** **NFW31SP**
		**NFA21S** **NFA18S**
NFR Series (RC filter)		**NFR21GD** **NFA31GD**
NFE Series (Feed through capacitor with ferrite cores)		**NFE31PT** **NFE61PT**



Insertion Loss Sample	Features	Classification		Applications	Example
	Standard of 3 terminal capacitor	**NFM_CC**	Standard type with varied capacitance	Noise suppression in low speed signal lines	· Low speed interface lines, · sensor
		NFM_PC	Meet large current, high capacitance available, for power lines	Noise suppression in power lines	· Individual IC power lines
	Sharp insertion loss curve enables low damage to signal waveform	**NFL_ST**	T-type filter, effective in low impedance circuits	Noise suppression in high speed signal lines	· High speed interface lines · Bus lines LCD lines Camera I/Fs · High speed analog lines RGB / D terminal
		NFL_SP	π-type filter, effective in high impedance circuits		
		NFW_SP	π-type filter, designed for low impedance circuits		
		NFA_SL	4-line array, suitable for bus lines or flat cables		
	Limit noise using resistor, also loop back to ground			Noise suppression in signal line with unstable ground	· Interface lines · Clock lines
	Meet large current, good high frequency performance because of its feed through structure			Noise suppression in power lines / low impedance lines	· Various power lines · sensor

NF□ Chip EMIFIL® Part Numbering

Capacitor

(Part Number)

NF	M	3D	CC	102	R	1H	3	L
❶	❷	❸	❹	❺	❻	❼	❽	❾

❶Product ID

Product ID	
NF	Chip EMIFIL®

❷Structure

Code	Structure
M	Capacitor Type
A	Capacitor Array Type

❸Dimensions (L×W)

Code	Dimensions (L×W)	EIA
18	1.6×0.8mm	0603
21	2.0×1.25mm	0805
3D	3.2×1.25mm	1205
31	3.2×1.6mm	1206
41	4.5×1.6mm	1806
55	5.7×5.0mm	2220

❹Features

Code	Features
CC	Capacitor Type for Signal Lines
PC	Capacitor Type for Large Current
PS	High Insertion Loss Type for Large Current
KC	Capacitor Type for Very Large Current

❺Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

❻Characteristics

Code	Capacitance Change (Temperature Characteristics)
B	±10%, ±12.5%, +10/-13%
F	+30/-80%, +30/-84%
R	±15%, +15/-18%
U	-750 ±120ppm/°C
S	+350 to -1000ppm/°C

❼Rated Voltage

Code	Rated Voltage
0J	6.3V
1A	10V
1C	16V
1E	25V
1H	50V
2A	100V

❽Electrode/Others (**NFM** Series)

Code	Electrode	Series
3	Sn Plating	**NFM** (Except **NFM55**)
4	Solder Coating	**NFM55**

❽Number of Circuits (**NFA□□CC** Series)

Code	Number of Circuits
4	4 Circuits

❾Packaging

Code	Packaging	Series
L	Embossed Taping (ø180mm Reel)	**NFM3D/NFM31/NFM41/NFM55**
B	Bulk	All series
D	Paper Taping (ø180mm Reel)	**NFM18/NFM21/NFA□□CC**

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LC Combined (1)

(Part Number)

NF	L	18	ST	107	X	1C	3	L
❶	❷	❸	❹	❺	❻	❼	❽	❾

❶Product ID

Product ID	
NF	Chip EMIFIL®

❷Structure

Code	Structure
L	Maltilayer, LC Combined Type
W	Wire Wound, LC Combined Type
E	Block, LC Combined Type

❸Dimensions (L×W)

Code	Dimensions (L×W)	EIA
15	1.0×0.5mm	0402
18	1.6×0.8mm	0603
21	2.0×1.25mm	0805
31	3.2×1.6mm	1206
61	6.8×1.6mm	2606

❹Features

Code	Features
SP	π Circuit for Signal Lines
ST	T Circuit for Signal Lines
PT	T Circuit for Large Current

❺Cut-off Frequency (**NFL/NFW** Series)
Expressed by three figures. The unit is in hertz (Hz). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

❺Capacitance (**NFE** Series)
Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

❻Characteristics (**NFL/NFW** Series)

Code	Characteristics
H/X	Cut-off Frequency

❻Characteristics (**NFE** Series)

Code	Capacitance Change (Temperature Characteristics)
B	±10%
C	±20%, ±22%
D	+20/-30%, +22/-33%
E	+20/-55%, +22/-56%
F	+30/-80%, +22/-82%
R	±15%
U	-750 ±120ppm/ ˚C
Z	Other

❼Rated Voltage

Code	Rated Voltage
1A	10V
1C	16V
1E	25V
1H	50V
2A	100V

❽Electrode

Code	Electrode	Series
3/7	Sn Plating	**NFL**
4	Lead Free Solder Coating	**NFW**
9	Others	**NFE**

❾Packaging

Code	Packaging	Series
K	Embossed Taping (ø330mm Reel)	**NFW31/NFE**
L	Embossed Taping (ø180mm Reel)	**NFW31/NFE**
B	Bulk	**NFL18/NFL21/NFE**
D	Paper Taping (ø180mm Reel)	**NFL15/NFL18/NFL21**

LC Combined (2)

(Part Number) NF ❶ | A ❷ | 21 ❸ | SL ❹ | 207 ❺ | X ❻ | 1A ❼ | 4 ❽ | 5 ❾ | L ❿

❶Product ID

Product ID	
NF	Chip EMIFIL®

❷Structure

Code	Structure
A	Array Type

❸Dimensions (L×W)

Code	Dimensions (L×W)	EIA
18	1.6×0.8mm	0603
21	2.0×1.25mm	0805

❹Features (1)

Code	Features
SL	L Circuit for Signal Lines
SD	L Circuit for Differential Signal

❺Cut-off Frequency

Expressed by three figures. The unit is in hertz (Hz). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

❻Features (2)

Code	Features
X	Expressed by a letter
V	

❼Rated Voltage

Code	Rated Voltage
1A	10V

❽Number of Circuits

Code	Number of Circuits
4	4 Circuits

❾Dimensions (T)

Code	Dimensions (T)
5	Low Profile
8	Standard

❿Packaging

Code	Packaging
B	Bulk
L	Embossed Taping (ø180mm Reel)

RC Combined

(Part Number) NF ❶ | R ❷ | 21 ❸ | GD ❹ | 470 ❺ | 470 ❻ | 2 ❼ | L ❽

❶Product ID

Product ID	
NF	Chip EMIFIL®

❷Structure

Code	Structure
R	RC Combined Type
A	RC Combined Array Type

❸Dimensions (L×W)

Code	Dimensions (L×W)	EIA
21	2.0×1.25mm	0805
31	3.2×1.6mm	1206

❹Features

Code	Features
GD	RC Combined Type for Signal Lines

❺Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

❻Resistance

Expressed by three-digit alphanumerics. The unit is in ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "**R**". In this case, all figures are significant digits.

❼Electrode/Others (**NFR** Series)

Code	Electrode
2	Sn Plating

❼Number of Circuits (**NFA□□GD** Series)

Code	Number of Circuits
4	4 Circuits

❽Packaging

Code	Packaging	Series
L	Embossed Taping (ø180mm Reel)	**NFR**
B	Bulk	All Series
D	Paper Taping (ø180mm Reel)	**NFA□□GD**

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Type	Size Code (Inch)	Thickness (mm)	Part Number	Rated Voltage	Capacitance	Nominal Cut-off Frequency	Rated Current	New / Kit / ≥1A / ≥3A / DTV / Flow / ReFlow
Capacitor Type for Signal Lines	0603 (p122)	0.6	NFM18CC220U1C3	16Vdc	22pF+20%-20%	-	400mA	Kit ReFlow
		0.6	NFM18CC470U1C3	16Vdc	47pF+20%-20%	-	400mA	Kit ReFlow
		0.6	NFM18CC101R1C3	16Vdc	100pF+20%-20%	-	500mA	Kit ReFlow
		0.6	NFM18CC221R1C3	16Vdc	220pF+20%-20%	-	500mA	Kit ReFlow
		0.6	NFM18CC471R1C3	16Vdc	470pF+20%-20%	-	500mA	Kit ReFlow
		0.6	NFM18CC102R1C3	16Vdc	1000pF+20%-20%	-	600mA	Kit ReFlow
		0.6	NFM18CC222R1C3	16Vdc	2200pF+20%-20%	-	700mA	Kit ReFlow
		0.6	NFM18CC223R1C3	16Vdc	22000pF+20%-20%	-	1000mA	Kit ≥1A ReFlow
	0805 (p123)	0.85	NFM21CC220U1H3	50Vdc	22pF+20%-20%	-	700mA	Kit ReFlow
		0.85	NFM21CC470U1H3	50Vdc	47pF+20%-20%	-	700mA	Kit ReFlow
		0.85	NFM21CC101U1H3	50Vdc	100pF+20%-20%	-	700mA	Kit ReFlow
		0.85	NFM21CC221R1H3	50Vdc	220pF+20%-20%	-	700mA	Kit ReFlow
		0.85	NFM21CC471R1H3	50Vdc	470pF+20%-20%	-	1000mA	Kit ≥1A ReFlow
		0.85	NFM21CC102R1H3	50Vdc	1000pF+20%-20%	-	1000mA	Kit ≥1A ReFlow
		0.85	NFM21CC222R1H3	50Vdc	2200pF+20%-20%	-	1000mA	Kit ≥1A ReFlow
		0.85	NFM21CC223R1H3	50Vdc	22000pF+20%-20%	-	2000mA	Kit ≥1A ReFlow
	1205 (p124)	0.7	NFM3DCC220U1H3	50Vdc	22pF+50%-20%	-	300mA	Flow ReFlow
		0.7	NFM3DCC470U1H3	50Vdc	47pF+50%-20%	-	300mA	Flow ReFlow
		0.7	NFM3DCC101U1H3	50Vdc	100pF+50%-20%	-	300mA	Flow ReFlow
		0.7	NFM3DCC221R1H3	50Vdc	220pF+50%-20%	-	300mA	Flow ReFlow
		0.7	NFM3DCC471R1H3	50Vdc	470pF+50%-20%	-	300mA	Flow ReFlow
		0.7	NFM3DCC102R1H3	50Vdc	1000pF+50%-20%	-	300mA	Flow ReFlow
		0.7	NFM3DCC222R1H3	50Vdc	2200pF+50%-20%	-	300mA	Flow ReFlow
		0.7	NFM3DCC223R1H3	50Vdc	22000pF+50%-20%	-	300mA	Flow ReFlow
	1806 (p125)	1.0	NFM41CC220U2A3	100Vdc	22pF+50%-20%	-	300mA	Flow ReFlow
		1.0	NFM41CC470U2A3	100Vdc	47pF+50%-20%	-	300mA	Flow ReFlow
		1.0	NFM41CC101U2A3	100Vdc	100pF+50%-20%	-	300mA	Flow ReFlow
		1.0	NFM41CC221U2A3	100Vdc	220pF+50%-20%	-	300mA	Flow ReFlow
		1.0	NFM41CC471R2A3	100Vdc	470pF+50%-20%	-	300mA	Flow ReFlow
		1.0	NFM41CC102R2A3	100Vdc	1000pF+50%-20%	-	300mA	Flow ReFlow
		1.0	NFM41CC222R2A3	100Vdc	2200pF+50%-20%	-	300mA	Flow ReFlow
		1.0	NFM41CC223R2A3	100Vdc	22000pF+50%-20%	-	300mA	Flow ReFlow
Capacitor Array Type for Signal Lines	1206 (p126)	0.8	NFA31CC220S1E4	25Vdc	22pF+20%-20%	-	200mA	Kit ReFlow
		0.8	NFA31CC470S1E4	25Vdc	47pF+20%-20%	-	200mA	Kit ReFlow
		0.8	NFA31CC101S1E4	25Vdc	100pF+20%-20%	-	200mA	Kit ReFlow
		0.8	NFA31CC221S1E4	25Vdc	220pF+20%-20%	-	200mA	Kit ReFlow
		0.8	NFA31CC471R1E4	25Vdc	470pF+20%-20%	-	200mA	Kit ReFlow
		0.8	NFA31CC102R1E4	25Vdc	1000pF+20%-20%	-	200mA	Kit ReFlow
		0.8	NFA31CC222R1E4	25Vdc	2200pF+20%-20%	-	200mA	Kit ReFlow
		0.8	NFA31CC223R1C4	16Vdc	22000pF+20%-20%	-	200mA	Kit ReFlow

Continued on the following page.

Type	Size Code (Inch)	Thickness (mm)	Part Number	Rated Voltage	Capacitance	Nominal Cut-off Frequency	Rated Current	New	Kit	≥1A ≥3A	DTV	Flow	ReFlow
Capacitor Type for Power Lines	p112 0603	0.6	NFM18PS474R0J3	6.3Vdc	0.47µF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.6	NFM18PS105R0J3	6.3Vdc	1.0µF+20%-20%	-	2A		Kit	≥1A			ReFlow
	p113	0.6	NFM18PC104R1C3	16Vdc	0.1µF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.6	NFM18PC224R0J3	6.3Vdc	0.22µF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.6	NFM18PC474R0J3	6.3Vdc	0.47µF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.8	NFM18PC105R0J3	6.3Vdc	1.0µF+20%-20%	-	4A		Kit	≥1A			ReFlow
		0.6	NFM18PC225B0J3	6.3Vdc	2.2µF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.8	NFM18PC225B1A3	10Vdc	2.2µF+20%-20%	-	4A		Kit	≥3A			ReFlow
	p115 0805	0.85	NFM21PS106B0J3	6.3Vdc	10µF+20%-20%	-	4A	New	Kit	≥3A			ReFlow
	p116	0.85	NFM21PC104R1E3	25Vdc	0.1µF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.85	NFM21PC224R1C3	16Vdc	0.22µF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.85	NFM21PC474R1C3	16Vdc	0.47µF+20%-20%	-	2A		Kit	≥1A			ReFlow
		0.85	NFM21PC105B1A3	10Vdc	1.0µF+20%-20%	-	4A		Kit	≥3A			ReFlow
		0.85	NFM21PC105B1C3	16Vdc	1.0µF+20%-20%	-	4A		Kit	≥3A			ReFlow
		0.85	NFM21PC225B0J3	6.3Vdc	2.2µF+20%-20%	-	4A		Kit	≥3A			ReFlow
		0.85	NFM21PC475B1A3	10Vdc	4.7µF+20%-20%	-	6A		Kit	≥3A			ReFlow
	1205 p117	0.7	NFM3DPC223R1H3	50Vdc	0.022µF+20%-20%	-	2A			≥1A		Flow	ReFlow
	p118 1206	1.3	NFM31PC276B0J3	6.3Vdc	27µF+20%-20%	-	6A		Kit	≥3A		Flow	ReFlow
	p119	1.3	NFM31KC103R1H3	50Vdc	10000pF+20%-20%	-	10A	New	Kit	≥10A		Flow	ReFlow
		1.3	NFM31KC103R2A3	100Vdc	10000pF+20%-20%	-	10A	New	Kit	≥10A		Flow	ReFlow
		1.3	NFM31KC153R1H3	50Vdc	15000pF+20%-20%	-	10A	New	Kit	≥10A		Flow	ReFlow
		1.3	NFM31KC223R1H3	50Vdc	22000pF+20%-20%	-	10A	New	Kit	≥10A		Flow	ReFlow
		1.3	NFM31KC104R1H3	50Vdc	100000pF+20%-20%	-	6A	New		≥3A		Flow	ReFlow
	p120 1806	1.0	NFM41PC204F1H3	50Vdc	0.2µF+80%-20%	-	2A		Kit	≥1A		Flow	ReFlow
		1.0	NFM41PC155B1E3	25Vdc	1.5µF+20%-20%	-	6A		Kit	≥3A		Flow	ReFlow
	2220 p121	2.2	NFM55PC155F1H4	50Vdc	1.5µF+80%-20%	-	6A			≥3A			ReFlow
LC Combined Type for Power Lines and Signal Lines	p110 1206	1.6	NFE31PT220R1E9	25Vdc	22pF+30%-30%	-	6A			≥3A			ReFlow
		1.6	NFE31PT470C1E9	25Vdc	47pF+50%-20%	-	6A			≥3A			ReFlow
		1.6	NFE31PT101C1E9	25Vdc	100pF+80%-20%	-	6A			≥3A			ReFlow
		1.6	NFE31PT221D1E9	25Vdc	220pF+50%-20%	-	6A			≥3A			ReFlow
		1.6	NFE31PT471F1E9	25Vdc	470pF+50%-20%	-	6A			≥3A			ReFlow
		1.6	NFE31PT152Z1E9	25Vdc	1500pF+50%-20%	-	6A		Kit	≥3A			ReFlow
		1.6	NFE31PT222Z1E9	25Vdc	2200pF+50%-50%	-	6A			≥3A			ReFlow
	p111 2606	1.6	NFE61PT330B1H9	50Vdc	33pF+30%-30%	-	2A			≥1A		Flow	ReFlow
		1.6	NFE61PT680B1H9	50Vdc	68pF+30%-30%	-	2A			≥1A		Flow	ReFlow
		1.6	NFE61PT101Z1H9	50Vdc	100pF+30%-30%	-	2A			≥1A		Flow	ReFlow
		1.6	NFE61PT181B1H9	50Vdc	180pF+30%-30%	-	2A			≥1A		Flow	ReFlow
		1.6	NFE61PT361B1H9	50Vdc	360pF+20%-20%	-	2A			≥1A		Flow	ReFlow
		1.6	NFE61PT681B1H9	50Vdc	680pF+30%-30%	-	2A			≥1A		Flow	ReFlow
		1.6	NFE61PT102E1H9	50Vdc	1000pF+80%-20%	-	2A		Kit	≥1A		Flow	ReFlow
		1.6	NFE61PT472C1H9	50Vdc	4700pF+80%-20%	-	2A			≥1A		Flow	ReFlow
LC Combined Multilayer Type for Signal Lines	p127 0402	0.3	NFL15ST157X0J3	6.3Vdc	22pF (Typ.)	150MHz	50mA	New	Kit				ReFlow
		0.3	NFL15ST207X0J3	6.3Vdc	17pF (Typ.)	200MHz	50mA	New	Kit				ReFlow
		0.3	NFL15ST307X0J3	6.3Vdc	12pF (Typ.)	300MHz	50mA	New	Kit				ReFlow
		0.3	NFL15ST507X0J3	6.3Vdc	7pF (Typ.)	500MHz	50mA	New	Kit				ReFlow
	p128 0603 p129	0.6	NFL18ST506H1A3	10Vdc	110pF (Typ.)	50MHz	75mA		Kit		DTV		ReFlow
		0.6	NFL18ST706H1A3	10Vdc	70pF (Typ.)	70MHz	75mA		Kit		DTV		ReFlow
		0.6	NFL18ST107H1A3	10Vdc	50pF (Typ.)	100MHz	75mA		Kit		DTV		ReFlow
		0.6	NFL18ST207H1A3	10Vdc	22pF (Typ.)	200MHz	100mA	New	Kit				ReFlow
		0.6	NFL18ST307H1A3	10Vdc	16pF (Typ.)	300MHz	100mA	New	Kit				ReFlow
		0.6	NFL18ST507H1A3	10Vdc	10pF (Typ.)	500MHz	100mA	New	Kit				ReFlow
		0.8	NFL18ST207X1C3	16Vdc	25pF+20%-20%	200MHz	150mA		Kit				ReFlow
		0.8	NFL18ST307X1C3	16Vdc	18pF+20%-20%	300MHz	200mA		Kit				ReFlow
		0.8	NFL18ST507X1C3	16Vdc	10pF+20%-20%	500MHz	200mA		Kit				ReFlow
	p130	0.6	NFL18SP157X1A3	10Vdc	34pF+20%-20%	150MHz	100mA		Kit				ReFlow
		0.6	NFL18SP207X1A3	10Vdc	24pF+20%-20%	200MHz	100mA		Kit				ReFlow
		0.6	NFL18SP307X1A3	10Vdc	19pF+20%-20%	300MHz	100mA		Kit				ReFlow
		0.6	NFL18SP507X1A3	10Vdc	11pF+20%-20%	500MHz	100mA		Kit				ReFlow

Continued on the following page.

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• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

Type	Size Code (Inch)	Thickness (mm)	Part Number	Rated Voltage	Capacitance	Nominal Cut-off Frequency	Rated Current	New	Kit	≥1A ≥3A	DTV	Flow	ReFlow
LC Combined Multilayer Type for Signal Lines	p131 0805	0.85	NFL21SP106X1C3	16Vdc	670pF+20%-20%	10MHz	100mA		Kit				ReFlow
		0.85	NFL21SP206X1C7	16Vdc	240pF+20%-20%	20MHz	100mA		Kit				ReFlow
		0.85	NFL21SP506X1C3	16Vdc	84pF+20%-20%	50MHz	150mA		Kit				ReFlow
		0.85	NFL21SP706X1C3	16Vdc	76pF+20%-20%	70MHz	150mA		Kit				ReFlow
		0.85	NFL21SP107X1C3	16Vdc	44pF+20%-20%	100MHz	200mA		Kit				ReFlow
		0.85	NFL21SP157X1C3	16Vdc	28pF+20%-20%	150MHz	200mA		Kit				ReFlow
		0.85	NFL21SP207X1C3	16Vdc	22pF+20%-20%	200MHz	250mA		Kit				ReFlow
		0.85	NFL21SP307X1C3	16Vdc	19pF+10%-10%	300MHz	300mA		Kit				ReFlow
		0.85	NFL21SP407X1C3	16Vdc	16pF+10%-10%	400MHz	300mA		Kit				ReFlow
		0.85	NFL21SP507X1C3	16Vdc	12pF+10%-10%	500MHz	300mA		Kit				ReFlow
LC Combined Array Type for Signal Lines	p132 0603	0.6	NFA18SL137V1A45	10Vdc	-	130MHz	50mA		Kit		DTV		ReFlow
		0.6	NFA18SL187V1A45	10Vdc	-	180MHz	50mA		Kit		DTV		ReFlow
		0.6	NFA18SL207V1A45	10Vdc	-	200MHz	50mA		Kit		DTV		ReFlow
		0.6	NFA18SL227V1A45	10Vdc	-	220MHz	25mA		Kit		DTV		ReFlow
		0.5	NFA18SL307V1A45	10Vdc	-	300MHz	100mA		Kit				ReFlow
		0.5	NFA18SL357V1A45	10Vdc	-	350MHz	35mA		Kit				ReFlow
		0.5	NFA18SL407V1A45	10Vdc	-	400MHz	100mA		Kit				ReFlow
		0.5	NFA18SL487V1A45	10Vdc	-	480MHz	100mA		Kit				ReFlow
	p133	0.6	NFA18SL506X1A45	10Vdc	-	50MHz	25mA		Kit				ReFlow
	p134	0.6	NFA18SD187X1A45	10Vdc	-	180MHz	25mA		Kit		DTV		ReFlow
		0.6	NFA18SD207X1A45	10Vdc	-	200MHz	25mA		Kit		DTV		ReFlow
	p135 0805	0.5	NFA21SL287V1A45	10Vdc	-	280MHz	100mA		Kit				ReFlow
		0.5	NFA21SL317V1A45	10Vdc	-	310MHz	100mA		Kit				ReFlow
		0.5	NFA21SL337V1A45	10Vdc	-	330MHz	100mA		Kit				ReFlow
		0.85	NFA21SL287V1A48	10Vdc	-	280MHz	100mA		Kit				ReFlow
		0.85	NFA21SL317V1A48	10Vdc	-	310MHz	100mA		Kit				ReFlow
		0.85	NFA21SL337V1A48	10Vdc	-	330MHz	100mA		Kit				ReFlow
	p136	0.5	NFA21SL207X1A45	10Vdc	-	200MHz	100mA		Kit				ReFlow
		0.5	NFA21SL307X1A45	10Vdc	-	300MHz	100mA		Kit				ReFlow
		0.85	NFA21SL506X1A48	10Vdc	-	50MHz	20mA		Kit				ReFlow
		0.85	NFA21SL806X1A48	10Vdc	-	80MHz	20mA		Kit				ReFlow
		0.85	NFA21SL207X1A48	10Vdc	-	200MHz	100mA		Kit				ReFlow
		0.85	NFA21SL307X1A48	10Vdc	-	300MHz	100mA		Kit				ReFlow
LC Combined Wire Wound Type for Signal Lines	p137 1206	1.8	NFW31SP106X1E4	-	-	10MHz	-		Kit			Flow	ReFlow
		1.8	NFW31SP206X1E4	-	-	20MHz	-		Kit			Flow	ReFlow
		1.8	NFW31SP506X1E4	-	-	50MHz	-		Kit			Flow	ReFlow
		1.8	NFW31SP107X1E4	-	-	100MHz	-		Kit			Flow	ReFlow
		1.8	NFW31SP157X1E4	-	-	150MHz	-		Kit			Flow	ReFlow
		1.8	NFW31SP207X1E4	-	-	200MHz	-		Kit			Flow	ReFlow
		1.8	NFW31SP307X1E4	-	-	300MHz	-		Kit			Flow	ReFlow
		1.8	NFW31SP407X1E4	-	-	400MHz	-		Kit			Flow	ReFlow
		1.8	NFW31SP507X1E4	-	-	500MHz	-		Kit			Flow	ReFlow
RC Combined Type for Signal Lines	p139 0805	0.5	NFR21GD1002202	50Vdc	10pF+20%-20%	-	50mA						ReFlow
		0.5	NFR21GD1004702	50Vdc	10pF+20%-20%	-	35mA						ReFlow
		0.5	NFR21GD4702202	50Vdc	47pF+20%-20%	-	50mA						ReFlow
		0.5	NFR21GD4704702	50Vdc	47pF+20%-20%	-	35mA						ReFlow
		0.5	NFR21GD4706802	50Vdc	47pF+20%-20%	-	30mA						ReFlow
		0.5	NFR21GD4701012	50Vdc	47pF+20%-20%	-	25mA						ReFlow
		0.5	NFR21GD1012202	50Vdc	100pF+20%-20%	-	50mA						ReFlow
		0.5	NFR21GD1014702	50Vdc	100pF+20%-20%	-	35mA						ReFlow
		0.5	NFR21GD1016802	50Vdc	100pF+20%-20%	-	30mA						ReFlow
		0.5	NFR21GD1011012	50Vdc	100pF+20%-20%	-	25mA						ReFlow
RC Combined Array Type for Signal Lines	p140 1206	0.8	NFA31GD1006R84	6Vdc	10pF+20%-20%	-	50mA						ReFlow
		0.8	NFA31GD1004704	6Vdc	10pF+20%-20%	-	20mA						ReFlow
		0.8	NFA31GD1001014	6Vdc	10pF+20%-20%	-	15mA						ReFlow
		0.8	NFA31GD4706R84	6Vdc	47pF+20%-20%	-	50mA						ReFlow
		0.8	NFA31GD4703304	6Vdc	47pF+20%-20%	-	20mA						ReFlow
		0.8	NFA31GD4704704	6Vdc	47pF+20%-20%	-	20mA						ReFlow
		0.8	NFA31GD4701014	6Vdc	47pF+20%-20%	-	15mA						ReFlow
		0.8	NFA31GD1016R84	6Vdc	100pF+20%-20%	-	50mA						ReFlow
		0.8	NFA31GD1014704	6Vdc	100pF+20%-20%	-	20mA						ReFlow
		0.8	NFA31GD1011014	6Vdc	100pF+20%-20%	-	15mA						ReFlow

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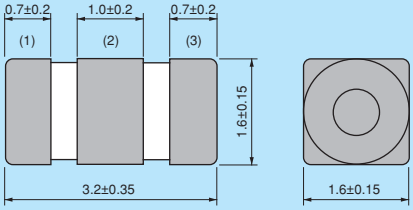
NFE31P Series (1206 Size)

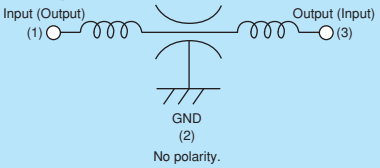
Hi Power Reflow OK

Meet 6A, T-type filter with built-in ferrite bead.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	2000
K	330mm Reel Embossed Tape	8000
B	Bulk(Bag)	500

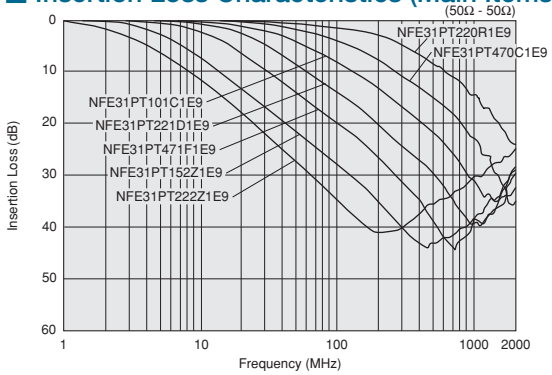
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFE31PT220R1E9□	22pF ±30%	6A	25Vdc	1000M ohm	-40°C to +85°C	≧3A
NFE31PT470C1E9□	47pF +50/-20%	6A	25Vdc	1000M ohm	-40°C to +85°C	≧3A
NFE31PT101C1E9□	100pF +80/-20%	6A	25Vdc	1000M ohm	-40°C to +85°C	≧3A
NFE31PT221D1E9□	220pF +50/-20%	6A	25Vdc	1000M ohm	-40°C to +85°C	≧3A
NFE31PT471F1E9□	470pF +50/-20%	6A	25Vdc	1000M ohm	-40°C to +85°C	≧3A
NFE31PT152Z1E9□	1500pF +50/-20%	6A	25Vdc	1000M ohm	-40°C to +85°C	Kit ≧3A
NFE31PT222Z1E9□	2200pF ±50%	6A	25Vdc	1000M ohm	-40°C to +85°C	≧3A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)

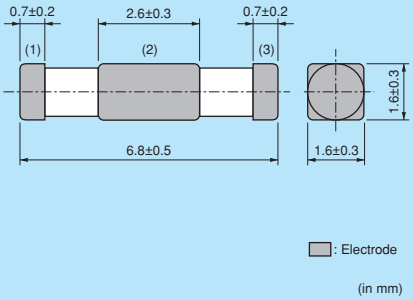


NFE61P Series (2606 Size)

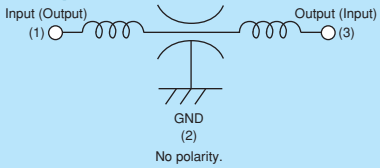
Hi Power Flow OK Reflow OK

T-type filter with built-in ferrite bead.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	2500
K	330mm Reel Embossed Tape	8000
B	Bulk(Bag)	500

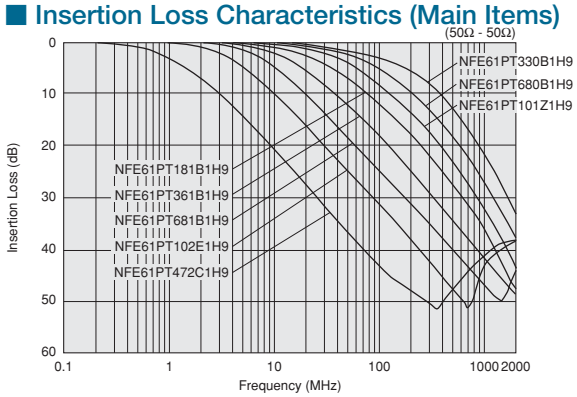
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFE61PT330B1H9□	33pF ±30%	2A	50Vdc	1000M ohm	-40°C to +85°C	≧1A
NFE61PT680B1H9□	68pF ±30%	2A	50Vdc	1000M ohm	-40°C to +85°C	≧1A
NFE61PT101Z1H9□	100pF ±30%	2A	50Vdc	1000M ohm	-40°C to +85°C	≧1A
NFE61PT181B1H9□	180pF ±30%	2A	50Vdc	1000M ohm	-40°C to +85°C	≧1A
NFE61PT361B1H9□	360pF ±20%	2A	50Vdc	1000M ohm	-40°C to +85°C	≧1A
NFE61PT681B1H9□	680pF ±30%	2A	50Vdc	1000M ohm	-40°C to +85°C	≧1A
NFE61PT102E1H9□	1000pF +80/-20%	2A	50Vdc	1000M ohm	-40°C to +85°C	Kit ≧1A
NFE61PT472C1H9□	4700pF +80/-20%	2A	50Vdc	1000M ohm	-40°C to +85°C	≧1A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



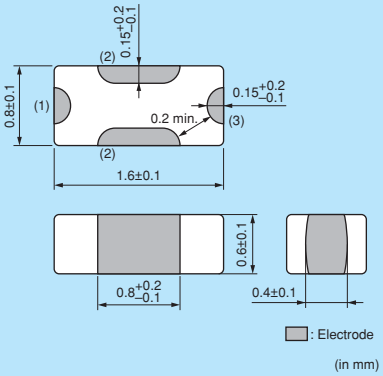
NFM18PS Series (0603 Size)

Hi Power Reflow OK

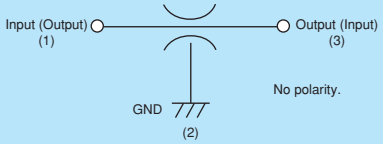
3-terminal capacitor for power lines whose ground impedance has reduced.

*Please refer to the products which are designed for both power lines and signal lines.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	500

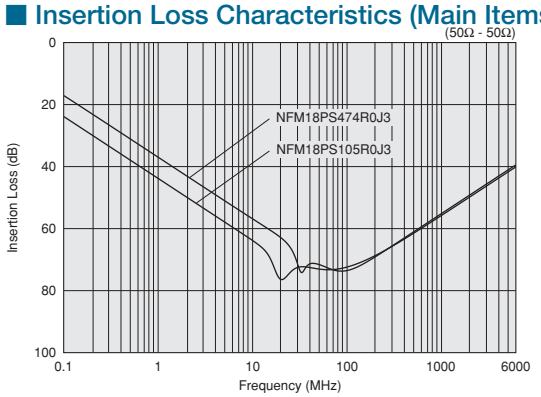
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM18PS474R0J3□	0.47µF ±20%	2A	6.3Vdc	1000M ohm	-55°C to +125°C	Kit ≧1A
NFM18PS105R0J3□	1.0µF ±20%	2A	6.3Vdc	500M ohm	-55°C to +105°C	Kit ≧1A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



NFM18PC Series (0603 Size)

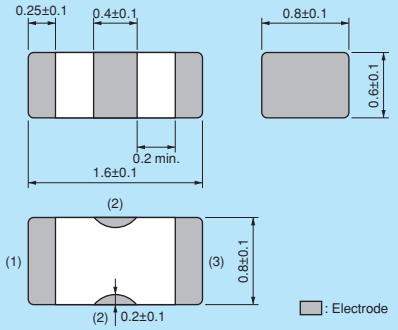
Hi Power Reflow OK

4A max, 0603 size chip 3-terminal capacitor for power lines.

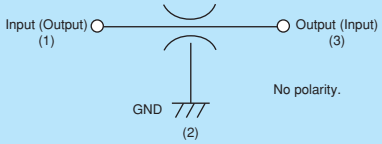
*Please refer to the products which are designed for both power lines and signal lines.

NFM18PC (0.1 to 0.47µF, 2.2µF - 6.3V)

■ Dimensions



■ Equivalent Circuit

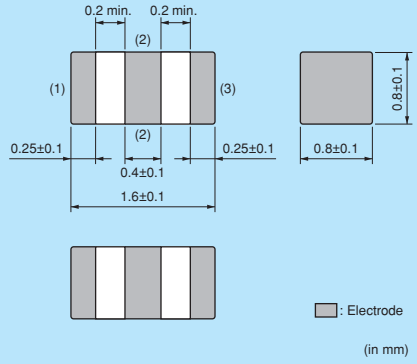


■ Packaging

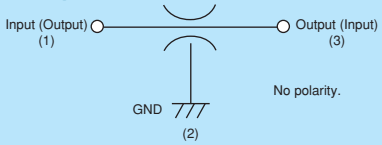
Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	500

NFM18PC (1µF, 2.2µF - 10V)

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	500

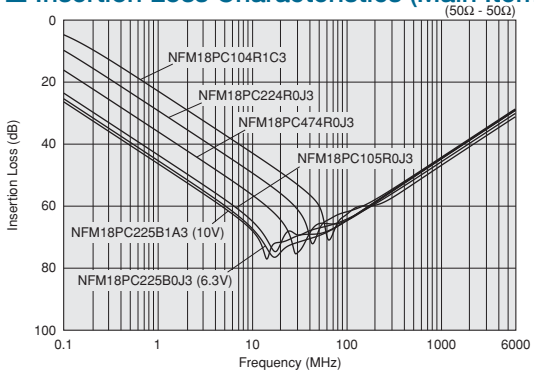
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

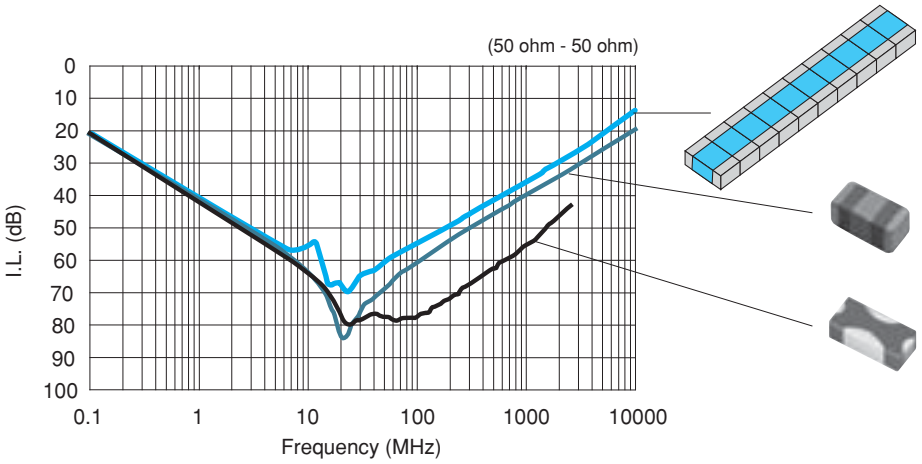
Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM18PC104R1C3□	0.1µF ±20%	2A	16Vdc	1000M ohm	-55°C to +125°C	Kit ≧1A
NFM18PC224R0J3□	0.22µF ±20%	2A	6.3Vdc	1000M ohm	-55°C to +125°C	Kit ≧1A
NFM18PC474R0J3□	0.47µF ±20%	2A	6.3Vdc	1000M ohm	-55°C to +125°C	Kit ≧1A
NFM18PC105R0J3□	1.0µF ±20%	4A	6.3Vdc	500M ohm	-55°C to +105°C	Kit ≧1A
NFM18PC225B0J3□	2.2µF ±20%	2A	6.3Vdc	200M ohm	-40°C to +85°C	Kit ≧1A
NFM18PC225B1A3□	2.2µF ±20%	4A	10Vdc	200M ohm	-40°C to +85°C	Kit ≧3A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



• High frequency performance of NFM18PS series



Chip 3 terminal capacitor

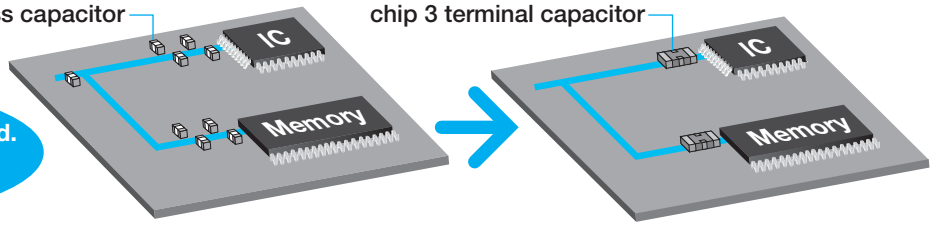
2 terminal MLCC: 2012 size
(0.1µFx10pcs parallel)

NFM18PC105R0J3 1pc
: 1608 size (1.0µF)

NFM18PS105R0J3 1pc
: 1608 size (1.0µF)

NFM18PS series has better high frequency performance compared to normal chip 3 terminal capacitors.

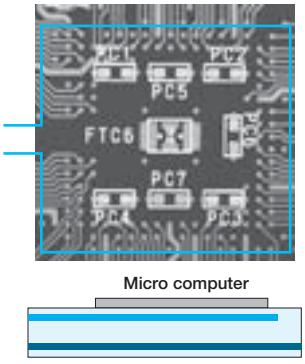
• Optimize of bypass capacitors using chip 3 terminal capacitor

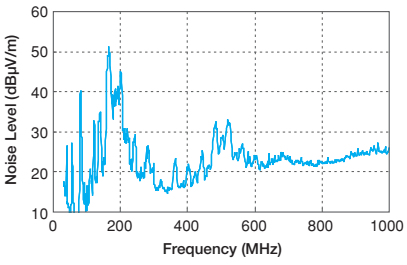


Amount of parts can be reduced.
⇒ • Reduce PCB space
• Reduce mount cost

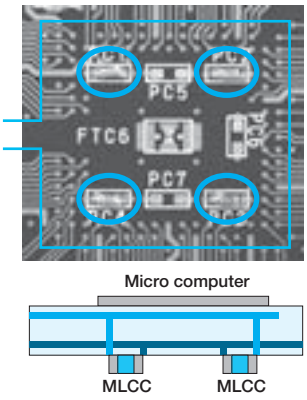
Comparison of performance as bypass capacitor

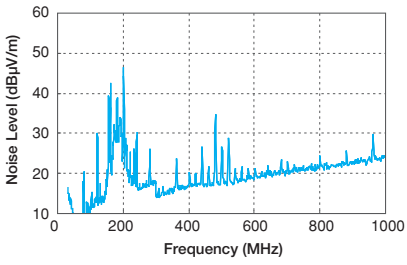
Without capacitor



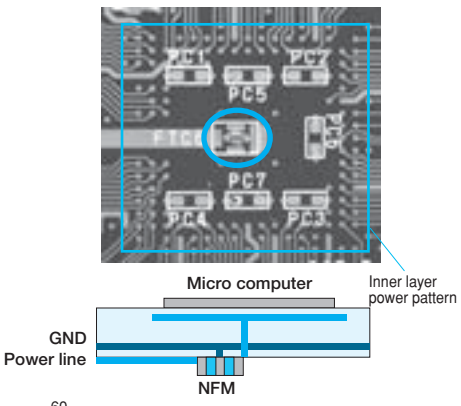


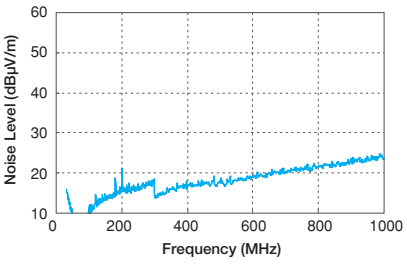
With MLCC 0.22µFx4





With chip 3 terminal capacitor (NFM) 1µFx1





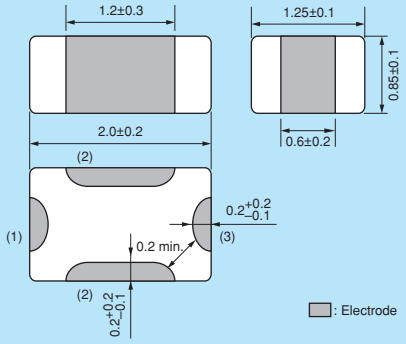
Noise suppression effect of NFM series is better than MLCCs. (1 NFM is better than 4 MLCCs)

NFM21PS Series (0805 Size)

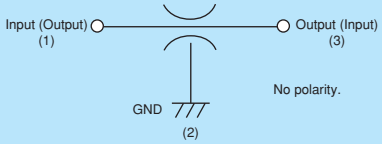
Hi Power Reflow OK

2012mm size 3-terminal capacitor with very low ground impedance.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	500

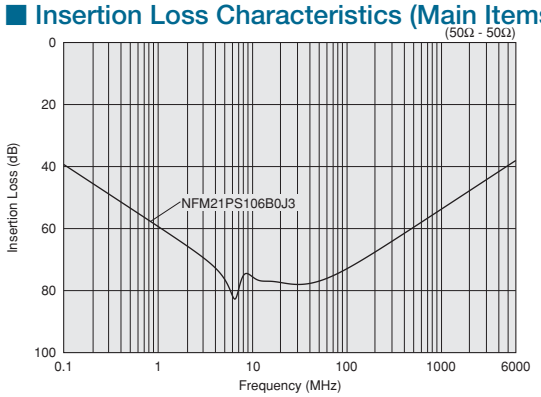
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM21PS106B0J3□	10µF ±20%	4A	6.3Vdc	50M ohm	-40°C to +85°C	New Kit ≧3A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



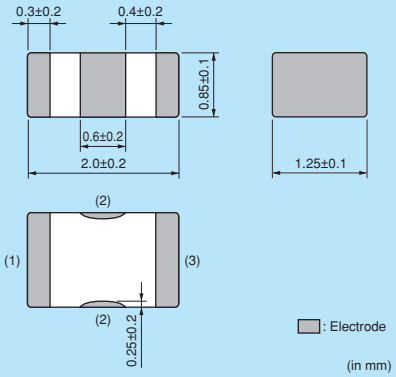
NFM21PC Series (0805 Size)

Hi Power Reflow OK

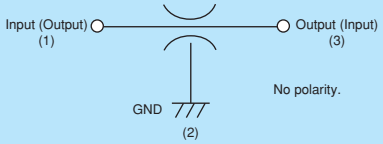
6A max, 0805 size chip 3-terminal capacitor for power lines.

*Please refer to the products which are designed for both power lines and signal lines.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	500

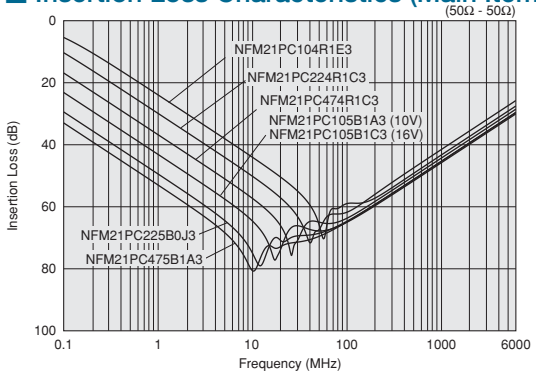
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM21PC104R1E3□	0.1μF ±20%	2A	25Vdc	1000M ohm	-55°C to +125°C	Kit ≧1A
NFM21PC224R1C3□	0.22μF ±20%	2A	16Vdc	1000M ohm	-55°C to +125°C	Kit ≧1A
NFM21PC474R1C3□	0.47μF ±20%	2A	16Vdc	1000M ohm	-55°C to +125°C	Kit ≧1A
NFM21PC105B1A3□	1.0μF ±20%	4A	10Vdc	500M ohm	-40°C to +85°C	Kit ≧3A
NFM21PC105B1C3□	1.0μF ±20%	4A	16Vdc	500M ohm	-40°C to +85°C	Kit ≧3A
NFM21PC225B0J3□	2.2μF ±20%	4A	6.3Vdc	200M ohm	-40°C to +85°C	Kit ≧3A
NFM21PC475B1A3□	4.7μF ±20%	6A	10Vdc	100M ohm	-40°C to +85°C	Kit ≧3A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



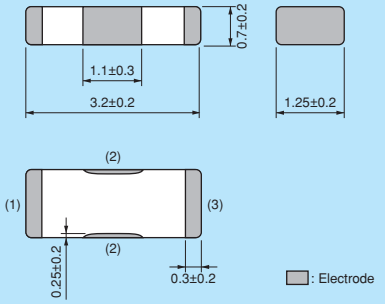
NFM3DP Series (1205 Size)

Hi Power | Flow OK | Reflow OK

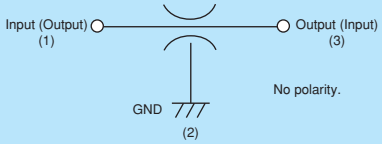
1205 size 3-terminal capacitor for power lines.

*Please refer to the products which are designed for both power lines and signal lines.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	500

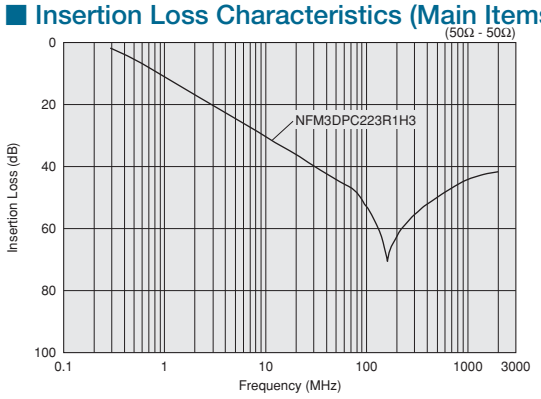
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM3DPC223R1H3□	0.022µF ±20%	2A	50Vdc	1000M ohm	-55°C to +125°C	≧1A

Number of Circuit: 1

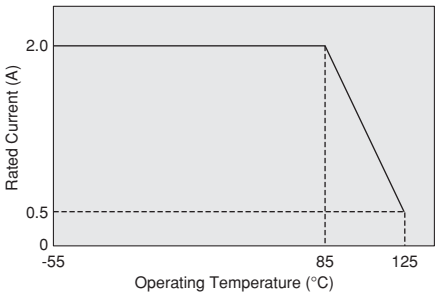
■ Insertion Loss Characteristics (Main Items)



■ Notice (Rating)

When NFM3DP series is used in operating temperature exceeding +85°C, derating of current is necessary.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



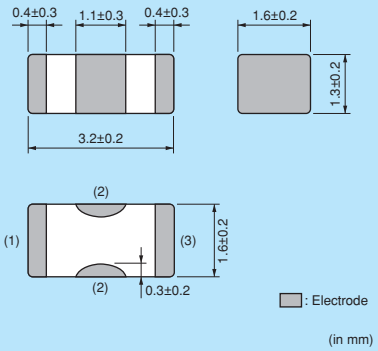
NFM31P Series (1206 Size)

Hi Power | Flow OK | Reflow OK

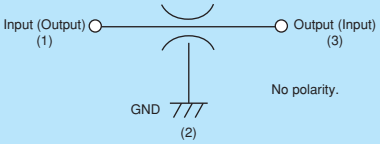
6A/27microF, 1206 size chip 3-terminal capacitor for power lines.

*Please refer to the products which are designed for both power lines and signal lines.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
B	Bulk(Bag)	500

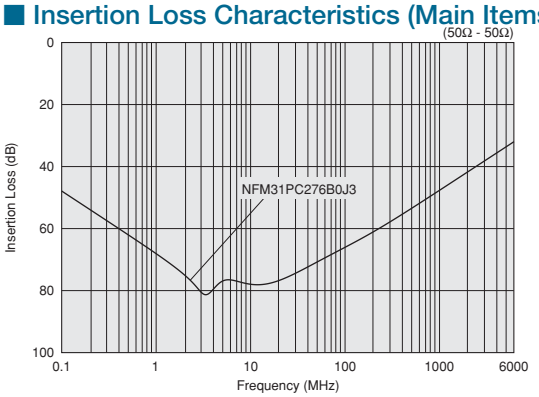
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM31PC276B0J3□	27µF ±20%	6A	6.3Vdc	20M ohm	-40°C to +85°C	Kit ≧3A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)

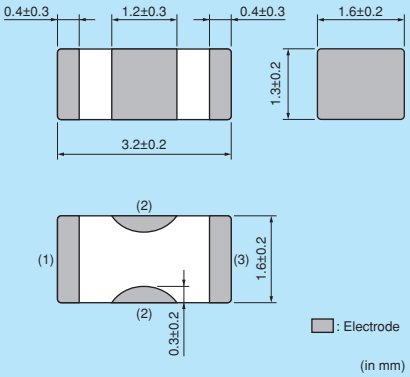


NFM31K Series (1206 Size)

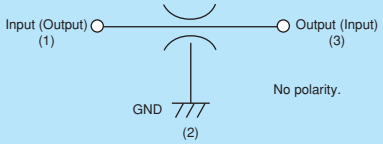
Hi Power | Flow OK | Reflow OK

Capable for 10A max. Large current 3-terminal capacitor.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
B	Bulk(Bag)	500

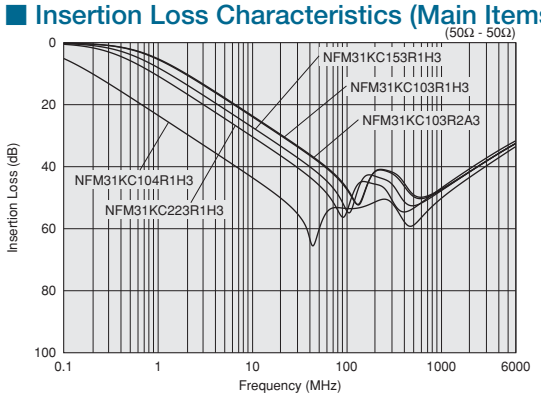
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM31KC103R1H3□	10000pF ±20%	10A	50Vdc	1000M ohm	-55°C to +125°C	New Kit ≧10A
NFM31KC103R2A3□	10000pF ±20%	10A	100Vdc	1000M ohm	-55°C to +125°C	New Kit ≧10A
NFM31KC153R1H3□	15000pF ±20%	10A	50Vdc	1000M ohm	-55°C to +125°C	New Kit ≧10A
NFM31KC223R1H3□	22000pF ±20%	10A	50Vdc	1000M ohm	-55°C to +125°C	New Kit ≧10A
NFM31KC104R1H3□	100000pF ±20%	6A	50Vdc	1000M ohm	-55°C to +125°C	New ≧3A

Number of Circuit: 1

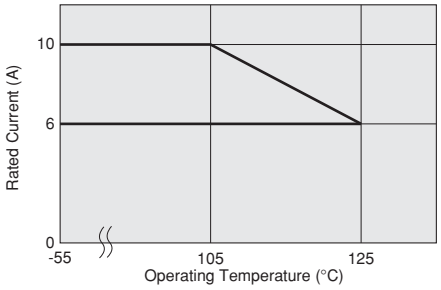
■ Insertion Loss Characteristics (Main Items)



■ Notice (Rating)

When NFM31K series is used in operating temperatures exceeding +105°C, derating of current is necessary.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



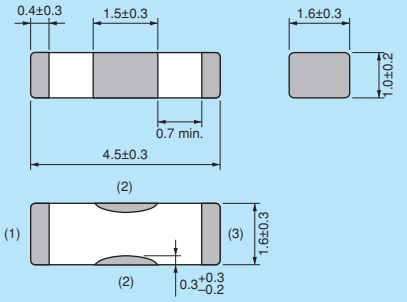
NFM41P Series (1806 Size)

Hi Power | Flow OK | Reflow OK

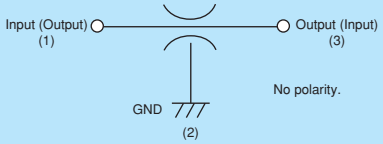
6A max, 1806 size chip 3-terminal capacitor for power lines.

*Please refer to the products which are designed for both power lines and signal lines.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	500

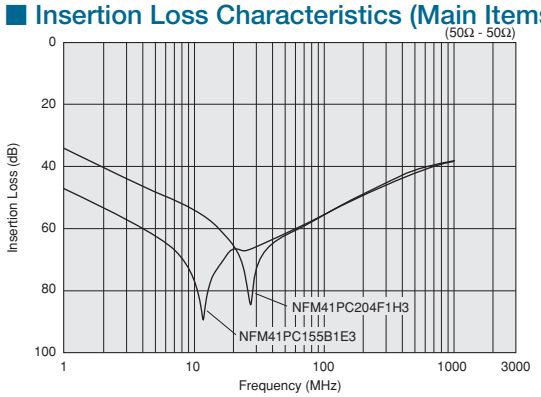
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM41PC204F1H3□	0.2µF +80/-20%	2A	50Vdc	1000M ohm	-55°C to +85°C	Kit ≧1A
NFM41PC155B1E3□	1.5µF ±20%	6A	25Vdc	300M ohm	-55°C to +85°C	Kit ≧3A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)



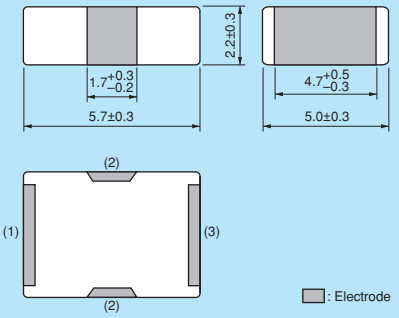
NFM55P Series (2220 Size)

Hi Power Reflow OK

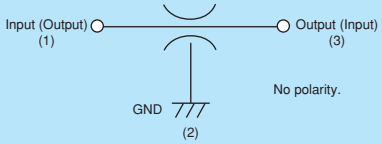
50V/6A/1.5microF, large capacitance chip 3-terminal capacitor.

*Please refer to the products which are designed for both power lines and signal lines.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	500
B	Bulk(Bag)	100

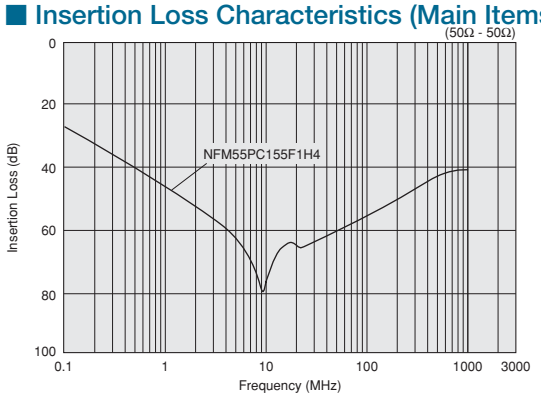
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM55PC155F1H4□	1.5μF +80/-20%	6A	50Vdc	100M ohm	-55°C to +85°C	≧3A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)

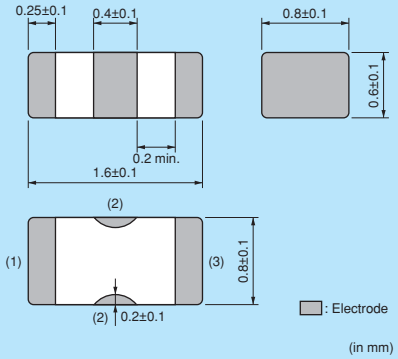


NFM18C Series (0603 Size)

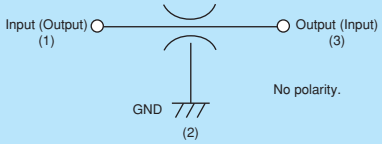
Reflow OK

0603 size general 3-terminal capacitor.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	500

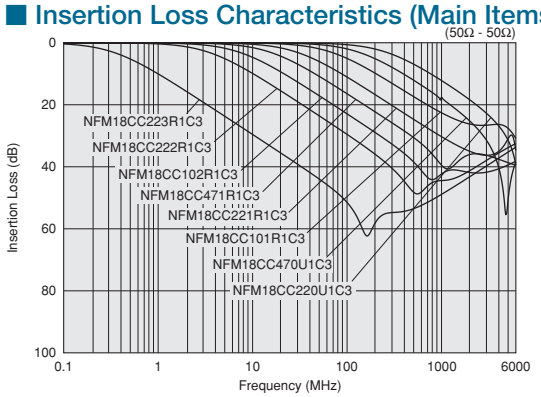
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM18CC220U1C3□	22pF ±20%	400mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC470U1C3□	47pF ±20%	400mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC101R1C3□	100pF ±20%	500mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC221R1C3□	220pF ±20%	500mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC471R1C3□	470pF ±20%	500mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC102R1C3□	1000pF ±20%	600mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC222R1C3□	2200pF ±20%	700mA	16Vdc	1000M ohm	-55°C to +125°C	Kit
NFM18CC223R1C3□	22000pF ±20%	1000mA	16Vdc	1000M ohm	-55°C to +125°C	Kit ≧1A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)

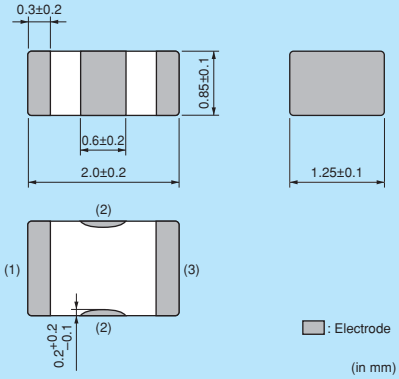


NFM21C Series (0805 Size)

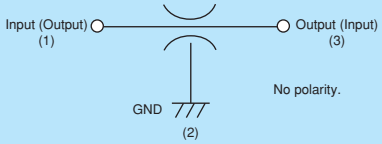
Reflow OK

0805 size general 3-terminal capacitor.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	500

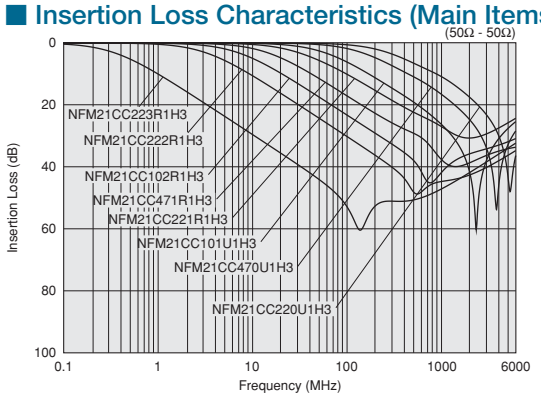
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFM21CC220U1H3□	22pF ±20%	700mA	50Vdc	1000M ohm	-55°C to +125°C	Kit
NFM21CC470U1H3□	47pF ±20%	700mA	50Vdc	1000M ohm	-55°C to +125°C	Kit
NFM21CC101U1H3□	100pF ±20%	700mA	50Vdc	1000M ohm	-55°C to +125°C	Kit
NFM21CC221R1H3□	220pF ±20%	700mA	50Vdc	1000M ohm	-55°C to +125°C	Kit
NFM21CC471R1H3□	470pF ±20%	1000mA	50Vdc	1000M ohm	-55°C to +125°C	Kit ≧1A
NFM21CC102R1H3□	1000pF ±20%	1000mA	50Vdc	1000M ohm	-55°C to +125°C	Kit ≧1A
NFM21CC222R1H3□	2200pF ±20%	1000mA	50Vdc	1000M ohm	-55°C to +125°C	Kit ≧1A
NFM21CC223R1H3□	22000pF ±20%	2000mA	50Vdc	1000M ohm	-55°C to +125°C	Kit ≧1A

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)

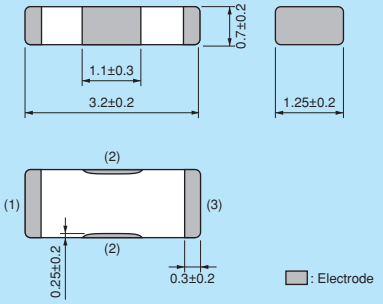


NFM3DC Series (1205 Size)

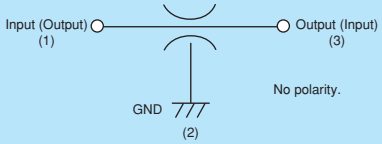
Flow OK Reflow OK

1205 size general 3-terminal capacitor.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	500

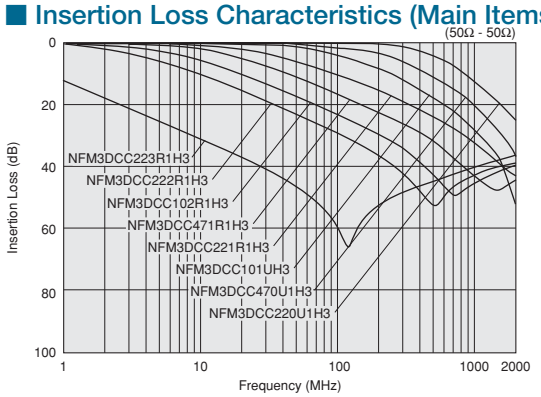
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range
NFM3DCC220U1H3□	22pF +50/-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC470U1H3□	47pF +50/-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC101U1H3□	100pF +50/-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC221R1H3□	220pF +50/-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC471R1H3□	470pF +50/-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC102R1H3□	1000pF +50/-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC222R1H3□	2200pF +50/-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C
NFM3DCC223R1H3□	22000pF +50/-20%	300mA	50Vdc	1000M ohm	-55°C to +125°C

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)

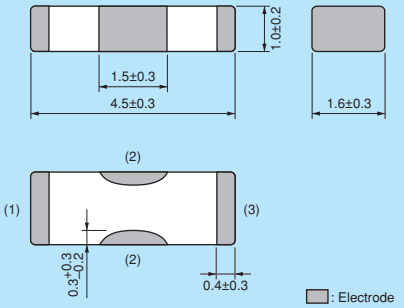


NFM41C Series (1806 Size)

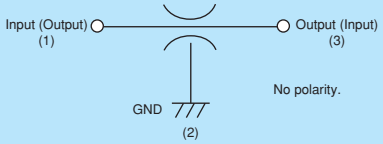
Flow OK Reflow OK

1806 size general 3-terminal capacitor.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	500

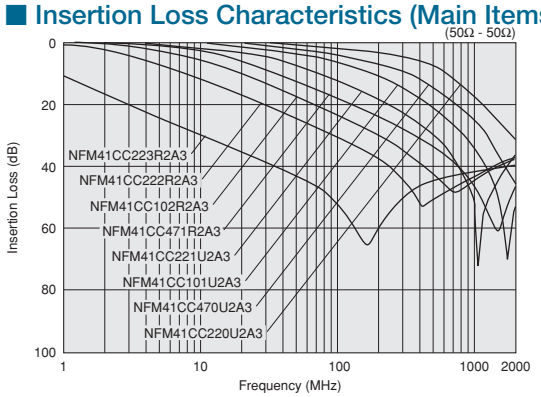
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range
NFM41CC220U2A3□	22pF +50/-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC470U2A3□	47pF +50/-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC101U2A3□	100pF +50/-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC221U2A3□	220pF +50/-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC471R2A3□	470pF +50/-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC102R2A3□	1000pF +50/-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC222R2A3□	2200pF +50/-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C
NFM41CC223R2A3□	22000pF +50/-20%	300mA	100Vdc	10000M ohm	-55°C to +125°C

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)

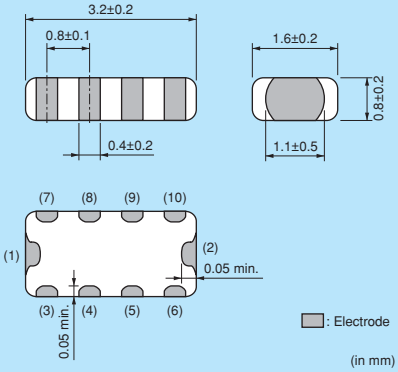


NFA31C Series (1206 Size)

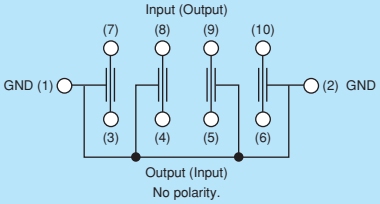
Reflow OK

4-lines chip 3-terminal capacitor array, 1206 size.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	100

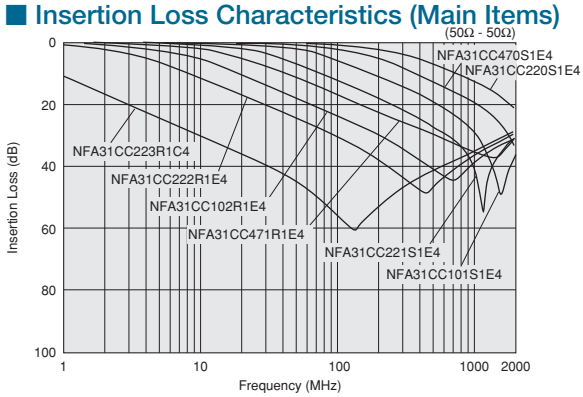
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Capacitance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range	
NFA31CC220S1E4□	22pF ±20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC470S1E4□	47pF ±20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC101S1E4□	100pF ±20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC221S1E4□	220pF ±20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC471R1E4□	470pF ±20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC102R1E4□	1000pF ±20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC222R1E4□	2200pF ±20%	200mA	25Vdc	1000M ohm	-40°C to +85°C	Kit
NFA31CC223R1C4□	22000pF ±20%	200mA	16Vdc	1000M ohm	-40°C to +85°C	Kit

Number of Circuit: 4

■ Insertion Loss Characteristics (Main Items)

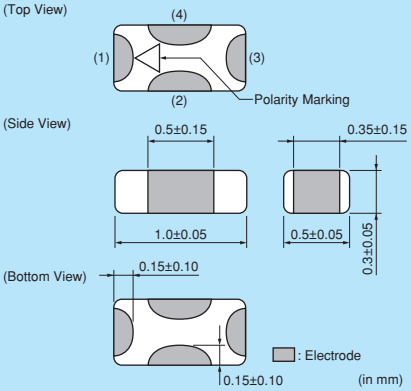


NFL15ST Series (0402 Size)

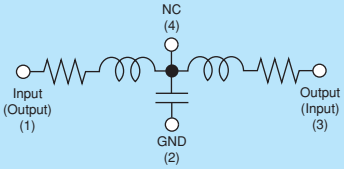
Reflow OK

T-type LC filter, ultra-compact size of 1005mm

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
B	Bulk(Bag)	500

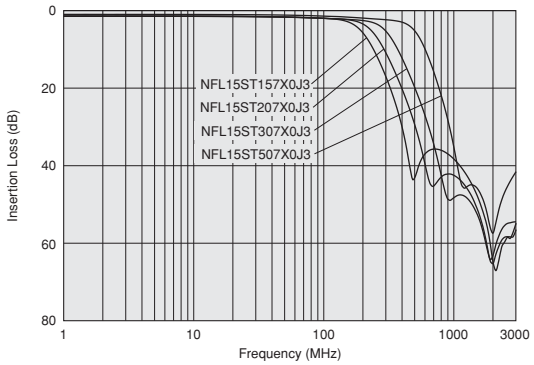
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Capacitance	Inductance	Insertion Loss 1	Insertion Loss 2	Rated Current	Rated Voltage	
NFL15ST157X0J3□	150MHz	22pF (Typ.)	115nH (Typ.)	6dB max.(0 to 150MHz)	25dB min.(200 to 1000MHz)	50mA	6.3Vdc	New Kit DTV
NFL15ST207X0J3□	200MHz	17pF (Typ.)	105nH (Typ.)	6dB max.(0 to 200MHz)	25dB min.(400 to 1000MHz)	50mA	6.3Vdc	New Kit DTV
NFL15ST307X0J3□	300MHz	12pF (Typ.)	95nH (Typ.)	6dB max.(0 to 300MHz)	25dB min.(600 to 1000MHz)	50mA	6.3Vdc	New Kit
NFL15ST507X0J3□	500MHz	7pF (Typ.)	60nH (Typ.)	6dB max.(0 to 500MHz)	25dB min.(600 to 1000MHz)	50mA	6.3Vdc	New Kit

Insulation Resistance (min.): 1000M ohm Withstand Voltage: 18.9Vdc Operating Temperature Range: -40°C to +85°C Number of Circuits: 1

■ Insertion Loss Characteristics (Main Items)



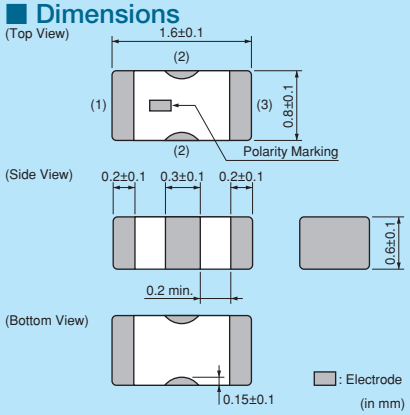
NFL18ST Series (0603 Size)

Reflow OK

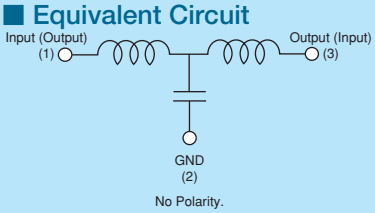
T-type LC filter. Reduce waveform distortion of high speed signal.

NFL18ST_H

■ Dimensions



■ Equivalent Circuit

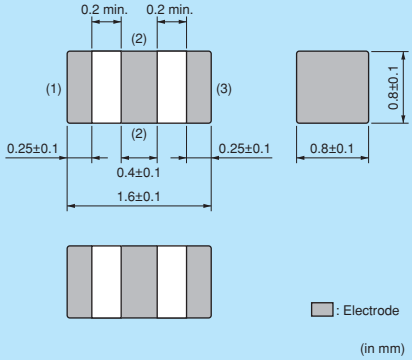


■ Packaging

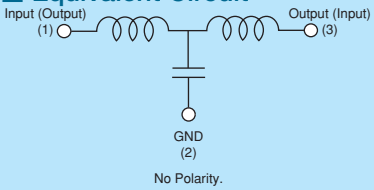
Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	1000

NFL18ST_X

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	1000

Refer to pages from p.142 to p.147 for mounting information.

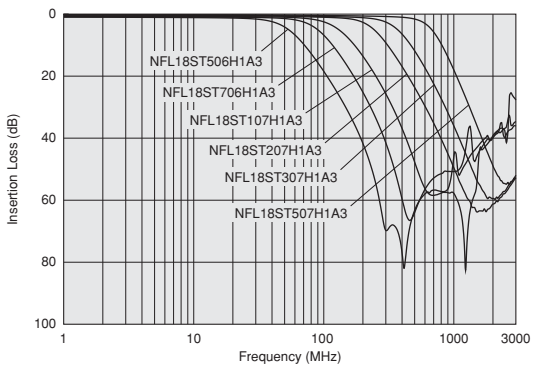
■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Capacitance	Inductance	Insertion Loss 1	Insertion Loss 2	Rated Current	Rated Voltage	
NFL18ST506H1A3□	50MHz	110pF (Typ.)	350nH (Typ.)	6dB max.(0 to 50MHz)	30dB min.(200 to 1000MHz)	75mA	10Vdc	Kit DTV
NFL18ST706H1A3□	70MHz	70pF (Typ.)	230nH (Typ.)	6dB max.(0 to 70MHz)	30dB min.(300 to 1000MHz)	75mA	10Vdc	Kit DTV
NFL18ST107H1A3□	100MHz	50pF (Typ.)	150nH (Typ.)	6dB max.(0 to 100MHz)	30dB min.(400 to 1000MHz)	75mA	10Vdc	Kit DTV
NFL18ST207H1A3□	200MHz	22pF (Typ.)	110nH (Typ.)	6dB max.(0 to 200MHz)	30dB min.(800 to 2000MHz)	100mA	10Vdc	New Kit DTV
NFL18ST307H1A3□	300MHz	16pF (Typ.)	74nH (Typ.)	6dB max.(0 to 300MHz)	30dB min.(1200 to 2000MHz)	100mA	10Vdc	New Kit
NFL18ST507H1A3□	500MHz	10pF (Typ.)	42nH (Typ.)	6dB max.(0 to 500MHz)	30dB min.(1700 to 2000MHz)	100mA	10Vdc	New Kit

Insulation Resistance (min.): 1000M ohm Withstand Voltage: 30Vdc Operating Temperature Range: -55°C to +125°C Number of Circuits: 1

■ Insertion Loss Characteristics (Main Items)

NFL18ST_H Series



Continued on the following page.

⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

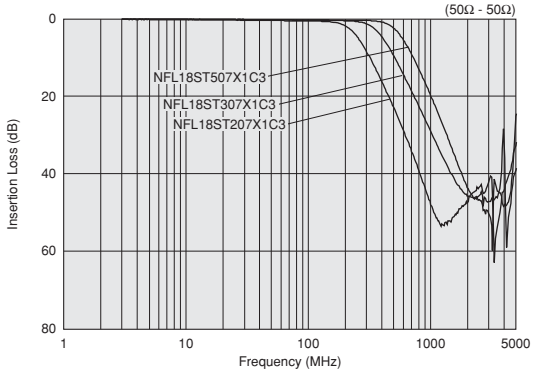
■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Capacitance	Inductance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	Operating Temperature Range	
NFL18ST207X1C3□	200MHz	25pF±20%	110nH±20%	150mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL18ST307X1C3□	300MHz	18pF±20%	62nH±20%	200mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL18ST507X1C3□	500MHz	10pF±20%	43nH±20%	200mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit

Number of Circuits: 1

■ Insertion Loss Characteristics (Main Items)

NFL18ST_X Series

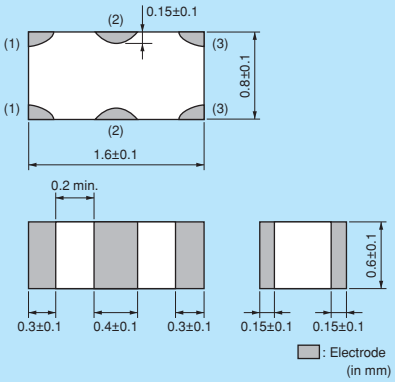


NFL18SP Series (0603 Size)

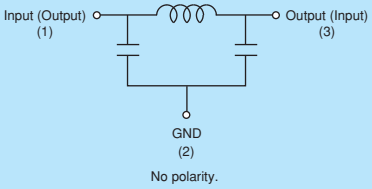
Reflow OK

PI-type LC filter. Reduce waveform distortion of high speed signal.

Dimensions



Equivalent Circuit



Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	1000

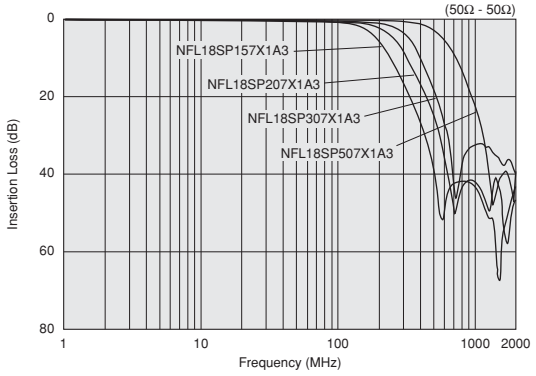
Refer to pages from p.142 to p.147 for mounting information.

Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Capacitance	Inductance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	Operating Temperature Range	
NFL18SP157X1A3□	150MHz	34pF±20%	100nH±20%	100mA	10Vdc	1000M ohm	30Vdc	-55°C to +125°C	Kit
NFL18SP207X1A3□	200MHz	24pF±20%	80nH±20%	100mA	10Vdc	1000M ohm	30Vdc	-55°C to +125°C	Kit
NFL18SP307X1A3□	300MHz	19pF±20%	60nH±20%	100mA	10Vdc	1000M ohm	30Vdc	-55°C to +125°C	Kit
NFL18SP507X1A3□	500MHz	11pF±20%	38nH±20%	100mA	10Vdc	1000M ohm	30Vdc	-55°C to +125°C	Kit

Number of Circuits: 1

Insertion Loss Characteristics (Main Items)



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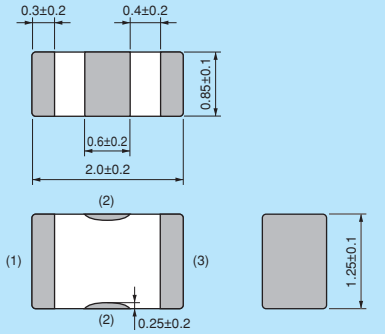
NFL21SP Series (0805 Size)

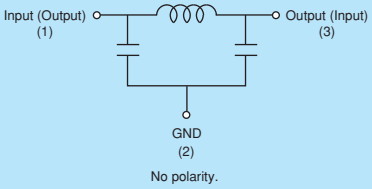
Reflow OK

PI-type LC filter. Reduce waveform distortion of high speed signal.

Dimensions



Equivalent Circuit



Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	1000

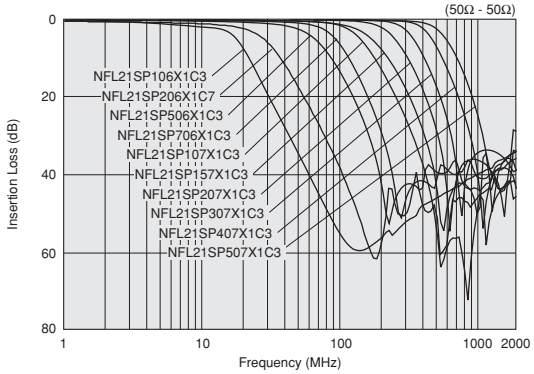
Refer to pages from p.142 to p.147 for mounting information.

Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Capacitance	Inductance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	Operating Temperature Range	
NFL21SP106X1C3□	10MHz	670pF±20%	680nH±20%	100mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP206X1C7□	20MHz	240pF±20%	700nH±20%	100mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP506X1C3□	50MHz	84pF±20%	305nH±20%	150mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP706X1C3□	70MHz	76pF±20%	185nH±20%	150mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP107X1C3□	100MHz	44pF±20%	135nH±20%	200mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP157X1C3□	150MHz	28pF±20%	128nH±20%	200mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP207X1C3□	200MHz	22pF±20%	72nH±20%	250mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP307X1C3□	300MHz	19pF±10%	45nH±10%	300mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP407X1C3□	400MHz	16pF±10%	34nH±10%	300mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit
NFL21SP507X1C3□	500MHz	12pF±10%	31nH±10%	300mA	16Vdc	1000M ohm	50Vdc	-55°C to +125°C	Kit

Number of Circuits: 1

Insertion Loss Characteristics (Main Items)



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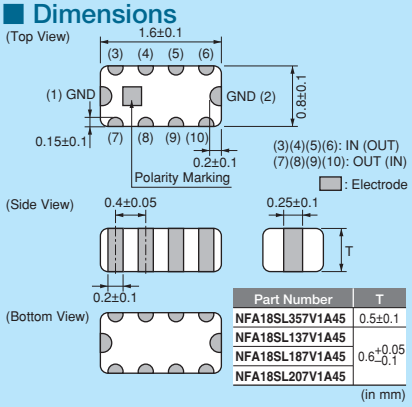
NFA18SL Series (0603 Size)

Reflow OK

LC filter 4-lines array for mobile phones.

NFA18SL 137/187/207/357 V1A45
NFA18SL506X1A45

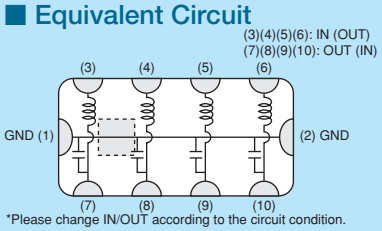
Dimensions



Part Number	T
NFA18SL357V1A45	0.5±0.1
NFA18SL137V1A45	$0.6^{+0.05}_{-0.1}$
NFA18SL187V1A45	
NFA18SL207V1A45	

(in mm)

Equivalent Circuit



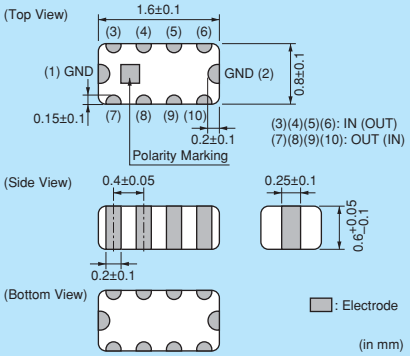
*Please change IN/OUT according to the circuit condition.

Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	1000

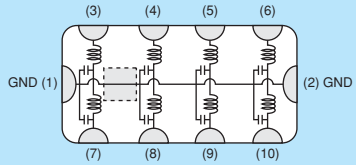
NFA18SL227V1A45

Dimensions



(in mm)

Equivalent Circuit

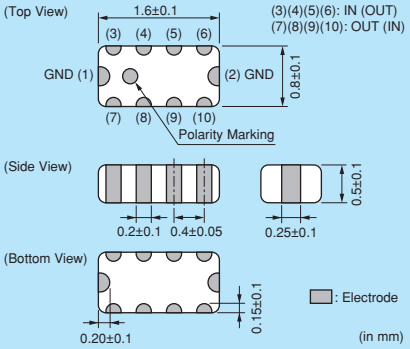


Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	1000

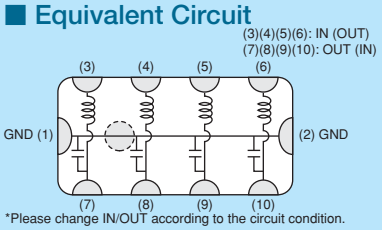
NFA18SL 307/407/487 V1A45

Dimensions



(in mm)

Equivalent Circuit



*Please change IN/OUT according to the circuit condition.

Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	1000

Refer to pages from p.142 to p.147 for mounting information.

Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Insertion Loss (Cut-off Frequency)	Insertion Loss (470MHz) (min.)	Insertion Loss (800MHz) (min.)	Insertion Loss (900MHz) (min.)	Insertion Loss (2000MHz) (min.)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	
NFA18SL137V1A45□	130MHz	6dB max	25dB	-	25dB	-	50mA	10Vdc	1000M ohm	30Vdc	Kit DTV
NFA18SL187V1A45□	180MHz	6dB max	20dB	-	20dB	-	50mA	10Vdc	1000M ohm	30Vdc	Kit DTV
NFA18SL207V1A45□	200MHz	6dB max	15dB	-	15dB	-	50mA	10Vdc	1000M ohm	30Vdc	Kit DTV
NFA18SL227V1A45□	220MHz	6dB max	-	-	30dB	30dB	25mA	10Vdc	1000M ohm	30Vdc	Kit DTV
NFA18SL307V1A45□	300MHz	6dB max	-	20dB	20dB	-	100mA	10Vdc	1000M ohm	30Vdc	Kit
NFA18SL357V1A45□	350MHz	6dB max	-	-	15dB	13dB	35mA	10Vdc	1000M ohm	30Vdc	Kit
NFA18SL407V1A45□	400MHz	6dB max	-	18dB	18dB	-	100mA	10Vdc	1000M ohm	30Vdc	Kit
NFA18SL487V1A45□	480MHz	6dB max	-	15dB	15dB	-	100mA	10Vdc	1000M ohm	30Vdc	Kit

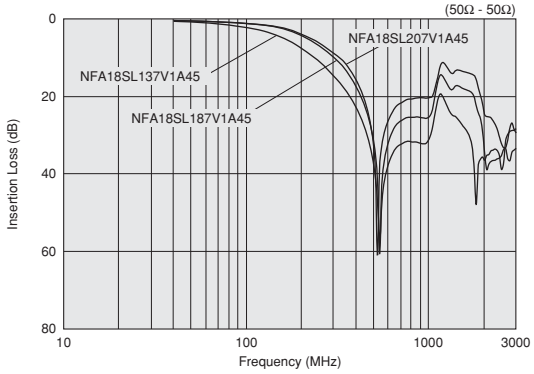
Operating Temperature Range: -40°C to +85°C (NFA18SL 137/187/207/227/357 V1A45), -55°C to +125°C (NFA18SL 307/407/487 V1A45) Number of Circuits: 4

Continued on the following page.

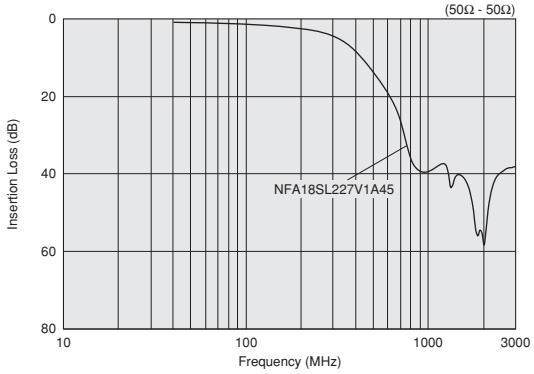
⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

■ Insertion Loss Characteristics (Main Items)

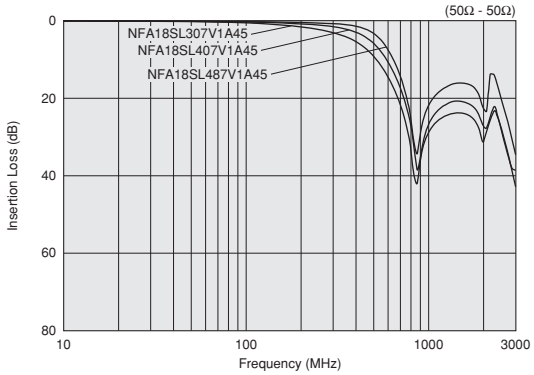
NFA18SL 137/187/207 V1A45



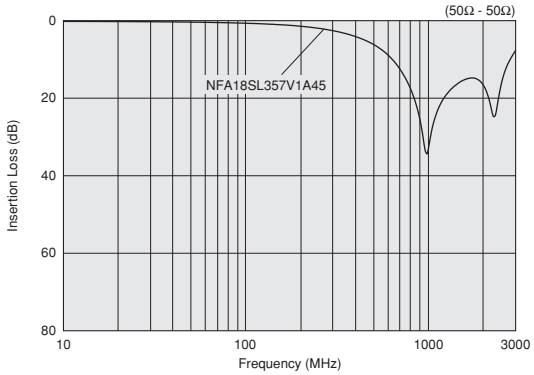
NFA18SL227V1A45



NFA18SL 307/407/487 V1A45



NFA18SL357V1A45



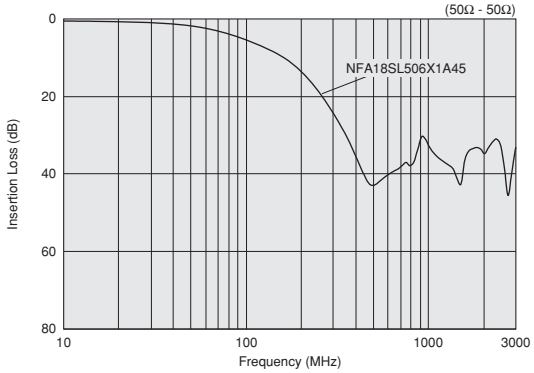
■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Insertion Loss (Cut-off Frequency)	Insertion Loss (500MHz) (min.)	Insertion Loss (1000MHz) (min.)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	
NFA18SL506X1A45□	50MHz	6dB max	30dB	25dB	25mA	10Vdc	1000M ohm	30Vdc	Kit

Operating Temperature Range: -40°C to +85°C Number of Circuits: 4

■ Insertion Loss Characteristics (Main Items)

NFA18SL_X

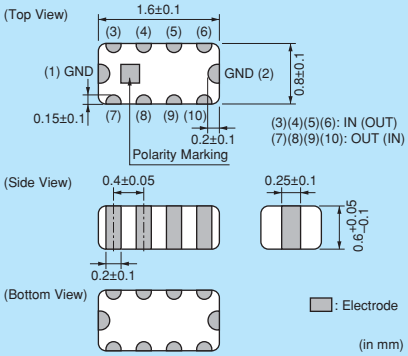


NFA18SD Series (0603 Size)

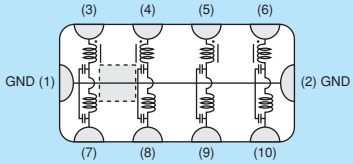
Reflow OK

For differential signal I/F of LCD or camera in mobile phones.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	1000

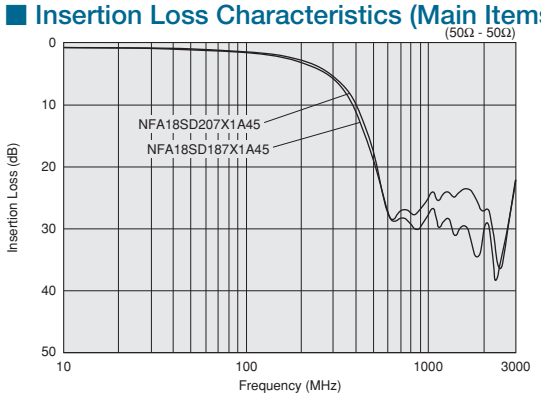
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Insertion Loss (Cut-off Frequency)	Insertion Loss (500MHz) (min.)	Insertion Loss (900MHz) (min.)	Insertion Loss (1500MHz) (min.)	Insertion Loss (2000MHz) (min.)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	
NFA18SD187X1A45□	180MHz	6dB max	15dB	20dB	20dB	20dB	25mA	10Vdc	1000M ohm	30Vdc	Kit DTV
NFA18SD207X1A45□	200MHz	6dB max	13dB	20dB	20dB	20dB	25mA	10Vdc	1000M ohm	30Vdc	Kit DTV

Operating Temperature Range: -40°C to +85°C Number of Circuits: 4

■ Insertion Loss Characteristics (Main Items)

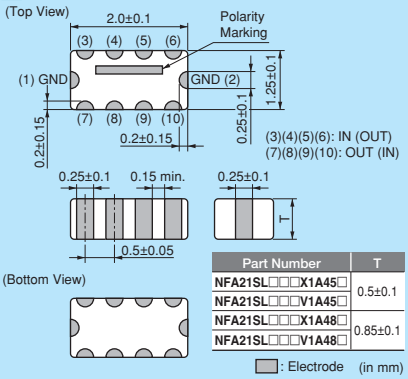


NFA21SL Series (0805 Size)

Reflow OK

L-type LC filter 4-lines array for mobile phones.

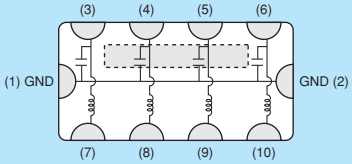
■ Dimensions



Part Number	T
NFA21SL□□□X1A45□	0.5±0.1
NFA21SL□□□V1A45□	
NFA21SL□□□X1A48□	0.85±0.1
NFA21SL□□□V1A48□	

: Electrode (in mm)

■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	1000

Refer to pages from p.142 to p.147 for mounting information.

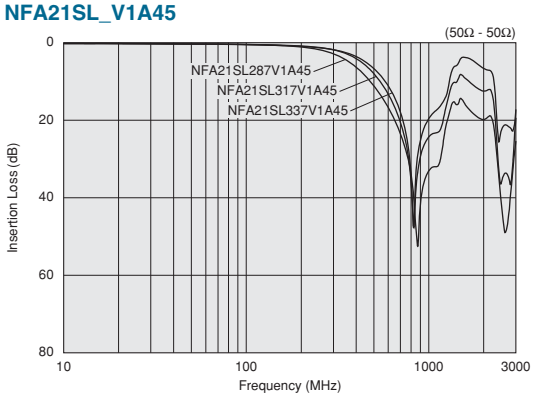
■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Insertion Loss (Cut-off Frequency)	Insertion Loss (800MHz) (min.)	Insertion Loss (900MHz) (min.)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	
NFA21SL287V1A45□	280MHz	6dB max	25dB	25dB	100mA	10Vdc	1000M ohm	30Vdc	Kit
NFA21SL317V1A45□	310MHz	6dB max	20dB	20dB	100mA	10Vdc	1000M ohm	30Vdc	Kit
NFA21SL337V1A45□	330MHz	6dB max	15dB	15dB	100mA	10Vdc	1000M ohm	30Vdc	Kit
NFA21SL287V1A48□	280MHz	6dB max	25dB	25dB	100mA	10Vdc	1000M ohm	30Vdc	Kit
NFA21SL317V1A48□	310MHz	6dB max	20dB	20dB	100mA	10Vdc	1000M ohm	30Vdc	Kit
NFA21SL337V1A48□	330MHz	6dB max	20dB	20dB	100mA	10Vdc	1000M ohm	30Vdc	Kit

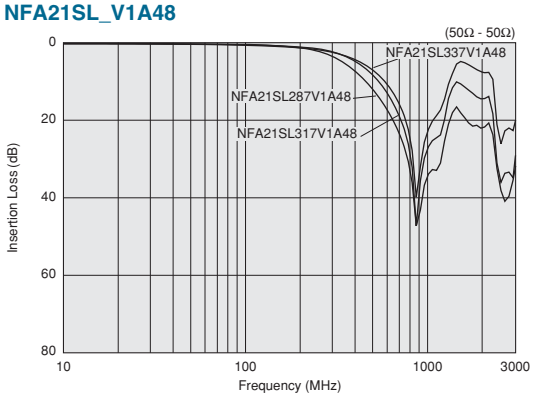
Operating Temperature Range: -55°C to +125°C Number of Circuits: 4

■ Insertion Loss Characteristics (Main Items)

NFA21SL_V1A45



NFA21SL_V1A48



Continued on the following page.

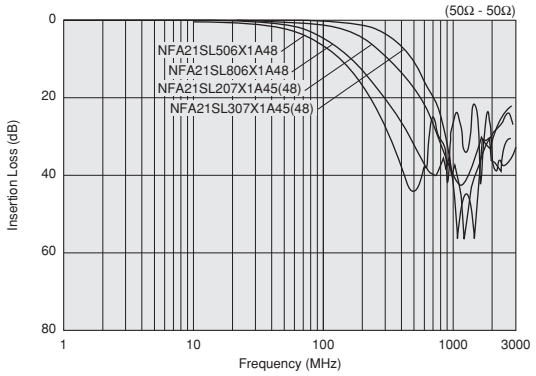
■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Insertion Loss (Cut-off Frequency)	Insertion Loss (500MHz) (min.)	Insertion Loss (800MHz) (min.)	Insertion Loss (1000MHz) (min.)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	
NFA21SL207X1A45□	200MHz	2 to 7	13dB	25dB	25dB	100mA	10Vdc	1000M ohm	30Vdc	Kit
NFA21SL307X1A45□	300MHz	2 to 7	7dB	20dB	25dB	100mA	10Vdc	1000M ohm	30Vdc	Kit
NFA21SL506X1A48□	50MHz	0 to 6	30dB	-	20dB	20mA	10Vdc	1000M ohm	30Vdc	Kit
NFA21SL806X1A48□	80MHz	2 to 7	25dB	-	25dB	20mA	10Vdc	1000M ohm	30Vdc	Kit
NFA21SL207X1A48□	200MHz	2 to 7	13dB	25dB	25dB	100mA	10Vdc	1000M ohm	30Vdc	Kit
NFA21SL307X1A48□	300MHz	2 to 7	7dB	20dB	25dB	100mA	10Vdc	1000M ohm	30Vdc	Kit

Operating Temperature Range: -55°C to +125°C Number of Circuits: 4

■ Insertion Loss Characteristics (Main Items)

NFA21SL_X



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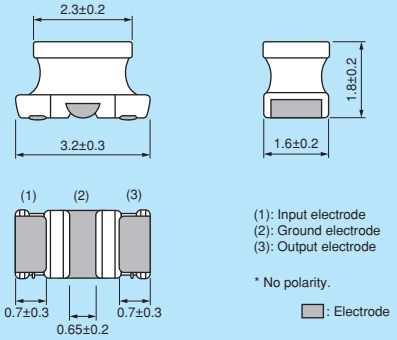
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

NFW31S Series (1206 Size)

Flow OK Reflow OK

Wire-wound PI-type LC filter.

■ Dimensions



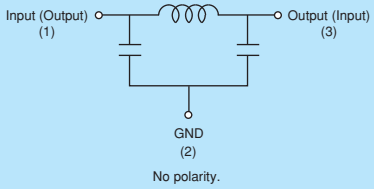
(1): Input electrode
(2): Ground electrode
(3): Output electrode

* No polarity.

: Electrode

(in mm)

■ Equivalent Circuit



No polarity.

■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	2000
K	330mm Reel Embossed Tape	7500

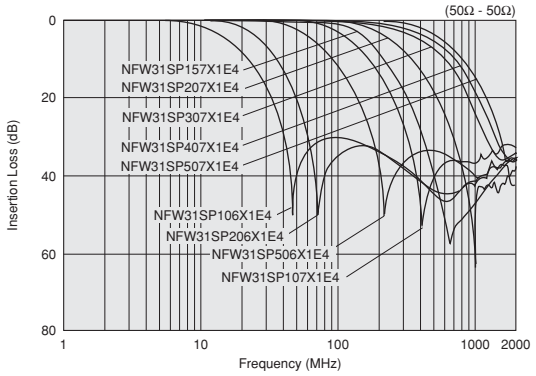
Refer to pages from p.142 to p.147 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Nominal Cut-off Frequency	Insertion Loss at 10MHz	Insertion Loss at 20MHz	Insertion Loss at 50MHz	Insertion Loss at 100MHz	Insertion Loss at 150MHz	Insertion Loss at 200MHz	Insertion Loss at 300MHz	Insertion Loss at 400MHz	Insertion Loss at 500MHz	Insertion Loss at 1000MHz	
NFW31SP106X1E4□	10MHz	6dB max.	5dB min.	25dB min.	25dB min.	-	25dB min.	-	-	30dB min.	30dB min.	Kit
NFW31SP206X1E4□	20MHz	-	6dB max.	5dB min.	25dB min.	-	25dB min.	-	-	30dB min.	30dB min.	Kit
NFW31SP506X1E4□	50MHz	-	-	6dB max.	10dB min.	-	30dB min.	-	-	30dB min.	30dB min.	Kit
NFW31SP107X1E4□	100MHz	-	-	-	6dB max.	-	5dB min.	-	-	20dB min.	30dB min.	Kit
NFW31SP157X1E4□	150MHz	-	-	-	-	6dB max.	-	10dB min.	20dB min	30dB min.	30dB min.	Kit
NFW31SP207X1E4□	200MHz	-	-	-	-	-	6dB max.	-	-	10dB min.	30dB min.	Kit
NFW31SP307X1E4□	300MHz	-	-	-	-	-	-	6dB max.	-	5dB min.	15dB min.	Kit
NFW31SP407X1E4□	400MHz	-	-	-	-	-	-	-	6dB max.	-	10dB min.	Kit
NFW31SP507X1E4□	500MHz	-	-	-	-	-	-	-	-	6dB max.	10dB min.	Kit

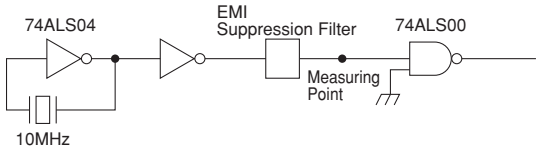
Rated Current: 200mA Rated Voltage: 25Vdc Operating Temperature Range: -40°C to +85°C Number of Circuit: 1

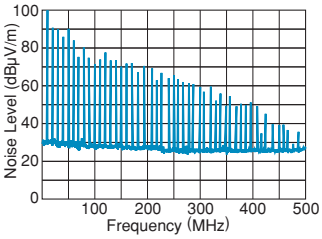
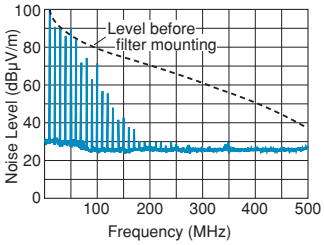
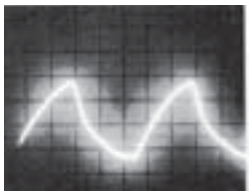
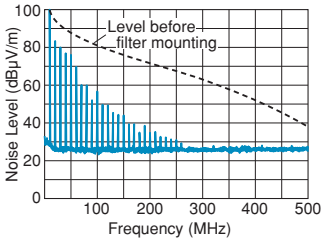
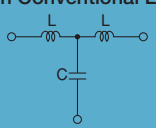
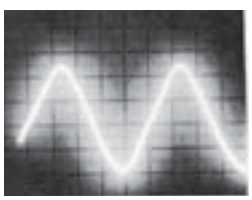
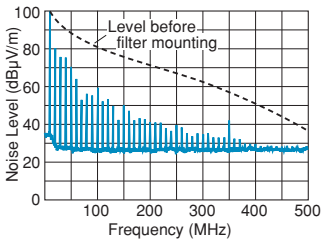
■ Insertion Loss Characteristics (Main Items)



Example of EMI Suppression in an Actual Circuit

Measuring Circuit



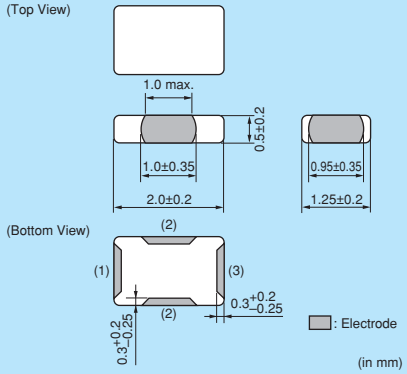
Type of Filter	Signal Wave Form (20ns/div, 1V/div) / EMI Suppression Effect / Description
Signal Waveform and Noise Spectrum before Filter Mounting	 Signal Waveform (20ns/div, 1V/div)  Noise Spectrum (10:1 Active Probe)
NFW31S Series (Cut-off frequency 50MHz)	  NFW31S's steep attenuation characteristic means excellent EMI suppression without waveform cornering.
Conventional Chip Solid Type EMI Filter (**NFM41CC** 470pF) 	  3-terminal capacitors suppress signal frequencies as EMI frequencies so the signal waveform is distorted.
Filter Combined with Conventional LCs  L: Chip Inductor C: Chip Capacitor (270pF)	  Combinations of inductors and capacitors can yield a steep attenuation characteristic, but they require a great deal more mounting space. Moreover, at high frequencies the EMI suppression is less than that obtained by NFW31S.

NFR21G Series (0805 Size)

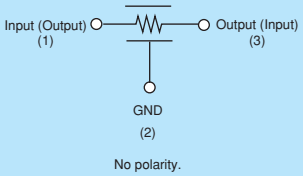
Reflow OK

3-terminal RC filter, damp the noise current and return back to ground.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	4000
B	Bulk(Bag)	500

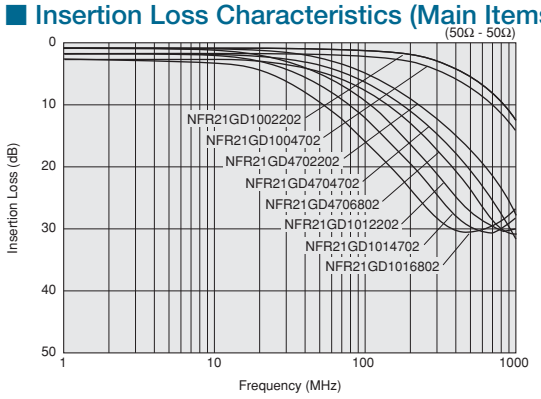
Refer to pages from p.142 to p.147 for mounting information.

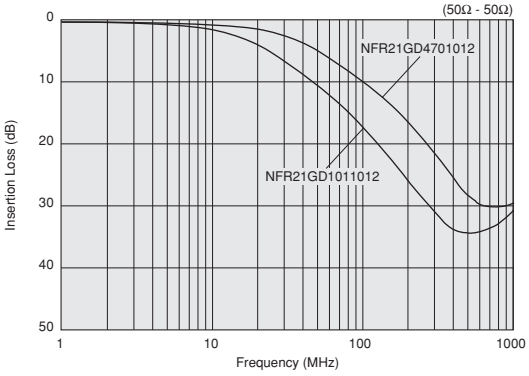
■ Rated Value (□: packaging code)

Part Number	Capacitance	Resistance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range
NFR21GD1002202□	10pF ±20%	22ohm ±30%	50mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD1004702□	10pF ±20%	47ohm ±30%	35mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD4702202□	47pF ±20%	22ohm ±30%	50mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD4704702□	47pF ±20%	47ohm ±30%	35mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD4706802□	47pF ±20%	68ohm ±30%	30mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD4701012□	47pF ±20%	100ohm ±30%	25mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD1012202□	100pF ±20%	22ohm ±30%	50mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD1014702□	100pF ±20%	47ohm ±30%	35mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD1016802□	100pF ±20%	68ohm ±30%	30mA	50Vdc	1000M ohm	-40°C to +85°C
NFR21GD1011012□	100pF ±20%	100ohm ±30%	25mA	50Vdc	1000M ohm	-40°C to +85°C

Number of Circuit: 1

■ Insertion Loss Characteristics (Main Items)





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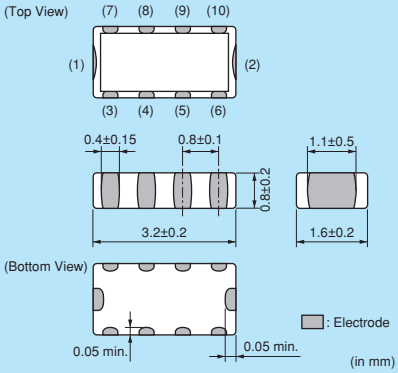
NFA31G Series (1206 Size)

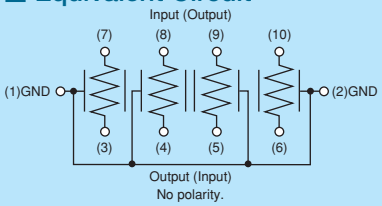
Reflow OK

3-terminal RC filter array.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	4000
B	Bulk(Bag)	100

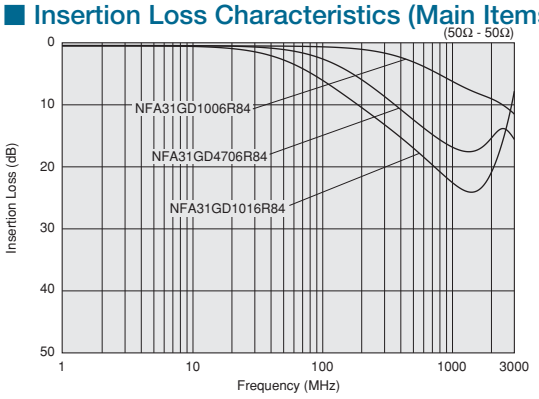
Refer to pages from p.142 to p.147 for mounting information.

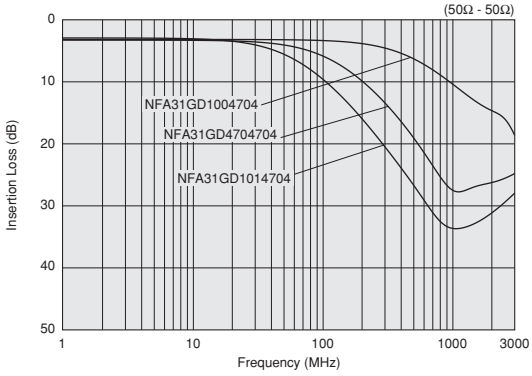
■ Rated Value (□: packaging code)

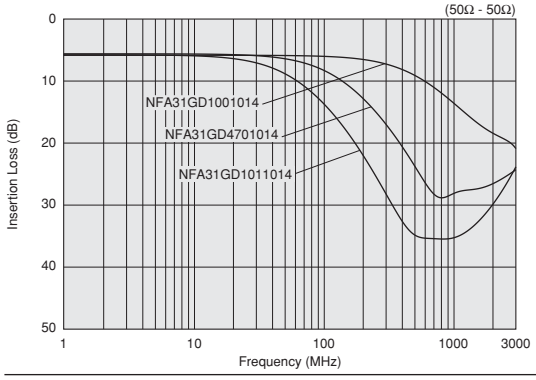
Part Number	Capacitance	Resistance	Rated Current	Rated Voltage	Insulation Resistance (min.)	Operating Temperature Range
NFA31GD1006R84□	10pF ±20%	6.8ohm ±40%	50mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD1004704□	10pF ±20%	47ohm ±30%	20mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD1001014□	10pF ±20%	100ohm ±30%	15mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD4706R84□	47pF ±20%	6.8ohm ±40%	50mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD4703304□	47pF ±20%	33ohm ±30%	20mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD4704704□	47pF ±20%	47ohm ±30%	20mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD4701014□	47pF ±20%	100ohm ±30%	15mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD1016R84□	100pF ±20%	6.8ohm ±40%	50mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD1014704□	100pF ±20%	47ohm ±30%	20mA	6Vdc	1000M ohm	-40°C to +85°C
NFA31GD1011014□	100pF ±20%	100ohm ±30%	15mA	6Vdc	1000M ohm	-40°C to +85°C

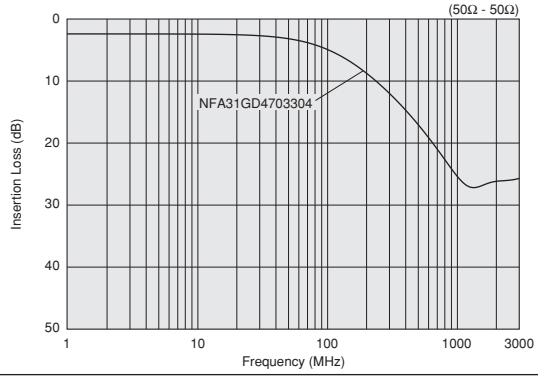
Number of Circuit: 4

■ Insertion Loss Characteristics (Main Items)









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⚠Caution

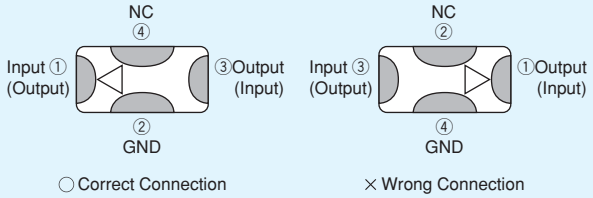
● Rating

Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.

● Soldering and Mounting

1. Self-heating
   Please provide special attention when mounting chip EMIFIL® NFM□□P/K series in close proximity to other products that radiate heat.
   The heat generated by other products may deteriorate the insulation resistance and cause excessive heat in this component.

2. NFL15ST_X Series Mounting Direction
   Mount products in right direction, because products have a direction. Wrong direction which is 180° rotated from right direction cause fuming or partial dispersion, because input or output signal terminals short-circuit to ground.



Notice

● Storage and Operating Conditions

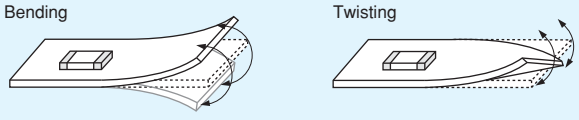
<Operating Environment>
Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
Do not use products in the environment close to the organic solvent.
<Storage and Handling Requirements>
1. Storage Period
   NFM55P series should be used within 6 months, the other series should be used within 12 months. Solderability should be checked if this period is exceeded.
2. Storage Conditions
   (1) Storage temperature: -10 to +40˚C
   Relative humidity: 15 to 85%
   Avoid sudden changes in temperature and humidity.
   (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

● Notice (Soldering and Mounting)

1. Cleaning
   Failure and degradation of a product are caused by the cleaning method. When you clean in conditions that are not in mounting information, please contact Murata engineering.
2. Soldering
   Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in mounting information.
3. Other
   Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

● Handling

1. Resin Coating
   Using resin for coating/molding products may affect the products performance.
   So please pay careful attention in selecting resin.
   Prior to use, please make the reliability evaluation with the product mounted in your application set.
2. Caution for Use (NFW Series)
   When you hold products with a tweezer, please hold by the sides. Sharp materials, such as a pair of tweezers or other material such as bristles of cleaning brush, should not touch the winding portion of this product to prevent breaking the wire. Mechanical shock should not be applied to the products mounted on the board to prevent breaking the core.
3. Handling of a Substrate
   After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting to the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening screw to the substrate.
   Excessive mechanical stress may cause cracking in the Product.



1. Standard Land Pattern Dimensions

NF□ series suppress noise by conducting the high-frequency noise element to ground. Therefore, to obtain maximum performance from these filters, the ground pattern should be made as large as possible during the PCB design stage. As shown below, one side of the PCB is used for chip mounting, and the other is used for grounding.
Small diameter feedthrough holes are then used to connect the grounds on each side of the PCB. This reduces the high-frequency impedance of the grounding and maximizes the filter's performance.

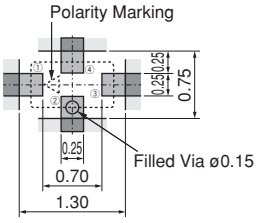
Land Pattern + Solder Resist
Land Pattern
Solder Resist

(in mm)

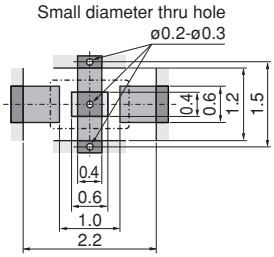
NFM18
NFL15S
NFL18
NFM55P
NFM21C
NFM21P
NFR21G
NFL21S

Reflow Soldering

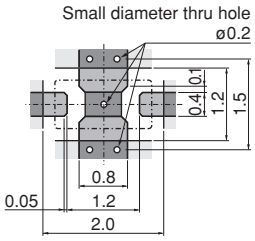
NFL15S



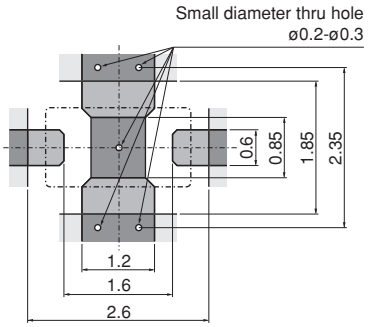
NFM18C/NFM18PC
NFL18ST



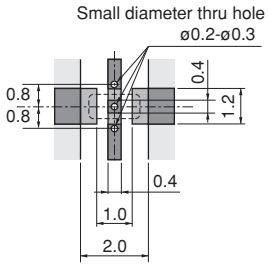
NFM18PS



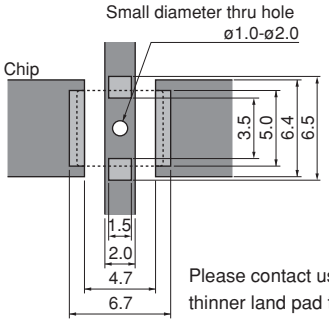
NFM21PS



NFL18SP

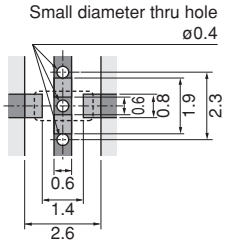


NFM55P



Please contact us if using thinner land pad than 18µm.

NFM21C/NFR21G
NFM21PC/NFL21S

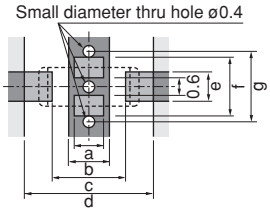


• NF□18, NF□21, NFM55P are specially adapted for reflow soldering.

NFM3D
NFM31P
NFM31K
NFM41

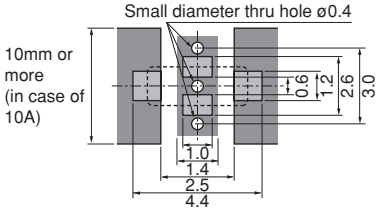
● Reflow Soldering Chip mounting side

NFM3DC/NFM3DP/NFM31P/NFM41C/NFM41P



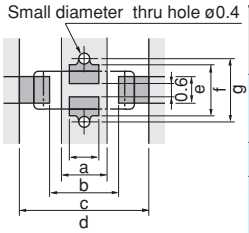
Part Number	Size (mm)						
	a	b	c	d	e	f	g
NFM3DC NFM3DP	1.0	1.4	2.5	4.4	1.0	2.0	2.4
NFM31P	1.0	1.4	2.5	4.4	1.2	2.6	3.0
NFM41C NFM41P	1.5	2.0	3.5	6.0	1.2	2.6	3.0

NFM31K*1



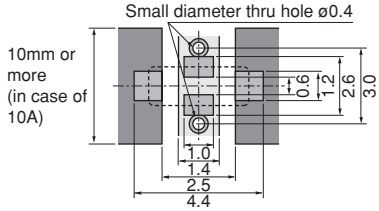
*1 For large current design, width of signal land pattern should be wider not less than 1mm per 1A (1mm/A).
For example
In case of 10A, signal land pattern width should be 10mm or more.
(1mm/A*10A=10mm)

● Flow Soldering Chip mounting side



Part Number	Size (mm)						
	a	b	c	d	e	f	g
NFM3DC NFM3DP	1.0	1.4	2.5	4.4	1.0	2.0	2.4
NFM31P	1.0	1.4	2.5	4.4	1.2	2.6	3.0
NFM41C NFM41P	1.5	2.0	3.5	6.0	1.2	2.6	3.0

NFM31K*1



*1 For large current design, width of signal land pattern should be wider not less than 1mm per 1A (1mm/A).
For example
In case of 10A, signal land pattern width should be 10mm or more.
(1mm/A*10A=10mm)

Continued on the following page.

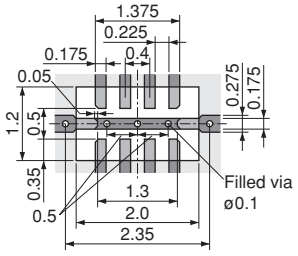
Land Pattern + Solder Resist
Land Pattern
Solder Resist

(in mm)

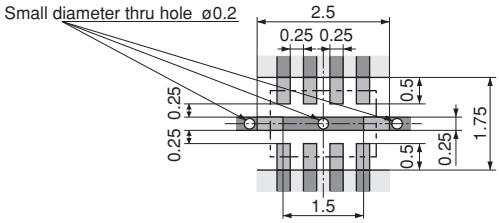
NFA18S
NFA21S

Reflow Soldering

NFA18S

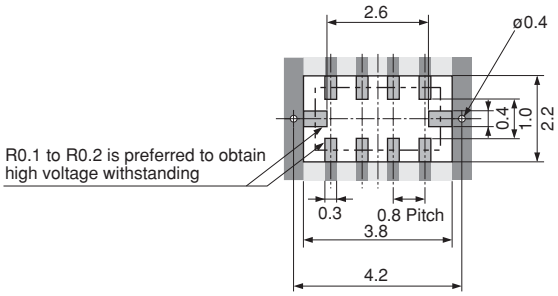


NFA21S

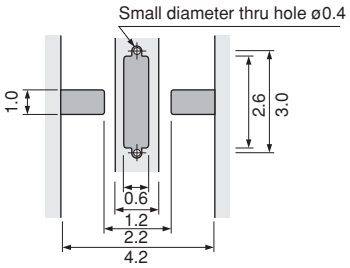


NFA31G
NFA31C
NFW31S
NFE31P

● Reflow Soldering NFA31G/31C

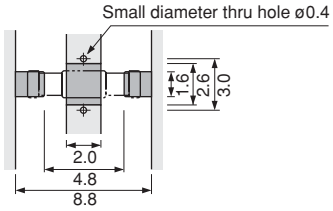


● Reflow and Flow NFW31S
● Reflow Soldering NFE31P

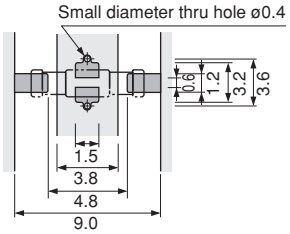


NFE61P

● Reflow Soldering



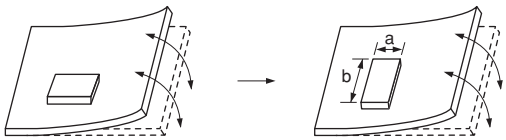
● Flow Soldering



● PCB Warping

PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.

Products should be located in the sideways direction (Length: a<b) to the mechanical stress.



2. Solder Paste Printing and Adhesive Application

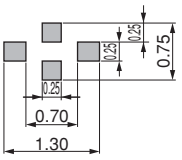
When reflow soldering the chip EMI suppression filter, the printing must be conducted in accordance with the following cream solder printing conditions.
If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.
Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the EMI suppression filter, apply the adhesive in accordance with the following conditions.
If too much adhesive is applied, then it may overflow into the land or termination areas and yield poor solderability.
In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during flow soldering process.

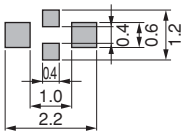
(in mm)

Series	Solder Paste Printing	Adhesive Application
NFM **NFR** **NFL**	●Guideline of solder paste thickness: 100-150μm: NFM18/21/3D/31P, NFR, NFL 150-200μm: NFM55P 100-200μm: NFM41	■ NFM3D/31/41 Series Apply 0.1mg for NFM41C/41 and 0.06mg for NFM3D/NFM31 of bonding agent at each chip. Do not cover electrodes.

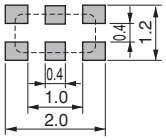
NFL15S



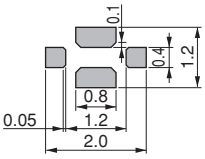
NFM18C/18PC
NFL18ST



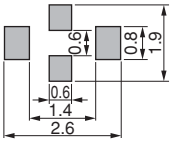
NFL18SP



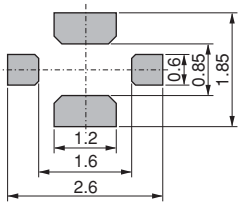
NFM18PS



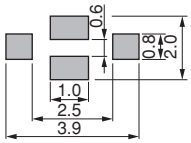
NFM21C/21PC
NFR21G/NFL21S



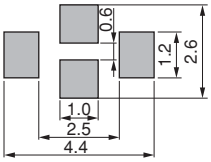
NFM21PS



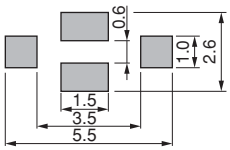
NFM3DC/3DP



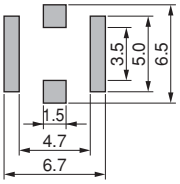
NFM31P/31K

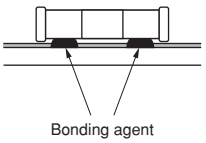


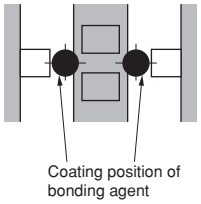
NFM41C/41P



NFM55P

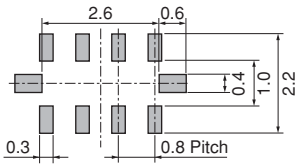
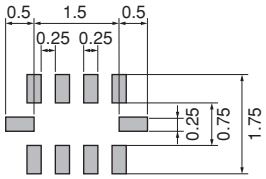
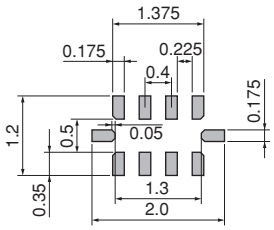
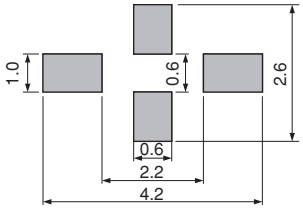
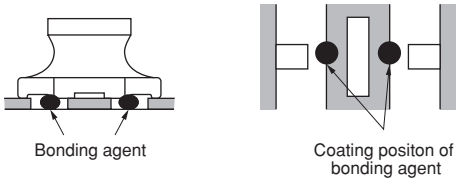
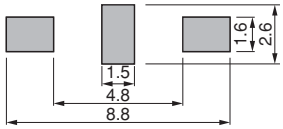
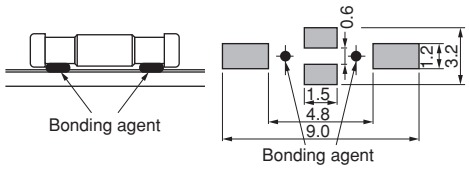






Continued on the following page.

(in mm)

Series	Solder Paste Printing	Adhesive Application
NFA	●Guideline of solder paste thickness: 100-200μm: NFA31G/31C 100-150μm: NFA18S/21S NFA31G/31C  NFA21S  NFA18S  	
NFW31S **NFE31P**	●Guideline of solder paste thickness: 150-200μm  	■ NFW31S Series Apply 0.2mg of bonding agent at each chip. 
NFE61P	●Guideline of solder paste thickness: 150-200μm  	Apply 1.0mg of bonding agent at each chip. 

3. Standard Soldering Conditions

(1) Soldering Methods

Use flow and reflow soldering methods only.
Use standard soldering conditions when soldering chip EMI suppression filters.
In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products.
If using NFM series with Sn-Zn based solder, please contact Murata in advance.

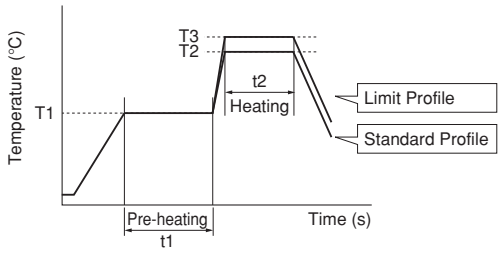
Flux:

- Use Rosin-based flux.
  In case of using RA type solder, products should be cleaned completely with no residual flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

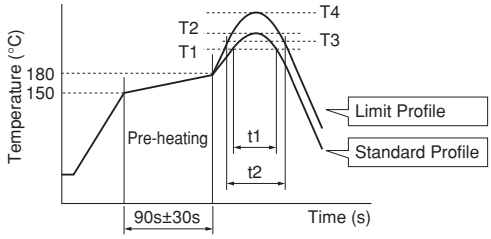
(2) Soldering Profile

●Flow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Pre-heating		Standard Profile			Limit Profile		
			Heating		Cycle of Flow	Heating		Cycle of Flow
	Temp. (T1)	Time. (t1)	Temp. (T2)	Time. (t2)		Temp. (T3)	Time. (t2)	
NFM3D/31/41 NFE61P	150°C	60s min.	250°C	4 to 6s	2 times max.	265±3°C	5s max.	2 times max.
NFW31S	150°C	60s min.	250°C	4 to 6s	2 times max.	265±3°C	5s max.	1 time

●Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Standard Profile				Limit Profile			
	Heating		Peak Temperature (T2)	Cycle of Reflow	Heating		Peak Temperature (T4)	Cycle of Reflow
	Temp. (T1)	Time. (t1)			Temp. (T3)	Time. (t2)		
NFA, NFE NFL, NFM (Except NFM55P) NFR	220°C min.	30 to 60s	245±3°C	2 times max.	230°C min.	60s max.	260°C/10s	2 times max.
NFW31S, NFM55P	220°C min.	30 to 60s	245±3°C	2 times max.	230°C min.	60s max.	260°C/10s	1 time

(3) Reworking with Solder Iron

The following conditions must be strictly followed when using a soldering iron.

Pre-heating: 150°C 60s min.*1

*1 NFM55P: 100°C/60s+200°C/60s

Soldering iron power output / Tip diameter:
30W max. / ø3mm max.

Temperature of soldering iron tip / Soldering time / Times:
350°C max. / 3-4s / 2 times*2

*2 NFE31PT152Z1E9: 280°C max. / 10s max. / 2 times

Do not allow the tip of the soldering iron to directly contact the chip.

For additional methods of reworking with a soldering iron, please contact Murata engineering.

4. Cleaning

Following conditions should be observed when cleaning chip EMI filter.

(1) Cleaning Temperature: 60°C max. (40°C max. for alcohol type cleaner)

(2) Ultrasonic

Output: 20W/liter max.

Duration: 5 minutes max.

Frequency: 28 to 40kHz

(3) Cleaning Agent

The following list of cleaning agents have been tested on the individual components. Evaluation of final assembly should be completed prior to production.

(a) Alcohol cleaning agent
Isopropyl alcohol (IPA)

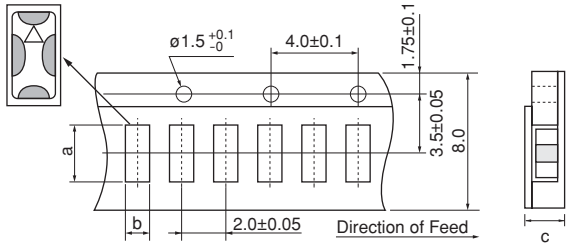
(b) Aqueous cleaning agent
Pine Alpha ST-100S

(4) Ensure that flux residue is completely removed.

Component should be thoroughly dried after aqueous agent has been removed with deionized water.

■ Minimum Quantity and Dimensions of 8mm Width Paper / Embossed Tape

(Paper Tape)

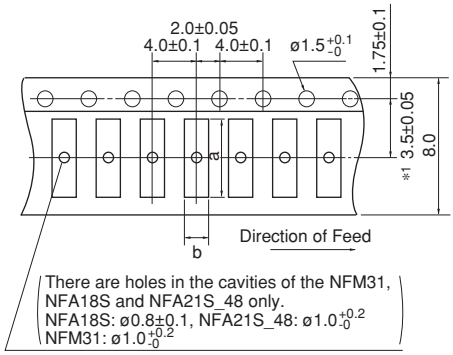


c: Total Thickness of Tape

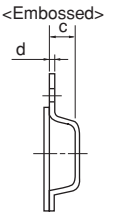
Part Number	Dimensions				Minimum Qty. (pcs.)				
					ø180mm Reel		ø330mm Reel		Bulk
	a	b	c	d	Paper Tape	Embossed Tape	Paper Tape	Embossed Tape	
NFL15ST	1.12	0.62	0.8 max.	-	10000	-	-	-	500

(in mm)

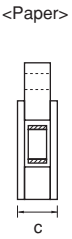
(Common to Paper Tape / Embossed Tape)



*1 NFM31: 3.5±0.1



c: Depth of Cavity
(Embossed Tape)



c: Total Thickness of Tape
(Paper Tape)

Dimension of the cavity of embossed tape is measured at the bottom side.

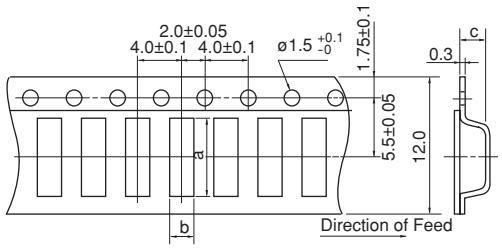
Part Number	Dimensions				Minimum Qty. (pcs.)				
					ø180mm Reel		ø330mm Reel		Bulk
	a	b	c	d	Paper Tape	Embossed Tape	Paper Tape	Embossed Tape	
NFM18CC/ NFM18PC (Except 105R/225B1A) NFM18PS	1.85	1.05	0.9 max.	-	4000	-	-	-	500
NFM18PC105R/225B1A			1.1 max.	-	4000	-	-	-	500
NFL18SP/NFL18ST_H	1.85	1.05	0.9 max.	-	4000	-	-	-	1000
NFL18ST_X			1.1 max.						
NFL21SP	2.3	1.55	1.1 max.						
NFM21	2.3	1.55	1.1 max.	-	4000	-	-	-	500
NFM3D	3.4	1.4	0.85	0.2	-	4000	-	-	500
NFM31	3.5	1.9	1.5	0.25	-	3000	-	-	500
NFA18SL/SD	1.8	1.0	0.7	0.25	-	4000	-	-	1000
NFA21SL_45	2.30	1.55	0.7	0.25	-	4000	-	-	1000
NFA21SL_48	2.25	1.45	1.05	0.25	-	4000	-	-	1000
NFA31GD/31CC	3.5	2.0	1.1 max.	-	4000	-	-	-	100
NFE31PT	3.6	1.8	1.85	0.2	-	2000	-	8000	500
NFR21GD	2.3	1.55	0.7	0.25	-	4000	-	-	500
NFW31SP	3.6	1.9	2.0	0.2	-	2000	-	7500	-

(in mm)

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity".

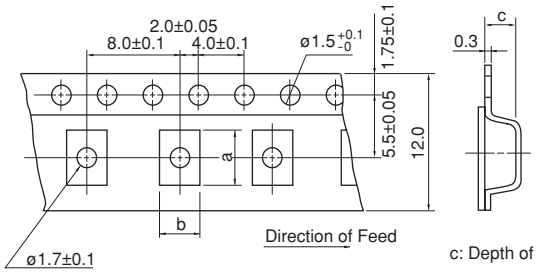
Continued on the following page.

■ Minimum Quantity and Dimensions of 12mm Width Embossed Tape



c: Depth of Cavity

Part Number	Dimensions			Minimum Qty. (pcs.)		
	a	b	c	ø180mm Reel	ø330mm Reel	Bulk
NFM41	4.8	1.8	1.1	4000	-	500
NFE61	7.2	1.9	1.75	2500	8000	500



c: Depth of Cavity

Part Number	Dimensions			Minimum Qty. (pcs.)		
	a	b	c	ø180mm Reel	ø330mm Reel	Bulk
NFM55	6.0	5.3	2.5	500	-	100

Dimension of the cavity is measured at the bottom side.

(in mm)

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity".

●EKEMNFMCB (Chip EMIFIL® Capacitor Type for Signal Lines)

No.	Part Number	Quantity (pcs.)	Capacitance	Rated Voltage (Vdc)	Rated Current (mA)
1	NFM18CC220U1C3	10	22pF±20%	16	400
2	NFM18CC470U1C3	10	47pF±20%	16	400
3	NFM18CC101R1C3	10	100pF±20%	16	500
4	NFM18CC221R1C3	10	220pF±20%	16	500
5	NFM18CC471R1C3	10	470pF±20%	16	500
6	NFM18CC102R1C3	10	1000pF±20%	16	600
7	NFM18CC222R1C3	10	2200pF±20%	16	700
8	NFM18CC223R1C3	10	22000pF±20%	16	1000
9	NFM21CC220U1H3	10	22pF±20%	50	700
10	NFM21CC470U1H3	10	47pF±20%	50	700
11	NFM21CC101U1H3	10	100pF±20%	50	700
12	NFM21CC221R1H3	10	220pF±20%	50	700
13	NFM21CC471R1H3	10	470pF±20%	50	1000
14	NFM21CC102R1H3	10	1000pF±20%	50	1000
15	NFM21CC222R1H3	10	2200pF±20%	50	1000
16	NFM21CC223R1H3	10	22000pF±20%	50	2000

●EKEMFA31E (Chip EMIFIL® Capacitor Array Type/ RC Combined Array Type)

No.	Part Number	Quantity (pcs.)	Capacitance	Rated Voltage (Vdc)	Rated Current (mA)
1	NFA31CC220S1E4	10	22pF±20%	25	200
2	NFA31CC470S1E4	10	47pF±20%	25	200
3	NFA31CC101S1E4	10	100pF±20%	25	200
4	NFA31CC221S1E4	10	220pF±20%	25	200
5	NFA31CC471R1E4	10	470pF±20%	25	200
6	NFA31CC102R1E4	10	1000pF±20%	25	200
7	NFA31CC222R1E4	10	2200pF±20%	25	200
8	NFA31CC223R1C4	10	22000pF±20%	16	200

●EKEMFL18G (Chip EMIFIL® LC Combined Type)

No.	Part Number	Quantity (pcs.)	Cut-off Frequency	Rated Voltage (Vdc)	Rated Current (mA)
1	NFL15ST157X0J3	10	150MHz	6.3	50
2	NFL15ST207X0J3	10	200MHz	6.3	50
3	NFL15ST307X0J3	10	300MHz	6.3	50
4	NFL15ST507X0J3	10	500MHz	6.3	50
5	NFL18ST506H1A3	10	50MHz	10	75
6	NFL18ST706H1A3	10	70MHz	10	75
7	NFL18ST107H1A3	10	100MHz	10	75
8	NFL18ST207H1A3	10	200MHz	10	100
9	NFL18ST307H1A3	10	300MHz	10	100
10	NFL18ST507H1A3	10	500MHz	10	100
11	NFL18ST207X1C3	10	200MHz	16	150
12	NFL18ST307X1C3	10	300MHz	16	200
13	NFL18ST507X1C3	10	500MHz	16	200
14	NFL18SP157X1A3	10	150MHz	10	100
15	NFL18SP207X1A3	10	200MHz	10	100
16	NFL18SP307X1A3	10	300MHz	10	100
17	NFL18SP507X1A3	10	500MHz	10	100
18	NFL21SP106X1C3	10	10MHz	16	100
19	NFL21SP206X1C7	10	20MHz	16	100
20	NFL21SP506X1C3	10	50MHz	16	150
21	NFL21SP706X1C3	10	70MHz	16	150
22	NFL21SP107X1C3	10	100MHz	16	200
23	NFL21SP157X1C3	10	150MHz	16	200

Continued on the following page.

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No.	Part Number	Quantity (pcs.)	Cut-off Frequency	Rated Voltage (Vdc)	Rated Current (mA)
24	NFL21SP207X1C3	10	200MHz	16	250
25	NFL21SP307X1C3	10	300MHz	16	300
26	NFL21SP407X1C3	10	400MHz	16	300
27	NFL21SP507X1C3	10	500MHz	16	300

No.	Part Number	Quantity (pcs.)	Cut-off Frequency	Attenuation (dB min.)										Rated Current	Rated Voltage
				10MHz	20MHz	50MHz	100MHz	150MHz	200MHz	300MHz	400MHz	500MHz	1GHz		
28	NFW31SP106X1E4	10	10MHz	6dB max.	5	25	25	-	25	-	-	30	30	200mA	25V
29	NFW31SP206X1E4	10	20MHz	-	6dB max.	5	25	-	25	-	-	30	30	200mA	25V
30	NFW31SP506X1E4	10	50MHz	-	-	6dB max.	10	-	30	-	-	30	30	200mA	25V
31	NFW31SP107X1E4	10	100MHz	-	-	-	6dB max.	-	5	-	-	20	30	200mA	25V
32	NFW31SP157X1E4	10	150MHz	-	-	-	-	6dB max.	-	10	20	30	30	200mA	25V
33	NFW31SP207X1E4	10	200MHz	-	-	-	-	-	6dB max.	-	-	10	30	200mA	25V
34	NFW31SP307X1E4	10	300MHz	-	-	-	-	-	-	6dB max.	-	5	15	200mA	25V
35	NFW31SP407X1E4	10	400MHz	-	-	-	-	-	-	-	6dB max.	-	10	200mA	25V
36	NFW31SP507X1E4	10	500MHz	-	-	-	-	-	-	-	-	6dB max.	10	200mA	25V

●EKEMFA20H (Chip EMIFIL® LC Combined Array Type)

No.	Part Number	Quantity (pcs.)	Cut-off Frequency	Rated Voltage (Vdc)	Rated Current (mA)
1	NFA18SL506X1A45	10	50MHz	10	25
2	NFA18SL137V1A45	10	130MHz	10	50
3	NFA18SL187V1A45	10	180MHz	10	50
4	NFA18SL207V1A45	10	200MHz	10	50
5	NFA18SL227V1A45	10	220MHz	10	25
6	NFA18SL307V1A45	10	300MHz	10	100
7	NFA18SL357V1A45	10	350MHz	10	35
8	NFA18SL407V1A45	10	400MHz	10	100
9	NFA18SL487V1A45	10	480MHz	10	100
10	NFA18SD187X1A45	10	180MHz	10	25
11	NFA18SD207X1A45	10	200MHz	10	25
12	NFA21SL506X1A48	10	50MHz	10	20
13	NFA21SL806X1A48	10	80MHz	10	20
14	NFA21SL207X1A45	10	200MHz	10	100
15	NFA21SL207X1A48	10	200MHz	10	100
16	NFA21SL307X1A45	10	300MHz	10	100
17	NFA21SL307X1A48	10	300MHz	10	100
18	NFA21SL287V1A45	10	280MHz	10	100
19	NFA21SL287V1A48	10	280MHz	10	100
20	NFA21SL317V1A45	10	310MHz	10	100
21	NFA21SL317V1A48	10	310MHz	10	100
22	NFA21SL337V1A45	10	330MHz	10	100
23	NFA21SL337V1A48	10	330MHz	10	100

●EKEMNFMPK (Chip EMIFIL® for Large Current)

No.	Part Number	Quantity (pcs.)	Capacitance	Rated Voltage (Vdc)	Rated Current (A)
1	NFM18PC104R1C3	10	0.1μF±20%	16	2
2	NFM18PC224R0J3	10	0.22μF±20%	6.3	2
3	NFM18PC474R0J3	10	0.47μF±20%	6.3	2
4	NFM18PC105R0J3	10	1μF±20%	6.3	4
5	NFM18PC225B0J3	10	2.2μF±20%	6.3	2
6	NFM18PC225B1A3	10	2.2μF±20%	10	4
7	NFM18PS474R0J3	10	0.47μF±20%	6.3	2
8	NFM18PS105R0J3	10	1μF±20%	6.3	2
9	NFM21PC104R1E3	10	0.1μF±20%	25	2
10	NFM21PC224R1C3	10	0.22μF±20%	16	2
11	NFM21PC474R1C3	10	0.47μF±20%	16	2
12	NFM21PC105B1A3	10	1μF±20%	10	4
13	NFM21PC105B1C3	10	1μF±20%	16	4
14	NFM21PC225B0J3	10	2.2μF±20%	6.3	4
15	NFM21PC475B1A3	10	4.7μF±20%	10	6
16	NFM21PS106B0J3	10	10μF±20%	6.3	4
17	NFM31PC276B0J3	10	27μF±20%	6.3	6
18	NFM41PC204F1H3	10	0.2μF +80/-20%	50	2

Continued on the following page.

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Continued from the preceding page.

No.	Part Number	Quantity (pcs.)	Capacitance	Rated Voltage (Vdc)	Rated Current (A)
19	**NFM41PC155B1E3**	10	1.5μF±20%	25	6
20	**NFM31KC103R1H3**	10	10000pF±20%	50	10
21	**NFM31KC153R1H3**	10	15000pF±20%	50	10
22	**NFM31KC223R1H3**	10	22000pF±20%	50	10
23	**NFM31KC103R2A3**	10	10000pF±20%	100	10
24	**NFE31PT152Z1E9**	10	1500pF +50/-20%	25	6
25	**NFE61PT102E1H9**	10	1000pF +80/-20%	50	2

DL□/PL□

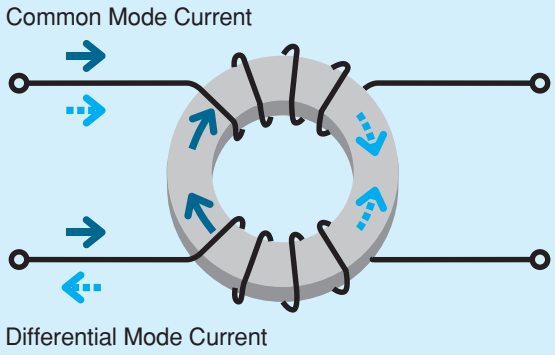
Chip Common Mode Choke Coil
Large Current Common Mode Choke Coil for Automotive Available

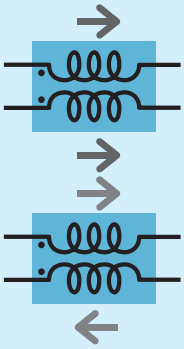
⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

C31E.pdf
Jul.27,2012

muRata

DL□ Series Introduction





Magnetic flux by common mode current is added each other and works as an inductor

Magnetic flux by differential mode current is canceled each other and do not works as an inductor

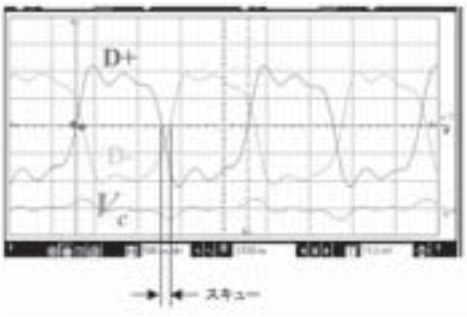
Category	Features, Classification	Structure	Part Number	Comments
High cut-off frequency High Coupling (For high speed differential signal lines)	Ultra high cut-off frequency for high speed differential signal lines	Film type	DLP11SA	· Low profile, small size, suitable for mobile equipments. · Tight terminal pitch enables high density layout. · Ultra high cut-off frequency and its matching to line impedance enables good transmission of high speed signal.
		Wound type	DLW21SN_HQ2	· Ultra high self resonance frequency enables high cut-off frequency. · Its matching to line impedance enables good transmission of high speed signal.
	High cut-off frequency for high speed differential signal lines	Film type	DLP0NS DLP11SN DLP2AD	· Low profile, small size, suitable for mobile equipments. · Tight terminal pitch enables high density layout. · High cut-off frequency enables good transmission of high speed signal.
		Wound type	DLW21SN_SQ2 DLW31S DLW21H	· Ultra high self resonance frequency enables high cut-off frequency. · DLW21H is designed as low profile.
	for general differential signal lines	Film type	DLP31S DLP31D	· Low profile,small size, suitable for mobile equipments. · Tight terminal pitch enables high density layout.
Large current High coupling (For power lines)		Wound type	DLW5AH DLW5BS DLW5AT DLW5BT	· Large current (6A max.), suitable for input connector from an AC adaptor. · DLW5AT/DLW5BT is designed as low profile.
Relative high differential mode impedance Low coupling (For audio lines)		Multilayer type	DLM11G	· Modified its differential mode impedance higher than other common mode choke coils, this feature makes possible to suppress both common mode and differential mode noise. · Ideal to keep low distortion audio signal.
Large current Automotive Available (For power lines)	Available up to 10A	Winding type Cased structure	PLT10HH	· Large current, high reliability, suitable for mortors in automobile.

Skew Improve Effect of Common Mode Choke Coil

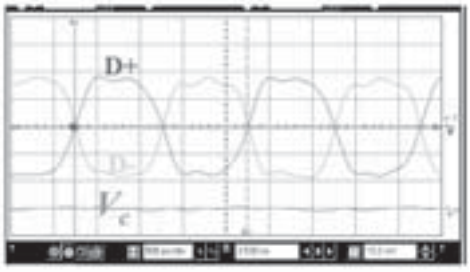
Example of Skew Improvement by Common Mode Choke Coil
(Test using pulse generator waveform)

Waveform is equivalent to 1000Mbps signal

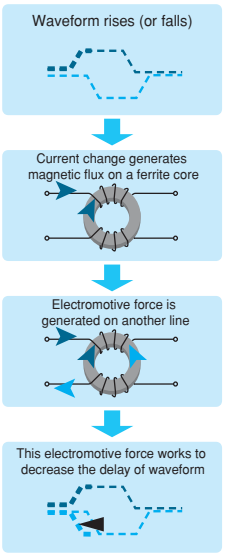
Waveform with intentionally made skew (skew: 100ps)



Skew is improved by common mode choke coil

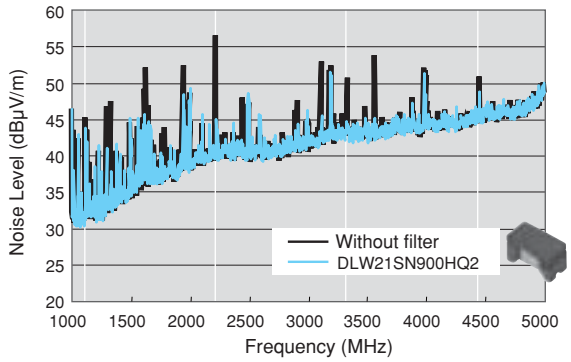


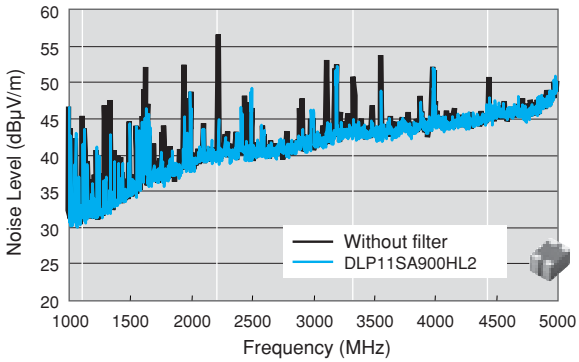
Mechanism of Skew Improvement



Noise Suppression of Common Mode Choke Coil in HDMI Line

Device under test / Transmitter : game machine Receiver : projector
Cable / HDMI categoly2 3m cable
Test resolution / 1080p Deep color 12bit (Data 1.11GHz) DVD play mode

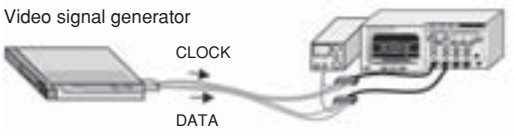


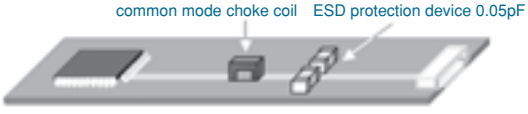


Test Example of HDMI1.3 Waveform Transmission

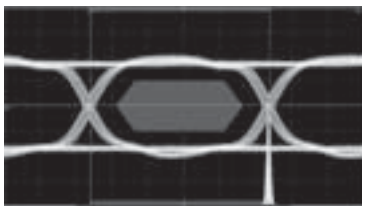
~Using ESD protection device
LXES15AAA1-100 (0.05pF)~

Signal frequency : 1.11GHz (Deep color 12bit)

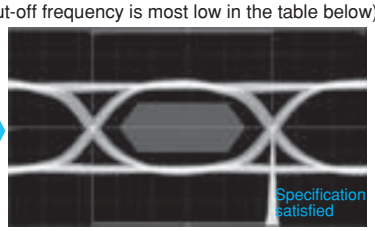




ESD protection device only



Film Type DLP11SN900HL2
(Cut-off frequency is most low in the table below)



	Wound Type DLW21SN900HQ2	Film Type DLP11SA900HL2	Film Type Array DLP2ADN900HL4
Cut-off Frequency	Over 10GHz	Around 6GHz	Around 4GHz
Judge	Specification satisfied	Specification satisfied	Specification satisfied
Transition Time	Rise time: 83.4ps Fall time: 77.4ps	Rise time: 90.4ps Fall time: 85.5ps	Rise time: 100ps Fall time: 97.4ps

Each of common mode choke coil can keep waveform, satisfy the specification.

Part Numbering

(Part Number)

DL	W	21	S	N	371	S	Q	2	L
❶	❷	❸	❹	❺	❻	❼	❽	❾	❿

❶Product ID

Product ID	
DL	Chip Common Mode Choke Coils

❷Structure

Code	Structure
W	Wire Wound Type
M	Multilayer Type
P	Film Type

❸Dimensions (L×W)

Code	Dimensions (L×W)	EIA
0Q	0.65×0.5mm	025020
0N	0.85×0.65mm	03025
11	1.25×1.0mm	0504
1N	1.5×0.65mm	05025
21	2.0×1.2mm	0805
31	3.2×1.6mm	1206
2A	2.0×1.0mm	0804
2H	2.5×2.0mm	1008
5A	5.0×3.6mm	2014
5B	5.0×5.0mm	2020

❹Features (1)

Code	Type
S	Magnetically Shielded One Circuit Type
D	Magnetically Shielded Two Circuit Type
H	Open Magnetic One Circuit Type
G	Magnetically Monolithic Type (sectional winding)
R/T	One Circuit Low Profile Type

❺Category

Code	Category
A	Expressed by a letter.
B	
C	
M	
N	
R	

❻Impedance

Typical impedance at 100MHz is expressed by three figures. The unit is in ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

❼Circuit

Code	Circuit
S	Expressed by a letter.
M	
H	
U	

❽Features (2)

Code	Features
D	Expressed by a letter.
K	
L	
Q	
Z	

❾Number of Signal Lines

Code	Number of Signal Lines
2	Two Lines
3	Three Lines
4	Four Lines

❿Packaging

Code	Packaging	Series
K	Embossed Taping (ø330mm Reel)	**DLW5AH/DLW5BS/DLW5BT**
L	Embossed Taping (ø180mm Reel)	All Series
B	Bulk	All Series

Part Numbering

(Part Number)

PL	T	10H	H	102	6R0	P	N	B
❶	❷	❸	❹	❺	❻	❼	❽	❾

❶Product ID

Product ID	
PL	Common Mode Choke Coils

❷Type

Code	Type
T	DC Type

❸Applications

Code	Applications
10H	for DC Line High-frequency Type

❹Features

Code	Features
H	for Automotive

❺Impedance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

❻Rated Current

Expressed by three figures. The unit is ampere (A). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.
A decimal point is expressed by the capital letter "R". In this case, all figures are significant digits.

❼Winding Mode

Code	Winding Mode
P	Aligned Winding Type

❽Lead Dimensions

Code	Lead Dimensions
N	No Lead Terminal (SMD)

❾Packaging

Code	Packaging	Series
B	Bulk	PLT10H
L	Embossed Taping (ø178mm/ø180mm Reel)	PLT10H
K	Embossed Taping (ø330mm Reel)	PLT10H

Type	Size Code (Inch)	Thickness (mm)	Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	New	Kit	≥1A ≥3A	HD UD	Zmatch	Flow	ReFlow
Multilayer Type for Audio Lines	0504 p164	0.5	DLM11GN601SD2	600ohm±25%	100mA							ReFlow
Film Type for Differential Signal Lines	025020 p165	0.3	DLP0QSN600HL2	60ohm±25%	50mA	New	Kit			Zmatch		ReFlow
	03025 p166	0.45	DLP0NSN670HL2	67ohm±20%	110mA		Kit		HD	Zmatch		ReFlow
		0.45	DLP0NSN900HL2	90ohm±20%	100mA		Kit		HD	Zmatch		ReFlow
		0.45	DLP0NSN121HL2	120ohm±20%	90mA		Kit		HD	Zmatch		ReFlow
		0.45	DLP0NSA150HL2	15ohm±5ohm	100mA		Kit		UD	Zmatch		ReFlow
		0.45	DLP0NSC280HL2	28ohm±20%	100mA		Kit		HD	Zmatch		ReFlow
	0504 p168	0.82	DLP11SN670SL2	67ohm±20%	180mA		Kit		HD			ReFlow
		0.82	DLP11SN121SL2	120ohm±20%	140mA		Kit		HD			ReFlow
		0.82	DLP11SN161SL2	160ohm±20%	120mA		Kit		HD			ReFlow
		0.82	DLP11SN900HL2	90ohm±20%	150mA		Kit		HD	Zmatch		ReFlow
		0.82	DLP11SN201HL2	200ohm±20%	110mA		Kit		HD	Zmatch		ReFlow
		0.82	DLP11SN241HL2	240ohm±20%	100mA		Kit		HD	Zmatch		ReFlow
		0.82	DLP11SN281HL2	280ohm±20%	90mA		Kit		HD	Zmatch		ReFlow
		0.82	DLP11SN331HL2	330ohm±20%	80mA		Kit		HD	Zmatch		ReFlow
		0.82	DLP11SA350HL2	35ohm±20%	170mA		Kit		UD	Zmatch		ReFlow
		0.82	DLP11SA670HL2	67ohm±20%	150mA		Kit		UD	Zmatch		ReFlow
		0.82	DLP11SA900HL2	90ohm±20%	150mA		Kit		UD	Zmatch		ReFlow
		0.5	DLP11RB150UL2	15ohm±5ohm	100mA	New	Kit			Zmatch		ReFlow
		0.5	DLP11RB400UL2	40ohm±10ohm	100mA	New	Kit			Zmatch		ReFlow
		0.5	DLP11RN450UL2	45ohm±25%	100mA	New	Kit			Zmatch		ReFlow
		0.3	DLP11TB800UL2	80ohm±25%	100mA		Kit		UD	Zmatch		ReFlow
	1206 p171	1.15	DLP31SN121ML2	120ohm±20%	100mA				HD			ReFlow
		1.15	DLP31SN221ML2	220ohm±20%	100mA				HD			ReFlow
		1.15	DLP31SN551ML2	550ohm±20%	100mA				HD			ReFlow
Film Array Type for Differential Signal Lines	05025 p172	0.45	DLP1NDN350HL4	35ohm±20%	100mA		Kit		HD	Zmatch		ReFlow
		0.45	DLP1NDN670HL4	67ohm±20%	80mA		Kit		HD	Zmatch		ReFlow
		0.45	DLP1NDN900HL4	90ohm±20%	60mA		Kit		HD	Zmatch		ReFlow
	0804 p173	0.82	DLP2ADA350HL4	35ohm±20%	150mA		Kit		UD	Zmatch		ReFlow
		0.82	DLP2ADA670HL4	67ohm±20%	130mA		Kit		UD	Zmatch		ReFlow
		0.82	DLP2ADA900HL4	90ohm±20%	120mA		Kit		UD	Zmatch		ReFlow
		0.82	DLP2ADN670HL4	67ohm±20%	140mA		Kit		HD	Zmatch		ReFlow
		0.82	DLP2ADN900HL4	90ohm±20%	130mA		Kit		HD	Zmatch		ReFlow
		0.82	DLP2ADN121HL4	120ohm±20%	120mA		Kit		HD	Zmatch		ReFlow
		0.82	DLP2ADN161HL4	160ohm±20%	100mA		Kit		HD	Zmatch		ReFlow
		0.82	DLP2ADN201HL4	200ohm±20%	90mA		Kit		HD	Zmatch		ReFlow
		0.82	DLP2ADN241HL4	240ohm±20%	80mA		Kit		HD	Zmatch		ReFlow
		0.82	DLP2ADN281HL4	280ohm±20%	80mA		Kit		HD	Zmatch		ReFlow
	1206 p175	1.15	DLP31DN900ML4	90ohm±20%	160mA				HD			ReFlow
		1.15	DLP31DN131ML4	130ohm±20%	120mA				HD			ReFlow
		1.15	DLP31DN201ML4	200ohm±20%	100mA				HD			ReFlow
		1.15	DLP31DN321ML4	320ohm±20%	80mA				HD			ReFlow
		1.15	DLP31DN441ML4	440ohm±20%	70mA				HD			ReFlow

Continued on the following page.

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Type	Size Code (Inch)	Thickness (mm)	Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	New	Kit	≧1A ≧3A	HD UD	Zmatch	Flow	ReFlow
Wire Wound Type for Differential Signal Lines	0805 p176	1.2	DLW21SN501SK2	500ohm±25%	250mA	New	Kit					ReFlow
		1.2	DLW21SN670SQ2	67ohm±25%	400mA		Kit		HD			ReFlow
		1.2	DLW21SN900SQ2	90ohm±25%	330mA		Kit		HD			ReFlow
		1.2	DLW21SN121SQ2	120ohm±25%	370mA		Kit		HD			ReFlow
		1.2	DLW21SN181SQ2	180ohm±25%	330mA		Kit		HD			ReFlow
		1.2	DLW21SN261SQ2	260ohm±25%	300mA		Kit		HD			ReFlow
		1.2	DLW21SN371SQ2	370ohm±25%	280mA		Kit		HD			ReFlow
		1.2	DLW21SN670HQ2	67ohm±25%	320mA		Kit		UD	Zmatch		ReFlow
		1.2	DLW21SN900HQ2	90ohm±25%	280mA		Kit		UD	Zmatch		ReFlow
		1.2	DLW21SN121HQ2	120ohm±25%	280mA		Kit		UD	Zmatch		ReFlow
		1.2	DLW21SR670HQ2	67ohm±25%	400mA		Kit		UD	Zmatch		ReFlow
		0.9	DLW21HN670SQ2	67ohm±25%	330mA		Kit		HD			ReFlow
		0.9	DLW21HN900SQ2	90ohm±25%	330mA		Kit		HD			ReFlow
		0.9	DLW21HN121SQ2	120ohm±25%	280mA		Kit		HD			ReFlow
		0.9	DLW21HN181SQ2	180ohm±25%	250mA		Kit		HD			ReFlow
	1206 p179	1.9	DLW31SN900SQ2	90ohm±25%	370mA				HD			ReFlow
		1.9	DLW31SN161SQ2	160ohm±25%	340mA				HD			ReFlow
		1.9	DLW31SN261SQ2	260ohm±25%	310mA				HD			ReFlow
		1.9	DLW31SN601SQ2	600ohm±25%	260mA				HD			ReFlow
		1.9	DLW31SN102SQ2	1000ohm±25%	230mA				HD			ReFlow
		1.9	DLW31SN222SQ2	2200ohm±25%	200mA				HD			ReFlow
Wire Wound Type for Power Lines and Signal Lines	2014 p160	4.3	DLW5AHN402SQ2	4000ohm(Typ.)	200mA		Kit					ReFlow
	p162	2.2	DLW5ATN111SQ2	110ohm(Typ.)	5000mA	New	Kit	≧3A				ReFlow
		2.2	DLW5ATN401SQ2	400ohm(Typ.)	2000mA	New	Kit	≧1A				ReFlow
		2.2	DLW5ATN501SQ2	500ohm(Typ.)	1500mA	New	Kit	≧1A				ReFlow
		2.2	DLW5ATN851SQ2	850ohm(Typ.)	1500mA	New	Kit	≧1A				ReFlow
		2.2	DLW5ATN272SQ2	2700ohm(Typ.)	1000mA	New	Kit	≧1A				ReFlow
	2020 p160	4.5	DLW5BSM191SQ2	190ohm(Typ.)	5000mA		Kit	≧3A				ReFlow
		4.5	DLW5BSM351SQ2	350ohm(Typ.)	2000mA		Kit	≧1A				ReFlow
		4.5	DLW5BSM102SQ2	1000ohm(Typ.)	1500mA		Kit	≧1A				ReFlow
		4.5	DLW5BSM152SQ2	1500ohm(Typ.)	1000mA		Kit	≧1A				ReFlow
		4.5	DLW5BSM302SQ2	3000ohm(Typ.)	500mA		Kit					ReFlow
	p162	2.35	DLW5BTM101SQ2	100ohm(Typ.)	6000mA		Kit	≧3A				ReFlow
		2.35	DLW5BTM251SQ2	250ohm(Typ.)	5000mA		Kit	≧3A				ReFlow
		2.35	DLW5BTM501SQ2	500ohm(Typ.)	4000mA		Kit	≧3A				ReFlow
		2.35	DLW5BTM102SQ2	1000ohm(Typ.)	2000mA		Kit	≧1A				ReFlow
		2.35	DLW5BTM142SQ2	1400ohm(Typ.)	1500mA		Kit	≧1A				ReFlow

PL□ Large Current Common Mode Choke Coil for Automotive Available Series Line Up

Type	Size	Thickness (mm)	Part Number	Common Mode Impedance (at 10MHz/20°C)	Rated Current	New	Kit	≧3A ≧10A	HD UD	Zmatch	Flow	ReFlow
Large Current Common Mode Choke Coil for Automotive Available	12.9x6.6 (mm) p180	9.4	PLT10HH401100PN	400ohm	10A		Kit	≧10A				ReFlow
		9.4	PLT10HH501100PN	500ohm	10A		Kit	≧10A				ReFlow
		9.4	PLT10HH9016R0PN	900ohm	6A		Kit	≧3A				ReFlow
		9.4	PLT10HH1026R0PN	1000ohm	6A		Kit	≧3A				ReFlow

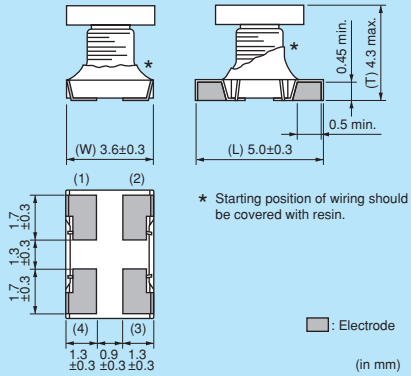
DLW5AH/DLW5BS Series (2014/2020 Size)

Hi Power Reflow OK

5A max, common mode choke coil for power lines.

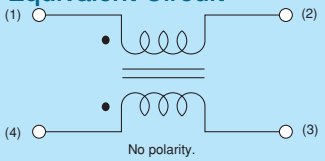
DLW5AH

■ Dimensions



★ Starting position of wiring should be covered with resin.

■ Equivalent Circuit

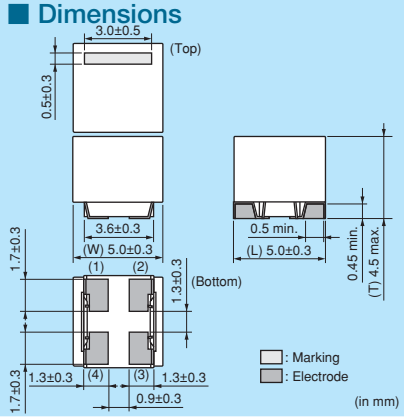


■ Packaging

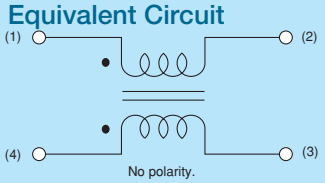
Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	400
K	330mm Reel Embossed Tape	1500
B	Bulk(Bag)	100

DLW5BS

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	400
K	330mm Reel Embossed Tape	1500
B	Bulk(Bag)	100

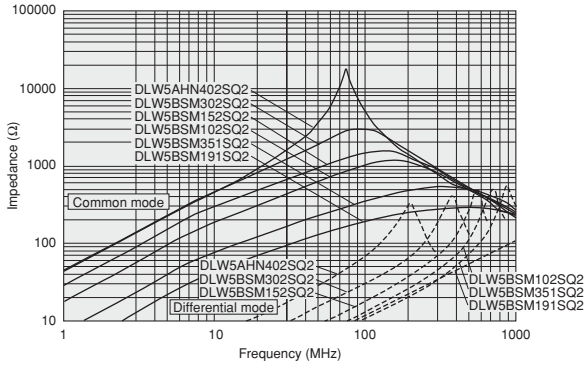
Refer to pages from p.183 to p.186 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLW5AHN402SQ2□	4000ohm (Typ.)	200mA	50Vdc	10M ohm	125Vdc	3.0ohm max.	Kit
DLW5BSM191SQ2□	190ohm (Typ.)	5000mA	50Vdc	10M ohm	125Vdc	0.02ohm max.	Kit ≧3A
DLW5BSM351SQ2□	350ohm (Typ.)	2000mA	50Vdc	10M ohm	125Vdc	0.04ohm max.	Kit ≧1A
DLW5BSM102SQ2□	1000ohm (Typ.)	1500mA	50Vdc	10M ohm	125Vdc	0.06ohm max.	Kit ≧1A
DLW5BSM152SQ2□	1500ohm (Typ.)	1000mA	50Vdc	10M ohm	125Vdc	0.1ohm max.	Kit ≧1A
DLW5BSM302SQ2□	3000ohm (Typ.)	500mA	50Vdc	10M ohm	125Vdc	0.3ohm max.	Kit

Operating Temperature Range: -25°C to +85°C (DLW5AH), -40°C to +85°C (DLW5BS) Number of Circuit: 1

■ Impedance-Frequency Characteristics (Main Items)



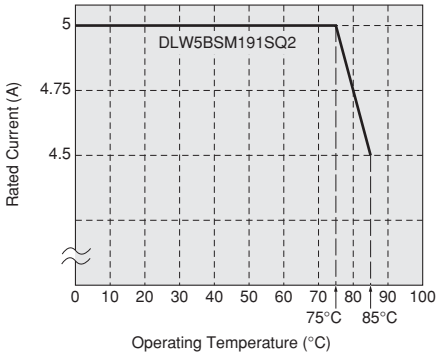
Continued on the following page.

⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

■ Notice (Rating)

In operating temperature exceeding +75°C, derating of current is necessary for DLW5BSM191SQ2 series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current

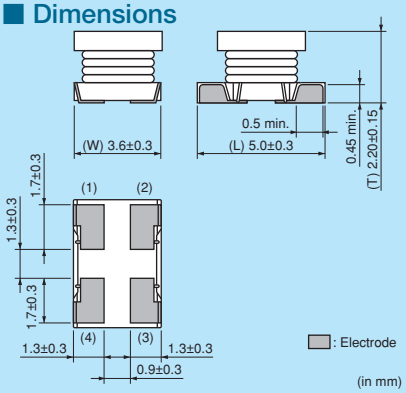


DLW5AT/DLW5BT Series (2014/2020 Size)

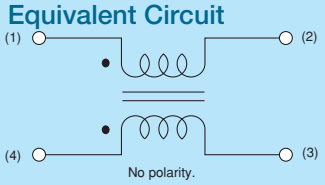
Hi Power Reflow OK

Low profile wire-wound common choke coil for power lines.

■ Dimensions



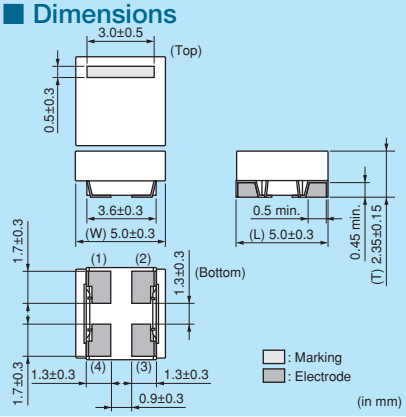
■ Equivalent Circuit



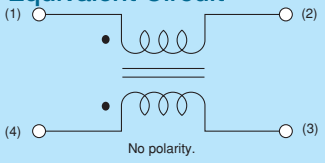
■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	700
K	330mm Reel Embossed Tape	2500
B	Bulk(Bag)	100

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	700
K	330mm Reel Embossed Tape	2500
B	Bulk(Bag)	100

Refer to pages from p.183 to p.186 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLW5ATN111SQ2□	110ohm (Typ.)	5000mA	50Vdc	10M ohm	125Vdc	0.014ohm±40%	New Kit ≧3A
DLW5ATN401SQ2□	400ohm (Typ.)	2000mA	50Vdc	10M ohm	125Vdc	0.024ohm±40%	New Kit ≧1A
DLW5ATN501SQ2□	500ohm (Typ.)	1500mA	50Vdc	10M ohm	125Vdc	0.040ohm±40%	New Kit ≧1A
DLW5ATN851SQ2□	850ohm (Typ.)	1500mA	50Vdc	10M ohm	125Vdc	0.052ohm±40%	New Kit ≧1A
DLW5ATN272SQ2□	2700ohm (Typ.)	1000mA	50Vdc	10M ohm	125Vdc	0.080ohm±40%	New Kit ≧1A
DLW5BTM101SQ2□	100ohm (Typ.)	6000mA	50Vdc	10M ohm	125Vdc	0.009ohm±40%	Kit ≧3A
DLW5BTM251SQ2□	250ohm (Typ.)	5000mA	50Vdc	10M ohm	125Vdc	0.014ohm±40%	Kit ≧3A
DLW5BTM501SQ2□	500ohm (Typ.)	4000mA	50Vdc	10M ohm	125Vdc	0.019ohm±40%	Kit ≧3A
DLW5BTM102SQ2□	1000ohm (Typ.)	2000mA	50Vdc	10M ohm	125Vdc	0.024ohm±40%	Kit ≧1A
DLW5BTM142SQ2□	1400ohm (Typ.)	1500mA	50Vdc	10M ohm	125Vdc	0.040ohm±40%	Kit ≧1A

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1

Continued on the following page.

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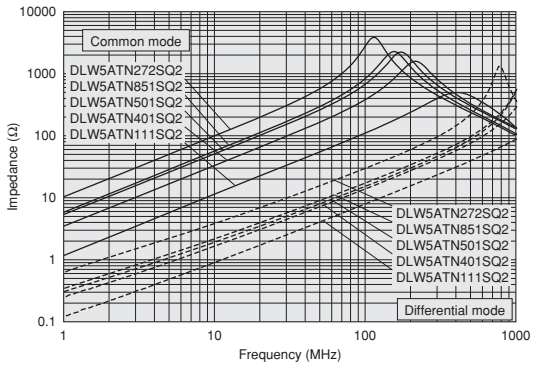
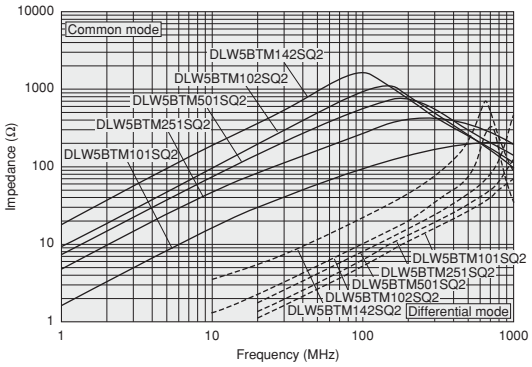
■ Impedance-Frequency Characteristics (Main Items)

DLW5AT Series



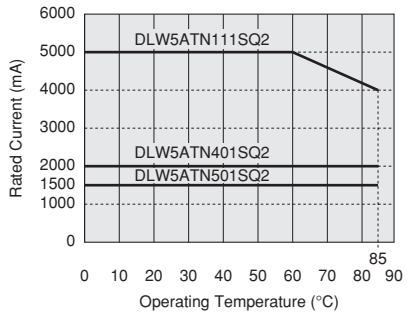
DLW5BT Series

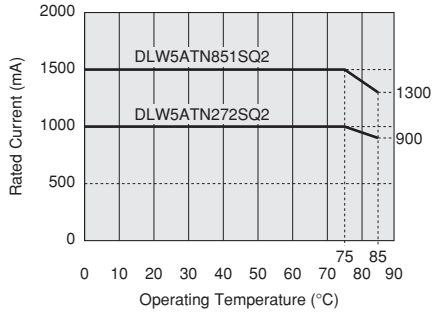


■ Notice (Rating)

In operating temperature exceeding +60°C, derating of current is necessary for DLW5AT series. Please apply the derating curve shown in chart according to the operating temperature.

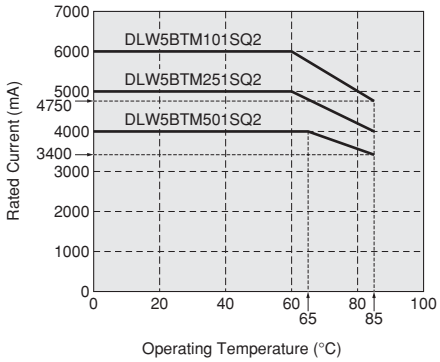
Derating of Rated Current





In operating temperature exceeding +60°C, derating of current is necessary for the following part name of DLW5BT series. Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current

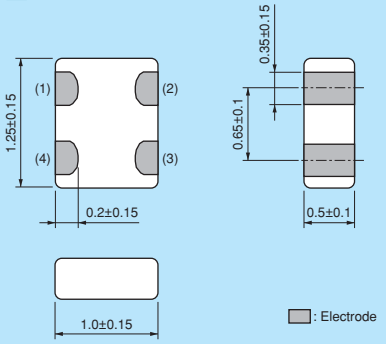


DLM11G Series (0504 Size)

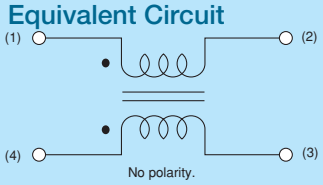
Reflow OK

Audio line common choke also effective to differential mode.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	10000
B	Bulk(Bag)	1000

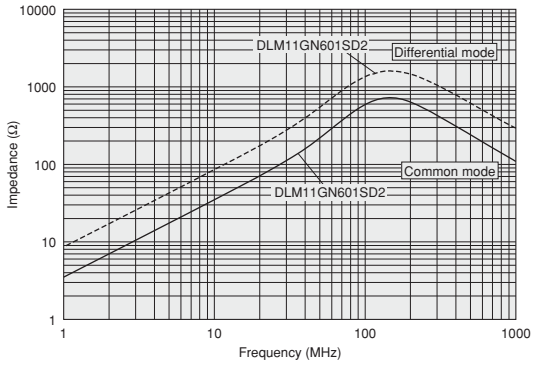
Refer to pages from p.183 to p.186 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	Operating Temperature Range
DLM11GN601SD2□	600ohm ±25%	100mA	5Vdc	100M ohm	25Vdc	0.8ohm max.	-40°C to +85°C

Number of Circuit: 1

■ Impedance-Frequency Characteristics (Main Items)

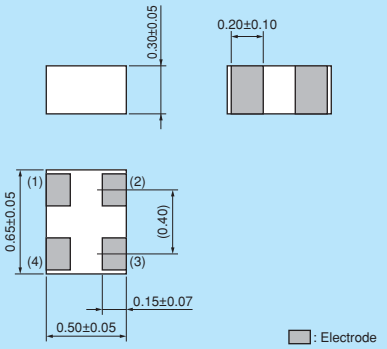


DLP0QS Series (025020 Size)

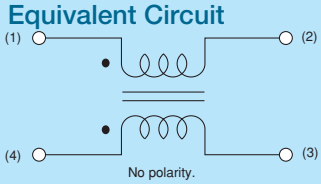
Reflow OK

025020 size, very small chip common mode choke coil, Cut-off frequency 3GHz max.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
D	180mm Reel Paper Tape	15000
B	Bulk(Bag)	500

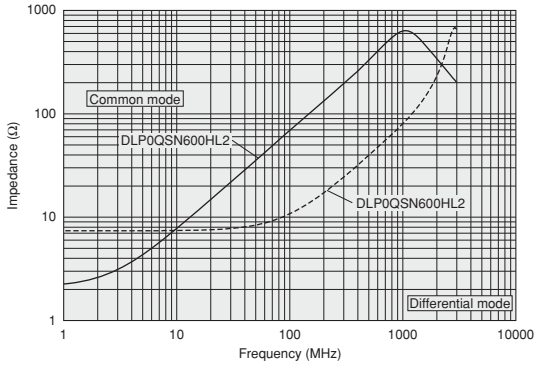
Refer to pages from p.183 to p.186 for mounting information.

■ Rated Value (□: packaging code)

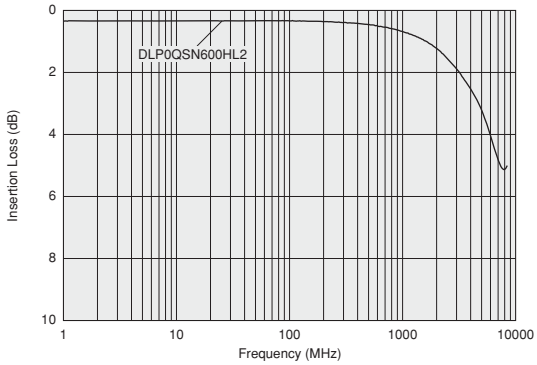
Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP0QSN600HL2□	60ohm ±25%	50mA	5Vdc	100M ohm	12.5Vdc	3.8ohm±25%	New Kit HD Imp Match

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1 HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

■ Impedance-Frequency Characteristics (Main Items)



■ Differential Mode Transmission Characteristics (Typ.)

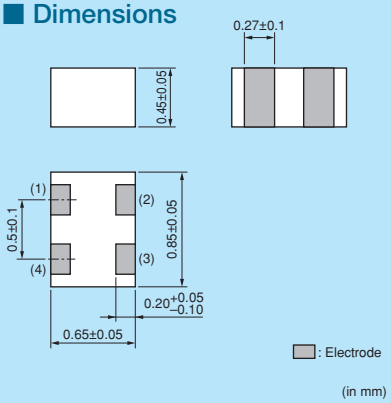


DLP0NS Series (03025 Size)

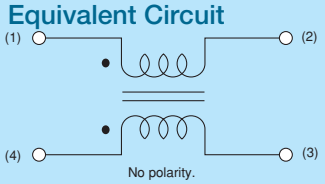
Reflow OK

03025 size, very small chip common mode choke coil, Cut-off frequency 8GHz max. Some of them are ready for mipi or DisplayPort.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	10000
B	Bulk(Bag)	500

Refer to pages from p.183 to p.186 for mounting information.

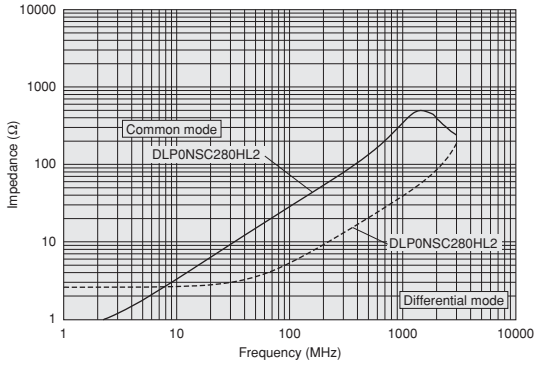
■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP0NSC280HL2□	28ohm ±20%	100mA	5Vdc	100M ohm	12.5Vdc	1.3ohm±25%	Kit HD Impedance Match
DLP0NSN670HL2□	67ohm ±20%	110mA	5Vdc	100M ohm	12.5Vdc	2.4ohm±25%	Kit HD Impedance Match
DLP0NSN900HL2□	90ohm ±20%	100mA	5Vdc	100M ohm	12.5Vdc	3.0ohm±25%	Kit HD Impedance Match
DLP0NSN121HL2□	120ohm ±20%	90mA	5Vdc	100M ohm	12.5Vdc	3.8ohm±25%	Kit HD Impedance Match
DLP0NSA150HL2□	15ohm ±5ohm	100mA	5Vdc	100M ohm	12.5Vdc	0.95ohm±25%	Kit UD Impedance Match

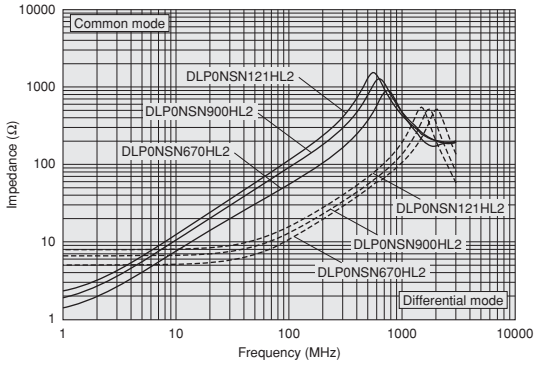
Operating Temperature Range: -40°C to +85°C Number of Circuit: 1 HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

■ Impedance-Frequency Characteristics (Main Items)

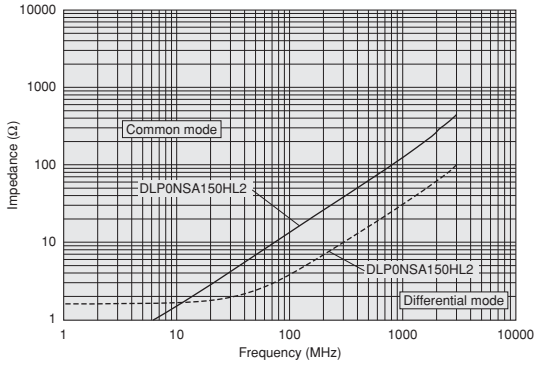
DLP0NSC280HL2



DLP0NSN 670/900/121 HL2



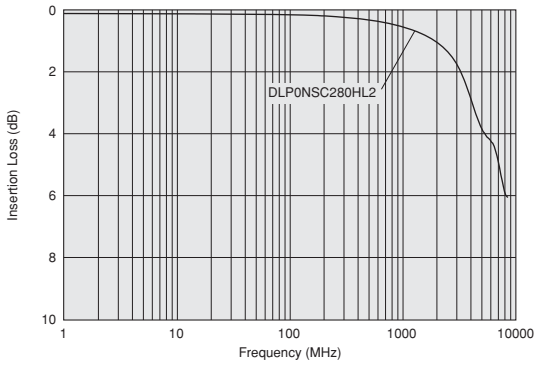
DLP0NSA150HL2



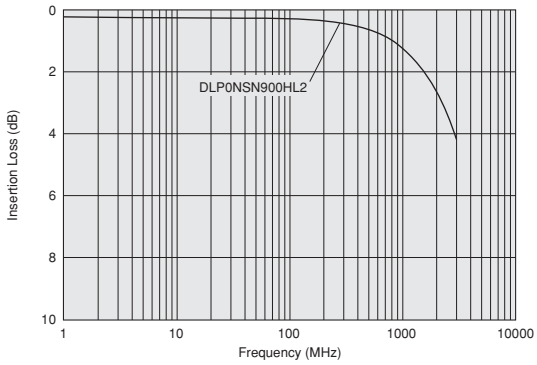
Continued on the following page.

■ Differential Mode Transmission Characteristics (Typ.)

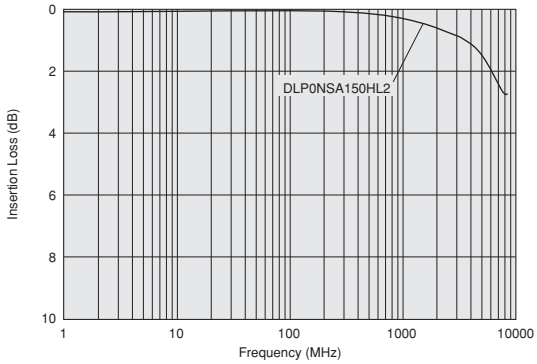
DLP0NSC280HL2



DLP0NSN900HL2



DLP0NSA150HL2

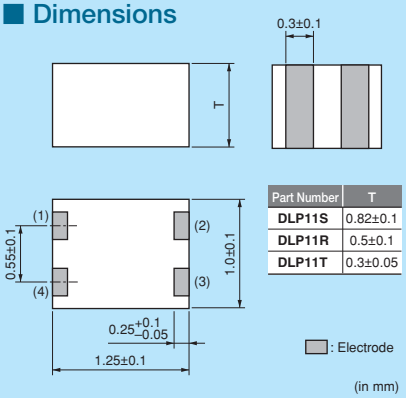


DLP11S/DLP11R/DLP11T Series (0504 Size)

Reflow OK

6GHz cut-off frequency (for HDMI/USB 3.0) is available.

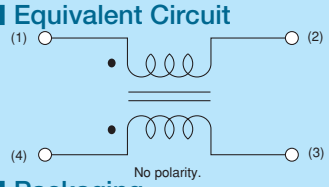
Dimensions



Part Number	T
DLP11S	0.82±0.1
DLP11R	0.5±0.1
DLP11T	0.3±0.05

(in mm)

Equivalent Circuit



No polarity.

Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000 (DLP11S)
		4000 (DLP11RN/RB)
		5000 (DLP11T)
B	Bulk(Bag)	500

Refer to pages from p.183 to p.186 for mounting information.

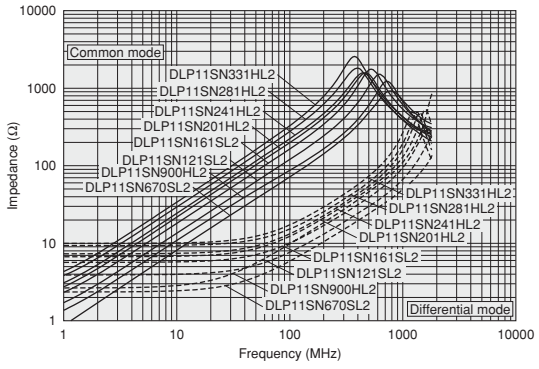
Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP11SN670SL2□	67ohm ±20%	180mA	5Vdc	100M ohm	12.5Vdc	1.3ohm±25%	Kit HD
DLP11SN121SL2□	120ohm ±20%	140mA	5Vdc	100M ohm	12.5Vdc	2.0ohm±25%	Kit HD
DLP11SN161SL2□	160ohm ±20%	120mA	5Vdc	100M ohm	12.5Vdc	2.7ohm±25%	Kit HD
DLP11SN900HL2□	90ohm ±20%	150mA	5Vdc	100M ohm	12.5Vdc	1.5ohm±25%	Kit HD Imp. Match
DLP11SN201HL2□	200ohm ±20%	110mA	5Vdc	100M ohm	12.5Vdc	3.1ohm±25%	Kit HD Imp. Match
DLP11SN241HL2□	240ohm ±20%	100mA	5Vdc	100M ohm	12.5Vdc	3.5ohm±25%	Kit HD Imp. Match
DLP11SN281HL2□	280ohm ±20%	90mA	5Vdc	100M ohm	12.5Vdc	4.2ohm±25%	Kit HD Imp. Match
DLP11SN331HL2□	330ohm ±20%	80mA	5Vdc	100M ohm	12.5Vdc	4.9ohm±25%	Kit HD Imp. Match
DLP11SA350HL2□	35ohm ±20%	170mA	5Vdc	100M ohm	12.5Vdc	0.9ohm±25%	Kit UD Imp. Match
DLP11SA670HL2□	67ohm ±20%	150mA	5Vdc	100M ohm	12.5Vdc	1.2ohm±25%	Kit UD Imp. Match
DLP11SA900HL2□	90ohm ±20%	150mA	5Vdc	100M ohm	12.5Vdc	1.4ohm±25%	Kit UD Imp. Match

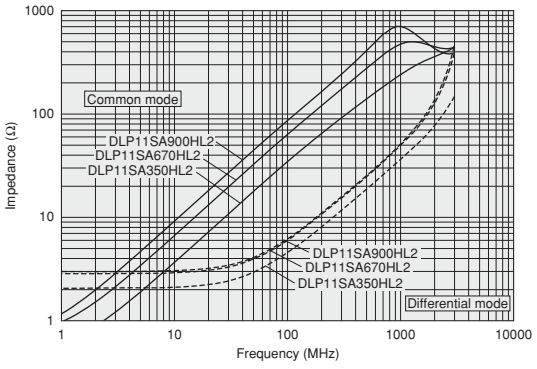
Operating Temperature Range: -40°C to +85°C Number of Circuit: 1 HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

Impedance-Frequency Characteristics (Main Items)

DLP11SN Series



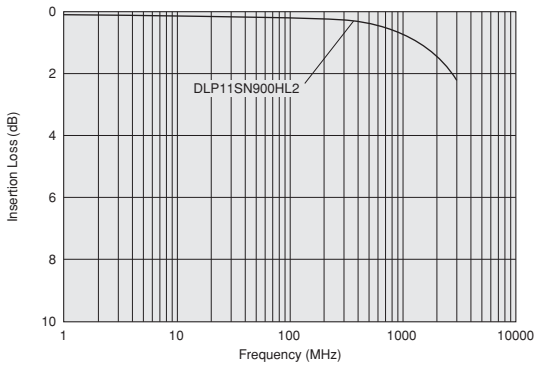
DLP11SA Series



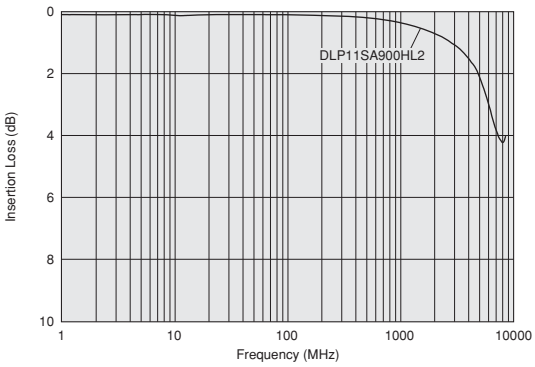
Continued on the following page.

■ Differential Mode Transmission Characteristics (Typ.)

DLP11SNSeries



DLP11SASeries



■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP11RN450UL2□	45ohm ±25%	100mA	5Vdc	100M ohm	12.5Vdc	0.8ohm±25%	New Kit HD Impedance Match
DLP11RB150UL2□	15ohm ±5ohm	100mA	5Vdc	100M ohm	12.5Vdc	0.8ohm±25%	New Kit UD Impedance Match
DLP11RB400UL2□	40ohm ±10ohm	100mA	5Vdc	100M ohm	12.5Vdc	1.3ohm±25%	New Kit UD Impedance Match

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1 HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

Differential mode to common mode conversion characteristic (Scd21) at 2.5GHz

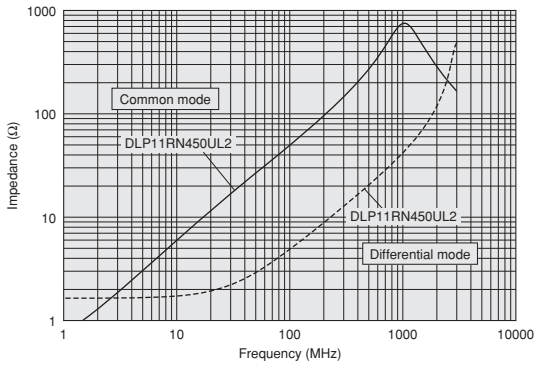
DLP11RB: -40dB

Impedance Characteristics between signal lines Z0 (TDR at 50ps)

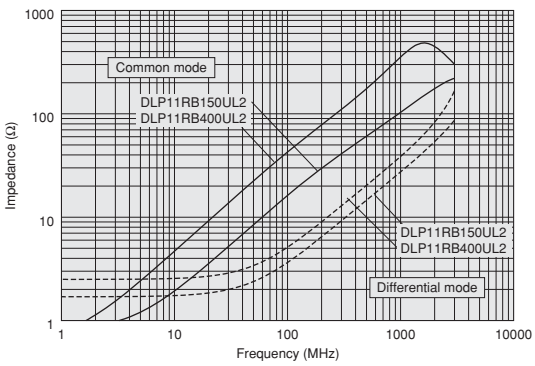
DLP11RB: 90ohm±15ohm

■ Impedance-Frequency Characteristics (Main Items)

DLP11RN Series

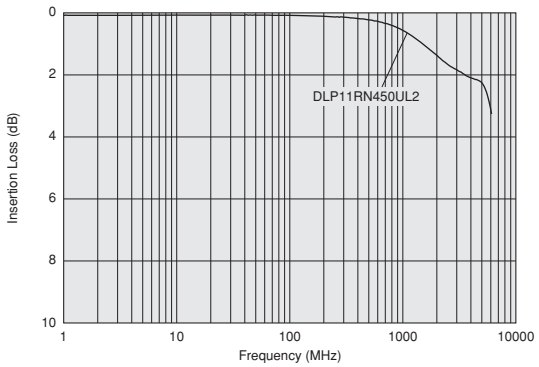


DLP11RB Series

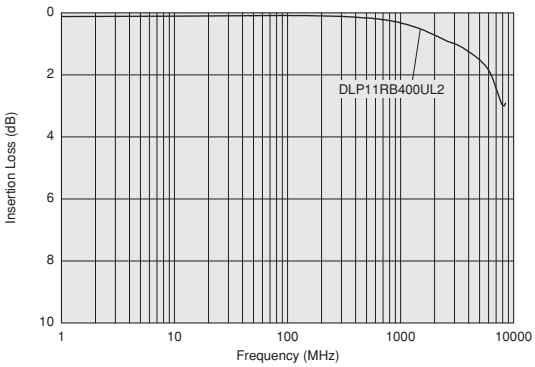


■ Differential Mode Transmission Characteristics (Typ.)

DLP11RN Series



DLP11RB Series



Continued on the following page.

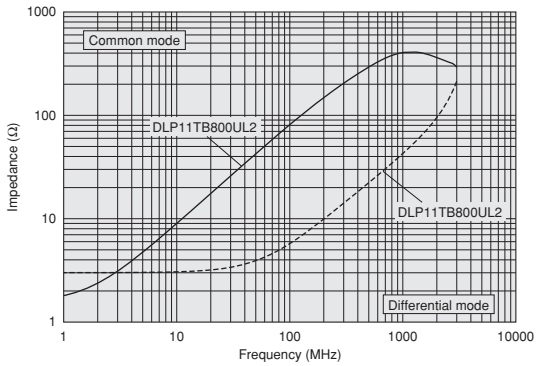
■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP11TB800UL2□	80ohm ±25%	100mA	5Vdc	100M ohm	12.5Vdc	1.5ohm±25%	Kit UD

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1 HD: for high speed differential signal lines UD: for ultra high speed differential signal lines
Differential mode to common mode conversion characteristic (Scd21) at 2.5GHz
DLP11TB: -40dB
Impedance Characteristics between signal lines Z0 (TDR at 50ps)
DLP11TB: 90ohm±15ohm

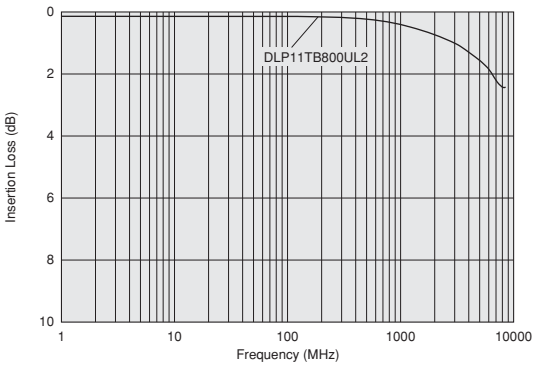
■ Impedance-Frequency Characteristics (Main Items)

DLP11TB Series



■ Differential Mode Transmission Characteristics (Typ.)

DLP11TB Series

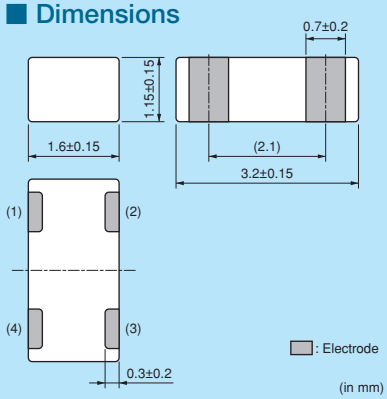


DLP31S Series (1206 Size)

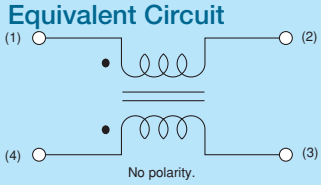
Reflow OK

1206 size film type chip common mode choke coil.

Dimensions



Equivalent Circuit



Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
B	Bulk(Bag)	500

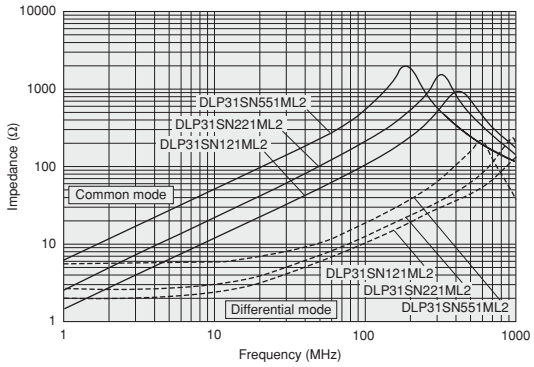
Refer to pages from p.183 to p.186 for mounting information.

Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP31SN121ML2□	120ohm ±20%	100mA	16Vdc	100M ohm	40Vdc	2.0ohm max.	HD
DLP31SN221ML2□	220ohm ±20%	100mA	16Vdc	100M ohm	40Vdc	2.5ohm max.	HD
DLP31SN551ML2□	550ohm ±20%	100mA	16Vdc	100M ohm	40Vdc	3.6ohm max.	HD

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1 HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

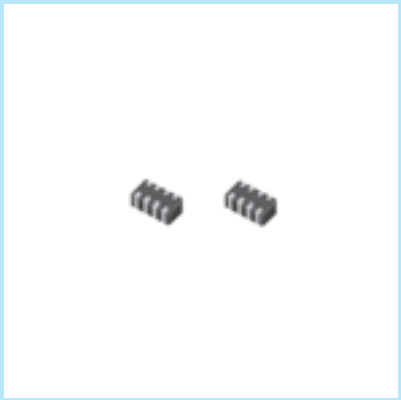
Impedance-Frequency Characteristics (Main Items)



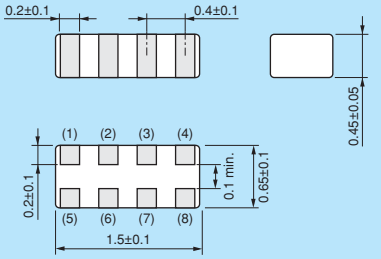
DLP1ND Series (05025 Size)

Reflow OK

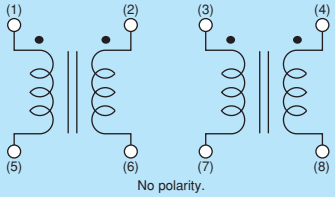
2 circuits in 05025 size, adapt to HDMI line.



Dimensions



Equivalent Circuit



Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	5000
B	Bulk(Bag)	500

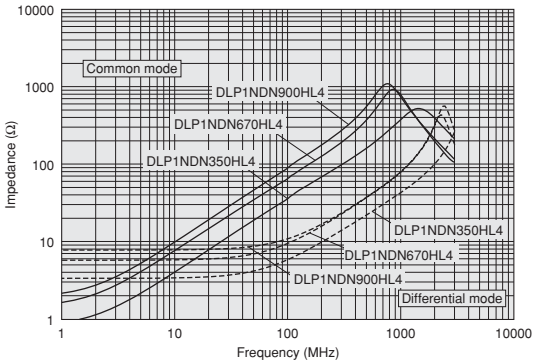
Refer to pages from p.183 to p.186 for mounting information.

Rated Value (□: packaging code)

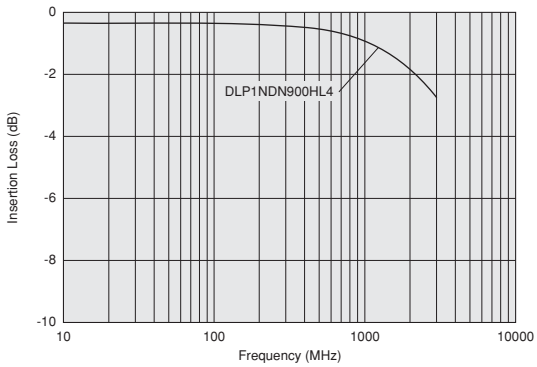
Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP1NDN350HL4□	35ohm ±20%	100mA	5Vdc	100M ohm	12.5Vdc	1.8ohm±25%	Kit HD Impedance Match
DLP1NDN670HL4□	67ohm ±20%	80mA	5Vdc	100M ohm	12.5Vdc	2.9ohm±25%	Kit HD Impedance Match
DLP1NDN900HL4□	90ohm ±20%	60mA	5Vdc	100M ohm	12.5Vdc	3.7ohm±25%	Kit HD Impedance Match

Operating Temperature Range: -40°C to +85°C Number of Circuit: 2 HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

Impedance-Frequency Characteristics (Main Items)



Differential Mode Transmission Characteristics (Typ.)



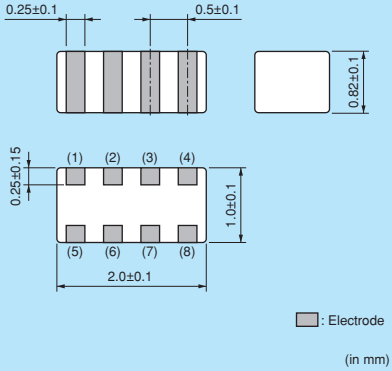
⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

DLP2AD Series (0804 Size)

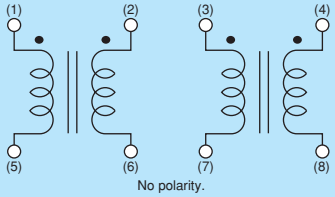
Reflow OK

2 circuit built-in, 0804 size, HDMI adapted type available, cut-off frequency 6GHz max.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
B	Bulk(Bag)	500

Refer to pages from p.183 to p.186 for mounting information.

■ Rated Value (□: packaging code)

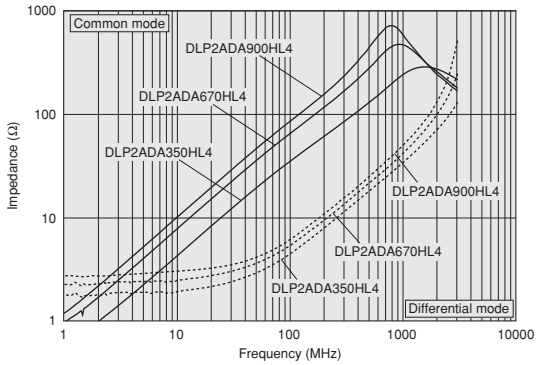
Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP2ADA350HL4□	35ohm ±20%	150mA	5Vdc	100M ohm	12.5Vdc	0.8ohm±25%	Kit UD Imp Match
DLP2ADA670HL4□	67ohm ±20%	130mA	5Vdc	100M ohm	12.5Vdc	1.0ohm±25%	Kit UD Imp Match
DLP2ADA900HL4□	90ohm ±20%	120mA	5Vdc	100M ohm	12.5Vdc	1.4ohm±25%	Kit UD Imp Match
DLP2ADN670HL4□	67ohm ±20%	140mA	5Vdc	100M ohm	12.5Vdc	1.3ohm±25%	Kit HD Imp Match
DLP2ADN900HL4□	90ohm ±20%	130mA	5Vdc	100M ohm	12.5Vdc	1.7ohm±25%	Kit HD Imp Match
DLP2ADN121HL4□	120ohm ±20%	120mA	5Vdc	100M ohm	12.5Vdc	2.0ohm±25%	Kit HD Imp Match
DLP2ADN161HL4□	160ohm ±20%	100mA	5Vdc	100M ohm	12.5Vdc	2.5ohm±25%	Kit HD Imp Match
DLP2ADN201HL4□	200ohm ±20%	90mA	5Vdc	100M ohm	12.5Vdc	3.2ohm±25%	Kit HD Imp Match
DLP2ADN241HL4□	240ohm ±20%	80mA	5Vdc	100M ohm	12.5Vdc	3.8ohm±25%	Kit HD Imp Match
DLP2ADN281HL4□	280ohm ±20%	80mA	5Vdc	100M ohm	12.5Vdc	4.6ohm±25%	Kit HD Imp Match

Operating Temperature Range: -40°C to +85°C Number of Circuit: 2

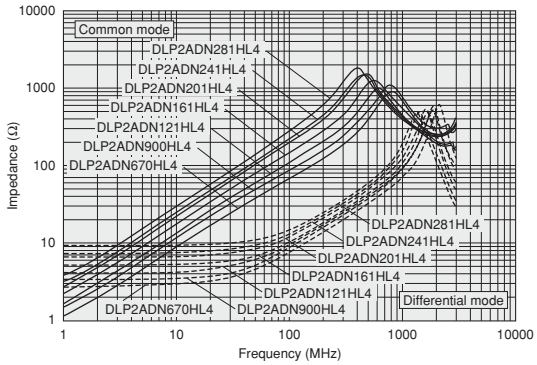
HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

■ Impedance-Frequency Characteristics (Main Items)

DLP2ADA Series



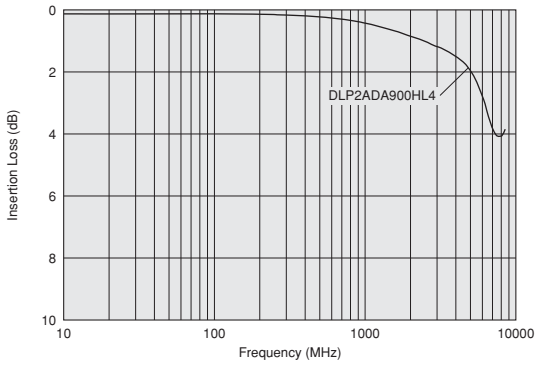
DLP2ADN Series



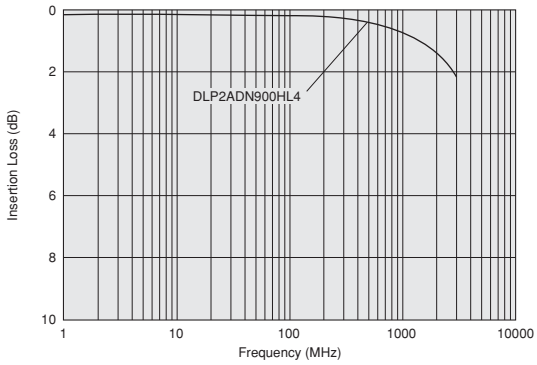
Continued on the following page.

■ Differential Mode Transmission Characteristics (Typ.)

DLP2ADA Series



DLP2ADN Series

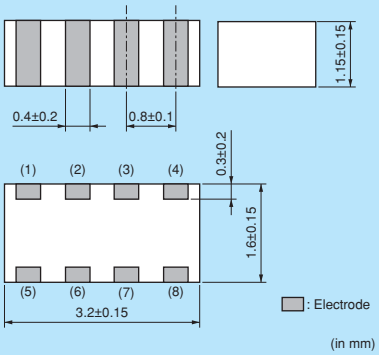


DLP31D Series (1206 Size)

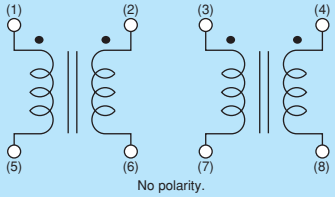
Reflow OK

2 circuit built-in, 1206 size, meet IEEE1394,USB,LVDS.

Dimensions



Equivalent Circuit



Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
B	Bulk(Bag)	500

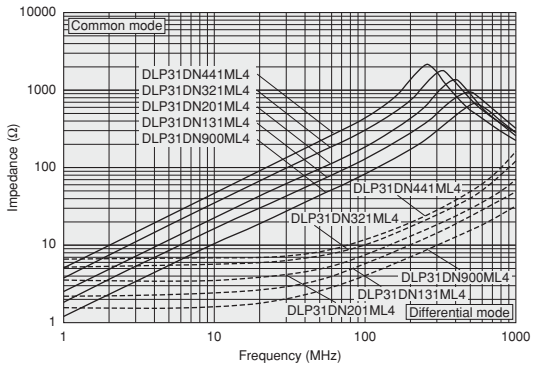
Refer to pages from p.183 to p.186 for mounting information.

Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLP31DN900ML4□	90ohm ±20%	160mA	10Vdc	100M ohm	25Vdc	1.1ohm max.	HD
DLP31DN131ML4□	130ohm ±20%	120mA	10Vdc	100M ohm	25Vdc	1.1ohm max.	HD
DLP31DN201ML4□	200ohm ±20%	100mA	10Vdc	100M ohm	25Vdc	2.2ohm max.	HD
DLP31DN321ML4□	320ohm ±20%	80mA	10Vdc	100M ohm	25Vdc	3.5ohm max.	HD
DLP31DN441ML4□	440ohm ±20%	70mA	10Vdc	100M ohm	25Vdc	4.3ohm max.	HD

Operating Temperature Range: -40°C to +85°C Number of Circuit: 2 HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

Impedance-Frequency Characteristics (Main Items)

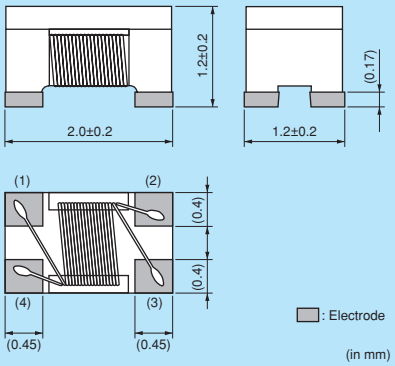


DLW21S Series (0805 Size)

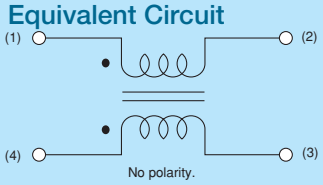
Reflow OK

Wire-wound common choke, HDMI available type prepaird.

Dimensions



Equivalent Circuit



Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	2000
B	Bulk(Bag)	500

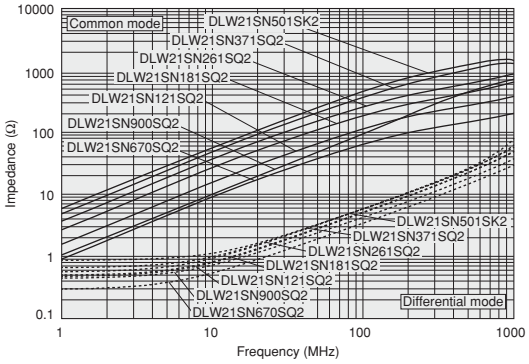
Refer to pages from p.183 to p.186 for mounting information.

Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLW21SN670SQ2□	67ohm ±25%	400mA	50Vdc	10M ohm	125Vdc	0.25ohm max.	Kit HD
DLW21SN900SQ2□	90ohm ±25%	330mA	50Vdc	10M ohm	125Vdc	0.35ohm max.	Kit HD
DLW21SN121SQ2□	120ohm ±25%	370mA	50Vdc	10M ohm	125Vdc	0.30ohm max.	Kit HD
DLW21SN181SQ2□	180ohm ±25%	330mA	50Vdc	10M ohm	125Vdc	0.35ohm max.	Kit HD
DLW21SN261SQ2□	260ohm ±25%	300mA	50Vdc	10M ohm	125Vdc	0.40ohm max.	Kit HD
DLW21SN371SQ2□	370ohm ±25%	280mA	50Vdc	10M ohm	125Vdc	0.45ohm max.	Kit HD
DLW21SN501SK2□	500ohm ±25%	250mA	50Vdc	10M ohm	125Vdc	0.5ohm max.	New Kit HD

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1 HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

Impedance-Frequency Characteristics (Main Items)



Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLW21SN670HQ2□	67ohm ±25%	320mA	20Vdc	10M ohm	50Vdc	0.31ohm max.	Kit UD Imp. Match
DLW21SN900HQ2□	90ohm ±25%	280mA	20Vdc	10M ohm	50Vdc	0.41ohm max.	Kit UD Imp. Match
DLW21SN121HQ2□	120ohm ±25%	280mA	20Vdc	10M ohm	50Vdc	0.41ohm max.	Kit UD Imp. Match
DLW21SR670HQ2□	67ohm ±25%	400mA	20Vdc	10M ohm	50Vdc	0.25ohm max.	Kit UD Imp. Match

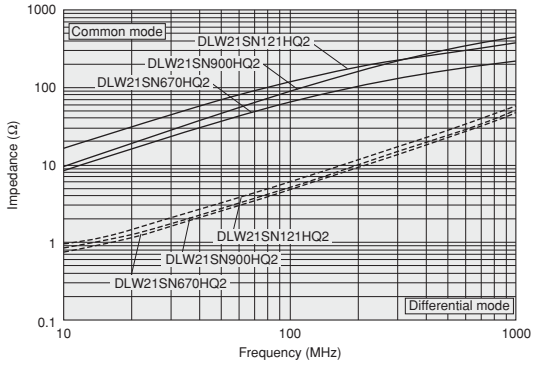
Operating Temperature Range: -40°C to +85°C Number of Circuit: 1 HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

DLW21SR670HQ2 is designed to correct line impedance when ESD protection device is also used.

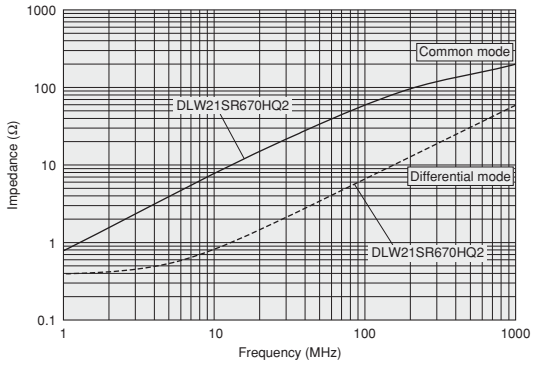
Continued on the following page.

■ Impedance-Frequency Characteristics (Main Items)

DLW21SN_HQ2 Series

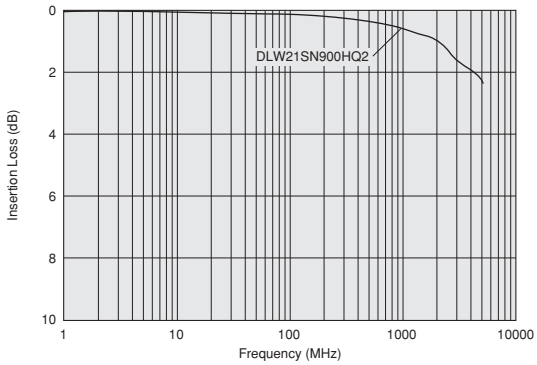


DLW21SR_HQ2 Series



■ Differential Mode Transmission Characteristics (Typ.)

DLW21SN_HQ2 Series

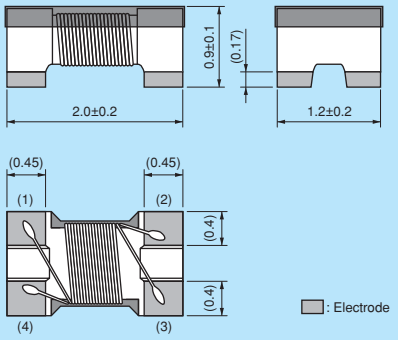


DLW21H Series (0805 Size)

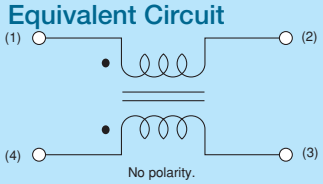
Reflow OK

Low profile wire-wound common choke coil.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	3000
B	Bulk(Bag)	500

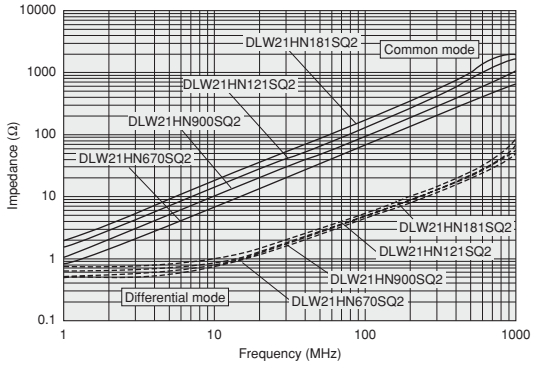
Refer to pages from p.183 to p.186 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLW21HN670SQ2□	67ohm ±25%	330mA	50Vdc	10M ohm	125Vdc	0.35ohm max.	Kit HD
DLW21HN900SQ2□	90ohm ±25%	330mA	50Vdc	10M ohm	125Vdc	0.35ohm max.	Kit HD
DLW21HN121SQ2□	120ohm ±25%	280mA	50Vdc	10M ohm	125Vdc	0.45ohm max.	Kit HD
DLW21HN181SQ2□	180ohm ±25%	250mA	50Vdc	10M ohm	125Vdc	0.50ohm max.	Kit HD

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1 HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

■ Impedance-Frequency Characteristics (Main Items)

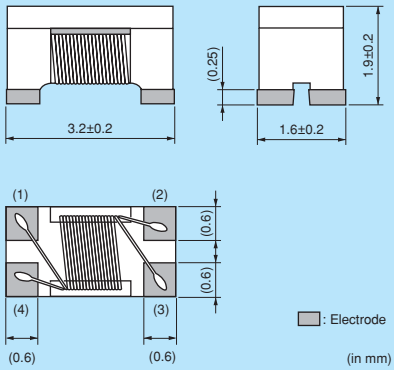


DLW31S Series (1206 Size)

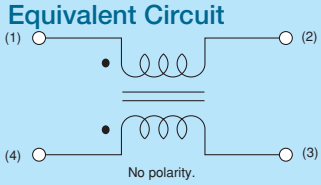
Reflow OK

1206 size wire-wound common mode choke coil.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	2000
B	Bulk(Bag)	500

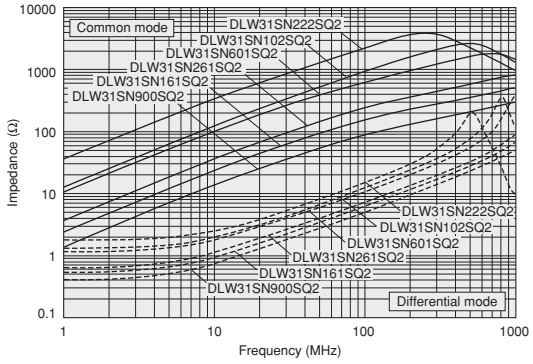
Refer to pages from p.183 to p.186 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 100MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	
DLW31SN900SQ2□	90ohm ±25%	370mA	50Vdc	10M ohm	125Vdc	0.3ohm max.	HD
DLW31SN161SQ2□	160ohm ±25%	340mA	50Vdc	10M ohm	125Vdc	0.4ohm max.	HD
DLW31SN261SQ2□	260ohm ±25%	310mA	50Vdc	10M ohm	125Vdc	0.5ohm max.	HD
DLW31SN601SQ2□	600ohm ±25%	260mA	50Vdc	10M ohm	125Vdc	0.8ohm max.	HD
DLW31SN102SQ2□	1000ohm ±25%	230mA	50Vdc	10M ohm	125Vdc	1.0ohm max.	HD
DLW31SN222SQ2□	2200ohm ±25%	200mA	50Vdc	10M ohm	125Vdc	1.2ohm max.	HD

Operating Temperature Range: -40°C to +85°C Number of Circuit: 1 HD: for high speed differential signal lines UD: for ultra high speed differential signal lines

■ Impedance-Frequency Characteristics (Main Items)

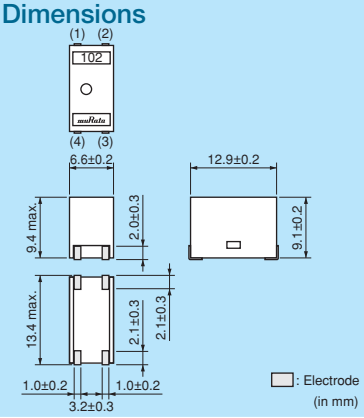


PLT10H Series (12.9x6.6 mm)

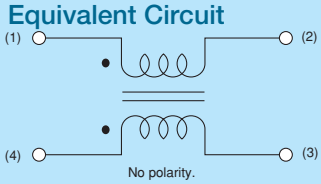
Hi Power Reflow OK

Automotive available, up to 10A.

■ Dimensions



■ Equivalent Circuit



■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	125
K	330mm Reel Embossed Tape	500
B	Bulk(Bag)	50

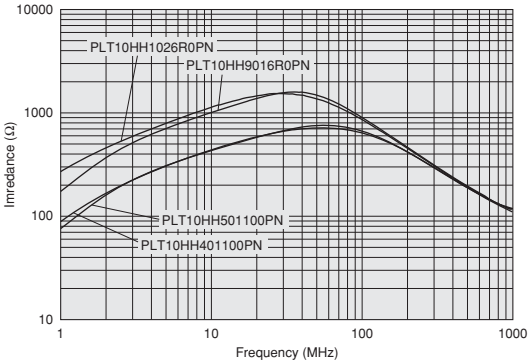
Refer to pages from p.187 to p.188 for mounting information.

■ Rated Value (□: packaging code)

Part Number	Common Mode Impedance (at 10MHz/20°C)	Rated Current	Rated Voltage	Insulation Resistance (min.)	Withstand Voltage	DC Resistance	Common Mode Inductance	
PLT10HH401100PN□	400ohm (Typ.)	10A	100Vdc	10M ohm	250Vdc	3.6m ohm±0.5m ohm	6μH min.	Kit ≧10A
PLT10HH501100PN□	500ohm (Typ.)	10A	100Vdc	10M ohm	250Vdc	3.6m ohm±0.5m ohm	9μH min.	Kit ≧10A
PLT10HH9016R0PN□	900ohm (Typ.)	6A	100Vdc	10M ohm	250Vdc	8.0m ohm±0.5m ohm	14μH min.	Kit ≧3A
PLT10HH1026R0PN□	1000ohm (Typ.)	6A	100Vdc	10M ohm	250Vdc	8.0m ohm±0.5m ohm	20μH min.	Kit ≧3A

Operating Temperature Range (Self-temperature rise is included): -55°C to +105°C (PLT10HH 1026R0/501100 PN), -55°C to +125°C (PLT10HH 401100/9016R0 PN) Number of Circuit: 1

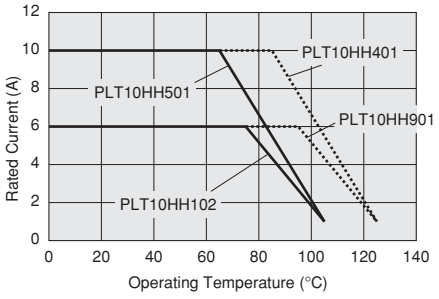
■ Impedance-Frequency Characteristics (Main Items)



■ Notice (Rating)

In operating temperature exceeding +65°C, derating of current is necessary for PLT10H series.
Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

⚠Caution

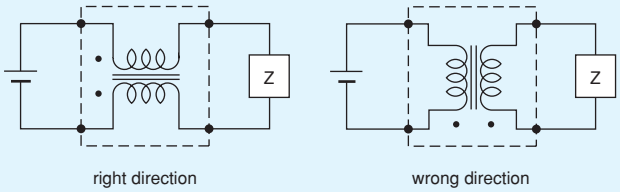
● Rating

Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.

● Soldering and Mounting

1. Self-heating
   Please provide special attention when mounting chip common mode choke coils DLW5 series in close proximity to other products that radiate heat.
   The heat generated by other products may deteriorate the insulation resistance and cause excessive heat in this component.

2. Mounting Direction
   Mount Chip Common Mode Choke Coils in right direction. Wrong direction, which is 90 degrees rotated from right direction, causes not only open or short circuit but also flames or other serious trouble.



right direction　　wrong direction

Notice

● Storage and Operating Conditions

<Operating Environment>
Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
Do not use products in the environment close to the organic solvent.
<Storage and Handling Requirements>
1. Storage Period
   DLM11G series should be used within 6 months, the other series should be used within 12 months. Solderability should be checked if this period is exceeded.
2. Storage Conditions
   (1) Storage temperature: -10 to +40˚C
   Relative humidity: 15 to 85%
   Avoid sudden changes in temperature and humidity.
   (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

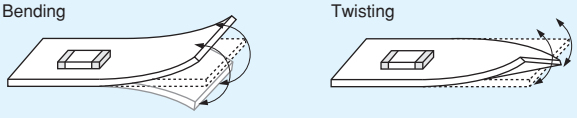
● Notice (Soldering and Mounting)

1. Cleaning
   Failure and degradation of a product are caused by the cleaning method. When you clean in conditions that are not in mounting information, please contact Murata engineering.
2. Soldering
   Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in mounting information.
3. Other
   Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

● Handling

1. Resin Coating (Except DLW Series.)
   Using resin for coating/molding products may affect the products performance.
   So please pay careful attention in selecting resin.
   Prior to use, please make the reliability evaluation with the product mounted in your application set.
2. Resin Coating (DLW Series)
   The impedance value may change due to high cure-stress of resin to be used for coating/molding products. An open circuit issue may occur by mechanical stress caused by the resin, amount/cured shape of resin, or operating condition etc. Some resin contains some impurities or chloride possible to generate chlorine by hydrolysis under some operating condition may cause corrosion of wire of coil, leading to open circuit.
   So, please pay your careful attention in selecting resin in case of coating/molding the products with the resin.
   Prior to use the coating resin, please make sure no reliability issue is observed by evaluating products mounted on your board.
3. Caution for Use (DLW Series)
   When you hold products with a tweezer, please hold by the sides. Sharp materials, such as a pair of tweezers, should not touch the winding portion to prevent breaking the wire. Mechanical shock should not be applied to the products mounted on the board to prevent breaking the core.
4. Brushing
   When you clean the neighborhood of products such as connector pins, bristles of cleaning brush shall not be touched to the winding portion of this product to prevent the breaking of wire.
5. Handling of a Substrate
   After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting to the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening screw to the substrate. Excessive mechanical stress may cause cracking in the Product.

Bending　　Twisting



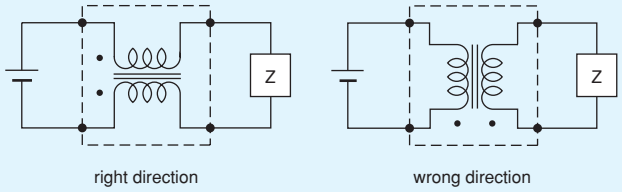
⚠Caution

● Rating

1. Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.
2. Be sure to provide an appropriate fail-safe function on your product to prevent a second damage that may be caused by the abnormal function or the failure our product.

● Soldering and Mounting

1. Self-heating
   Please provide special attention when mounting chip common mode choke coils in close proximity to other products that radiate heat.
   The heat generated by other products may deteriorate the insulation resistance and cause excessive heat in this component.
2. Mounting Direction
   Mount Chip Common Mode Choke Coils in right direction. Wrong direction, which is 90 degrees rotated from right direction, causes not only open or short circuit but also flames or other serious trouble.



right direction　　wrong direction

Notice

● Storage and Operating Conditions

<Operating Environment>
Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
Do not use products in the environment close to the organic solvent.
<Storage and Handling Requirements>
1. Storage Period
   PLT10H series should be used within 12 months. Solderability should be checked if this period is exceeded.
2. Storage Conditions
   (1) Storage temperature: -10 to +40˚C
   Relative humidity: 15 to 85%
   Avoid sudden changes in temperature and humidity.
   (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

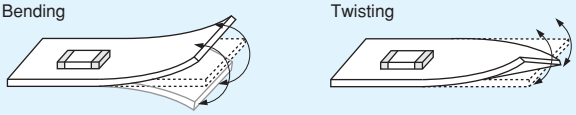
● Notice (Soldering and Mounting)

1. Cleaning
   Failure and degradation of a product are caused by the cleaning method. When you clean in conditions that are not in mounting information, please contact Murata engineering.
2. Soldering
   Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in mounting information.
3. Other
   Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

● Handling

1. Handling of a Substrate
   After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting to the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening screw to the substrate.
   Excessive mechanical stress may cause cracking in the Product.

Bending　　Twisting



⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

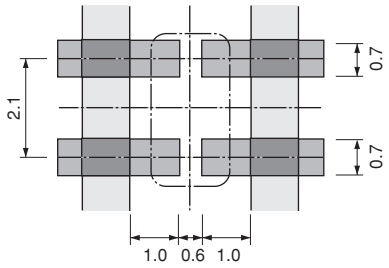
1. Standard Land Pattern Dimensions

Land Pattern + Solder Resist
Land Pattern
Solder Resist
(in mm)

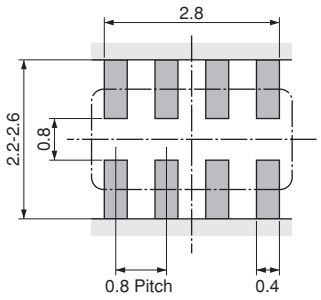
DLM11G
DLP0QS
DLP0NS
DLP11S
DLP11R
DLP11T
DLP1ND
DLP2AD
DLP31S
DLP31D
DLW21S
DLW21H
DLW31SN
DLW5A
DLW5B

●Reflow and Flow

DLP31S

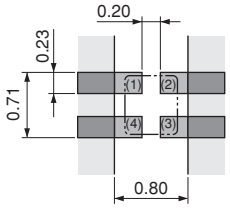


DLP31D

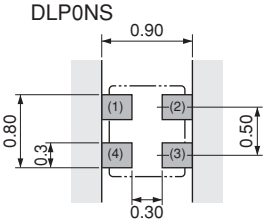


●Reflow Soldering

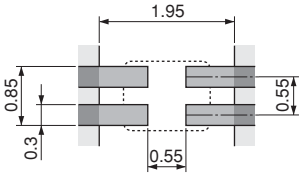
DLP0QS



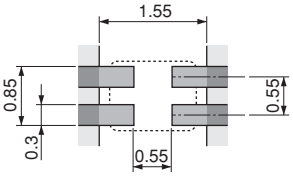
DLP0NS



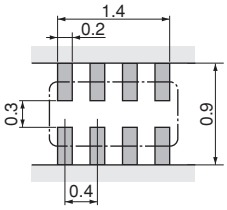
DLP11S



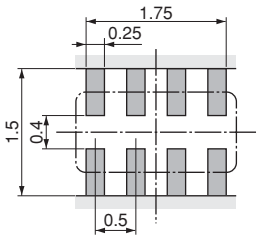
DLP11R/11T



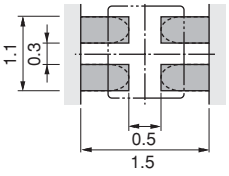
DLP1ND



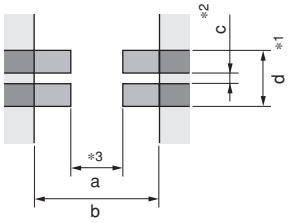
DLP2AD



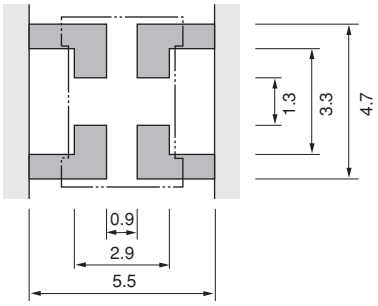
DLM11G



DLW21S/21H/31SN



DLW5A/5B



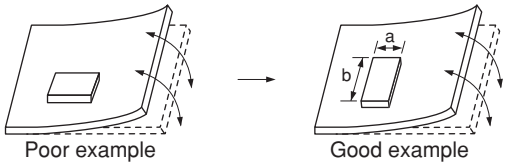
Series	a	b	c	d
DLW21S/H	0.8	2.6	0.4	1.2
DLW31SN	1.6	3.7	0.4	1.6

*1: If the pattern is made with wider than 1.2mm (DLW21) / 1.6mm (DLW31S) it may result in components turning around, because melting speed is different. In the worst case, short circuit between lines may occur.
*2: If the pattern is made with less than 0.4mm, in the worst case, short circuit between lines may occur due to spread of soldering paste or mount placing accuracy.
*3: If the pattern is made with wider than 0.8mm (DLW21) / 1.6mm (DLW31SN), the bending strength will be reduced.
Do not use gild pattern; excess soldering heat may dissolve metal of a copper wire.

● PCB Warping

PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.

Products should be located in the sideways direction (Length: a<b) to the mechanical stress.



2. Solder Paste Printing and Adhesive Application

When reflow soldering the chip common mode choke coils, the printing must be conducted in accordance with the following cream solder printing conditions.
If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.
Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the chip common mode choke coils, apply the adhesive in accordance with the following conditions.
If too much adhesive is applied, then it may overflow into the land or termination areas and yield poor solderability. In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during flow soldering process.

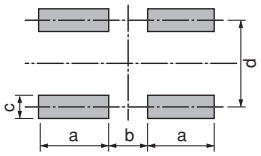
(in mm)

Series: DLP, DLW, DLM

Solder Paste Printing

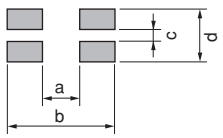
●Guideline of solder paste thickness:
80-100μm: DLP0QS
100-150μm: DLW21S/21H/31S,
DLP0NS/11S/11R/11T/1ND/2AD/DLM11G
150-200μm: DLP31D/31S, DLW5A/5B
*Solderability is subject to reflow conditions and thermal conductivity. Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.

DLP0QS/0NS/11S/11R/11T/31S/DLM11G



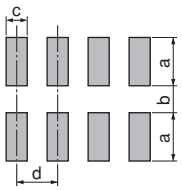
Series	a	b	c	d
DLP0QS	0.3	0.2	0.23	0.48
DLP0NS	0.3	0.3	0.3	0.5
DLP11S	0.7	0.55	0.3	0.55
DLP11R/T	0.5	0.55	0.3	0.55
DLP31S	1.0	0.6	0.7	2.1
DLM11G	0.5	0.5	0.4	0.7

DLW21S/21H/31S



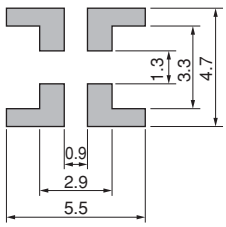
Series	a	b	c	d
DLW21S/H	0.8	2.6	0.5	1.2
DLW31S	1.6	3.7	0.4	1.6

DLP2AD/31D



Series	a	b	c	d
DLP1ND	0.3	0.3	0.2	0.4
DLP2AD	0.55	0.4	0.25	0.5
DLP31D	1.0	0.8	0.4	0.8

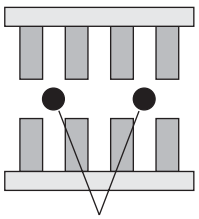
DLW5A/5B



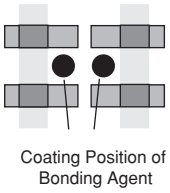
Adhesive Application

■ DLP31S/DLP31D
Apply 0.3mg of bonding agent at each chip.

DLP31D



DLP31S



3. Standard Soldering Conditions

(1) Soldering Methods

Use flow and reflow soldering methods only.
Use standard soldering conditions when soldering chip common mode choke coils.
In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products.
If using DLP/DLM series with Sn-Zn based solder, please contact Murata in advance.

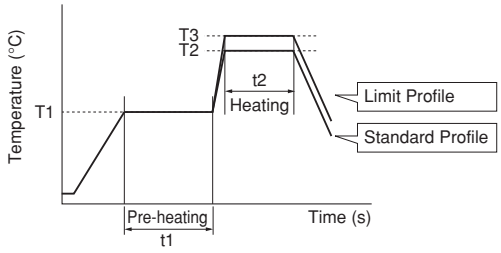
Flux:

- Use Rosin-based flux.
  In case of DLW21/31 series, use Rosin-based flux with converting chlorine content of 0.06 to 0.1wt%.
  In case of using RA type solder, products should be cleaned completely with no residual flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

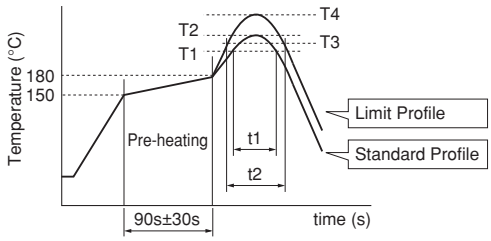
(2) Soldering Profile

●Flow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Pre-heating		Standard Profile			Limit Profile		
			Heating		Cycle of Flow	Heating		Cycle of Flow
	Temp. (T1)	Time. (t1)	Temp. (T2)	Time. (t2)		Temp. (T3)	Time. (t2)	
DLP31D/31S	150°C	60s min.	250°C	4 to 6s	2 times max.	265±3°C	5s max.	2 times max.

●Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Standard Profile				Limit Profile			
	Heating		Peak Temperature (T2)	Cycle of Reflow	Heating		Peak Temperature (T4)	Cycle of Reflow
	Temp. (T1)	Time. (t1)			Temp. (T3)	Time. (t2)		
DLM/DLP DLW21/31	220°C min.	30 to 60s	245±3°C	2 times max.	230°C min.	60s max.	260°C/10s	2 times max.
DLW5A/5B	220°C min.	30 to 60s	250±3°C	2 times max.	230°C min.	60s max.	260°C/10s	2 times max.

(3) Reworking with Solder Iron

The following conditions must be strictly followed when using a soldering iron.

Pre-heating: 150°C 60s min.

Soldering iron power output / Tip diameter:

30W max. / ø3mm max.

Temperature of soldering iron tip / Soldering time / Times:

350°C max. / 3-4s / 2 times*1

*1 DLP0QS, DLP0NS, DLP11S, DLP11T, DLP1ND, DLP2AD: 380°C max. / 3-4s / 2 times

Do not allow the tip of the soldering iron to directly contact the chip.

For additional methods of reworking with a soldering iron, please contact Murata engineering.

4. Cleaning

Following conditions should be observed when cleaning chip EMI filter.

(1) Cleaning Temperature: 60°C max. (40°C max. for alcohol type cleaner)

(2) Ultrasonic

Output: 20W/liter max.

Duration: 5 minutes max.

Frequency: 28 to 40kHz

(3) Cleaning agent

The following list of cleaning agents have been tested on the individual components. Evaluation of final assembly should be completed prior to production.

Do not clean DLW (except DLW21H) series.

Before cleaning, please contact Murata engineering.

(a) Alcohol cleaning agent

Isopropyl alcohol (IPA)

(b) Aqueous cleaning agent

Pine Alpha ST-100S

(4) Ensure that flux residue is completely removed.

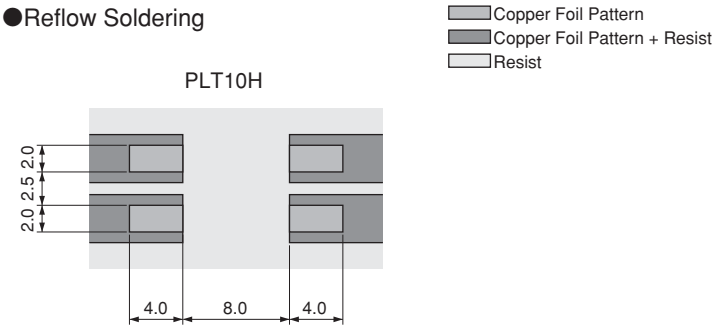
Component should be thoroughly dried after aqueous agent has been removed with deionized water.

1. Standard Land Pattern Dimensions

(in mm)

PLT10H

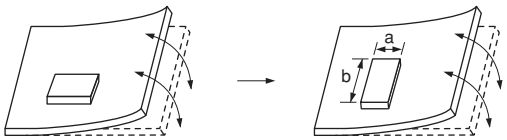
●Reflow Soldering



● PCB Warping

PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.

Products should be located in the sideways direction (Length: a<b) to the mechanical stress.



2. Solder Paste Printing and Adhesive Application

When reflow soldering the chip common mode choke coils, the printing must be conducted in accordance with the following cream solder printing conditions.
If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.
Standard land dimensions should be used for resist and copper foil patterns.

When flow soldering the chip common mode choke coils, apply the adhesive in accordance with the following conditions.
If too much adhesive is applied, then it may overflow into the land or termination areas and yield poor solderability. In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during flow soldering process.

Series	Solder Paste Printing
PLT10H	●Guideline of solder paste thickness: 150-200μm: PLT10H For the solder paste printing pattern, use standard land dimensions. *Solderability is subject to reflow conditions and thermal conductivity. Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.

3. Standard Soldering Conditions

(1) Soldering Methods

Use reflow soldering methods only.
Use standard soldering conditions when soldering chip common mode choke coils.
In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products.

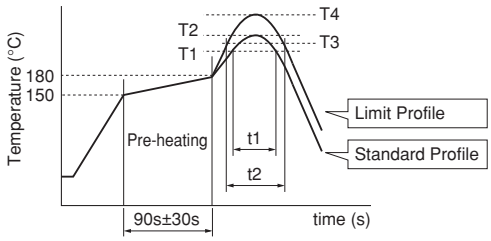
Flux:

- Use Rosin-based flux.
  use Rosin-based flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

(2) Soldering Profile

●Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu Solder)



Series	Standard Profile				Limit Profile			
	Heating		Peak Temperature (T2)	Cycle of Reflow	Heating		Peak Temperature (T4)	Cycle of Reflow
	Temp. (T1)	Time. (t1)			Temp. (T3)	Time. (t2)		
PLT10H	220°C min.	30 to 60s	250±3°C	2 times max.	230°C min.	60s max.	260°C/10s	2 times max.

(3) Reworking with Solder Iron

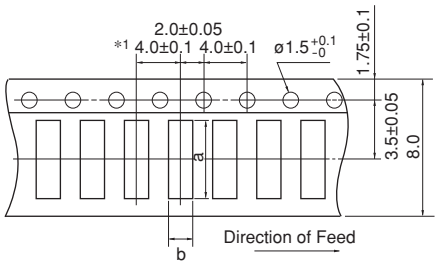
The following conditions must be strictly followed when using a soldering iron.
Pre-heating: 150°C 60s min.
Soldering iron power output / Tip diameter:
80W max. / ø3mm max.
Temperature of soldering iron tip / Soldering time / Times:
400°C max. / 5s / 2 times

Do not allow the tip of the soldering iron to directly contact the chip.
For additional methods of reworking with a soldering iron, please contact Murata engineering.

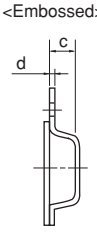
4. Cleaning

Do not clean after soldering. If cleaning, please contact us.

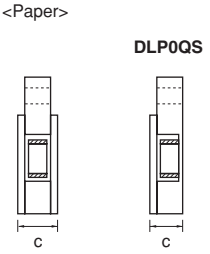
■ Minimum Quantity and Dimensions of 8mm Width Paper / Embossed Tape



*1 DLM11G/DLP0QS: 2.0±0.05
DLP0NS: 2.0±0.1



c: Depth of Cavity
(Embossed Tape)



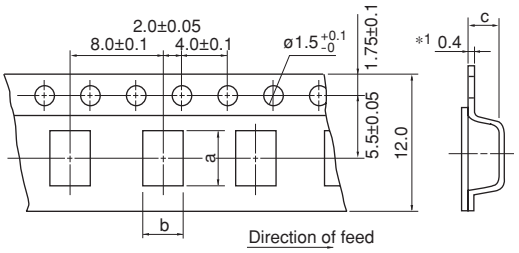
c: Total Thickness of Tape
(Paper Tape)

Dimension of the cavity of embossed tape is measured at the bottom side.

Part Number	Dimensions				Minimum Qty. (pcs.)				
					ø180mm Reel		ø330mm Reel		Bulk
	a	b	c	d	Paper Tape	Embossed Tape	Paper Tape	Embossed Tape	
DLM11G	1.45	1.2	0.8 max.	-	10000	-	-	-	1000
DLP0QS	0.73	0.6	0.55 max.	-	15000	-	-	-	500
DLP0NS	0.95	0.75	0.55	0.25	-	10000	-	-	500
DLP11S	1.4	1.2	0.98	0.25	-	3000	-	-	500
DLP11R	1.4	1.15	0.7	0.25	-	4000	-	-	500
DLP11T	1.35	1.1	0.45	0.25	-	5000	-	-	500
DLP1ND	1.7	0.84	0.57	0.25	-	5000	-	-	500
DLP2AD	2.2	1.2	0.98	0.25	-	3000	-	-	500
DLP31D/31S	3.5	1.9	1.3	0.25	-	3000	-	-	500
DLW21S	2.25	1.45	1.4	0.3	-	2000	-	-	500
DLW21H	2.3	1.55	1.1	0.25	-	3000	-	-	500
DLW31S	3.6	2.0	2.1	0.3	-	2000	-	-	500

(in mm)

■ Minimum Quantity and Dimensions of 12mm Width Embossed Tape



Part Number	Dimensions			Minimum Qty. (pcs.)		
	a	b	c	ø180mm Reel	ø330mm Reel	Bulk
DLW5AH	5.4	4.1	4.4	400	1500	100
DLW5AT	5.4	4.1	2.7	700	2500	100
DLW5BS	5.5	5.4	4.7	400	1500	100
DLW5BT	5.5	5.5	2.7	700	2500	100

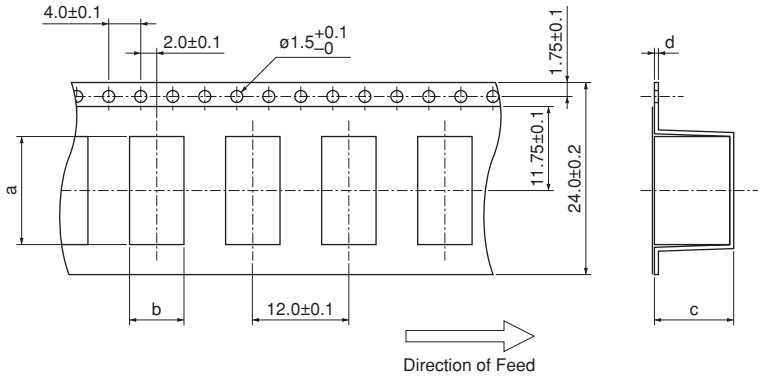
*1 DLW5AT: 0.3 c: Depth of Cavity

Dimension of the cavity is measured at the bottom side.

(in mm)

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity".

■ Minimum Quantity and Dimensions of 24mm Width Embossed Tape



Dimension of the cavity is measured at the bottom side.

Part Number	Dimensions				Minimum Qty. (pcs.)		
	a	b	c	d	ø180mm Reel	ø330mm Reel	Bulk
PLT10H	13.5	6.8	9.4	0.5	125	500	50

(in mm)

●EKEMDL21N (Chip Common Mode Choke Coils)

No.	Part Number	Quantity (pcs.)	Common Mode Impedance (at 100MHz, 20 degrees C)	Rated Voltage (Vdc)	Rated Current (mA)
1	DLW21HN670SQ2	10	67Ω±25%	50	330
2	DLW21HN900SQ2	10	90Ω±25%	50	330
3	DLW21HN121SQ2	10	120Ω±25%	50	280
4	DLW21HN181SQ2	10	180Ω±25%	50	250
5	DLW21SN501SK2	10	500Ω±25%	50	250
6	DLW21SN670SQ2	10	67Ω±25%	50	400
7	DLW21SN900SQ2	10	90Ω±25%	50	330
8	DLW21SN121SQ2	10	120Ω±25%	50	370
9	DLW21SN181SQ2	10	180Ω±25%	50	330
10	DLW21SN261SQ2	10	260Ω±25%	50	300
11	DLW21SN371SQ2	10	370Ω±25%	50	280
12	DLW21SN670HQ2	10	67Ω±25%	20	320
13	DLW21SN900HQ2	10	90Ω±25%	20	280
14	DLW21SN121HQ2	10	120Ω±25%	20	280
15	DLW21SR670HQ2	10	67Ω±25%	20	400
16	DLP0NSA150HL2	10	15Ω±5Ω	5	100
17	DLP0NSC280HL2	10	28Ω±20%	5	100
18	DLP0NSN670HL2	10	67Ω±20%	5	110
19	DLP0NSN900HL2	10	90Ω±20%	5	100
20	DLP0NSN121HL2	10	120Ω±20%	5	90
21	DLP0QSN600HL2	10	60Ω±25%	5	50
22	DLP1NDN350HL4	10	35Ω±20%	5	100
23	DLP1NDN670HL4	10	67Ω±20%	5	80
24	DLP1NDN900HL4	10	90Ω±20%	5	60
25	DLP11SA350HL2	10	35Ω±20%	5	170
26	DLP11SA670HL2	10	67Ω±20%	5	150
27	DLP11SA900HL2	10	90Ω±20%	5	150
28	DLP11SN670SL2	10	67Ω±20%	5	180
29	DLP11SN121SL2	10	120Ω±20%	5	140
30	DLP11SN161SL2	10	160Ω±20%	5	120
31	DLP11SN900HL2	10	90Ω±20%	5	150
32	DLP11SN201HL2	10	200Ω±20%	5	110
33	DLP11SN241HL2	10	240Ω±20%	5	100
34	DLP11SN281HL2	10	280Ω±20%	5	90
35	DLP11SN331HL2	10	330Ω±20%	5	80
36	DLP11RB150UL2	10	15Ω±5Ω	5	100
37	DLP11RB400UL2	10	40Ω±10Ω	5	100
38	DLP11RN450UL2	10	45Ω±25%	5	100
39	DLP11TB800UL2	10	80Ω±25%	5	100
40	DLP2ADA350HL4	10	35Ω±20%	5	150
41	DLP2ADA670HL4	10	67Ω±20%	5	130
42	DLP2ADA900HL4	10	90Ω±20%	5	120
43	DLP2ADN670HL4	10	67Ω±20%	5	140
44	DLP2ADN900HL4	10	90Ω±20%	5	130
45	DLP2ADN121HL4	10	120Ω±20%	5	120
46	DLP2ADN161HL4	10	160Ω±20%	5	100
47	DLP2ADN201HL4	10	200Ω±20%	5	90
48	DLP2ADN241HL4	10	240Ω±20%	5	80
49	DLP2ADN281HL4	10	280Ω±20%	5	80

●EKEMDCC5E (Chip Common Mode Choke Coils for DC Power Line / SMD Block type EMIFIL® for Power Line)

No.	Part Number	Quantity (pcs.)	Common Mode Impedance (at 100MHz, 20 degrees C)	Rated Voltage (Vdc)	Rated Current (mA)
1	**DLW5AHN402SQ2**	5	4000Ω (Typ.)	50	200
2	**DLW5ATN111SQ2**	5	110Ω (Typ.)	50	5000
3	**DLW5ATN401SQ2**	5	400Ω (Typ.)	50	2000
4	**DLW5ATN501SQ2**	5	500Ω (Typ.)	50	1500
5	**DLW5ATN851SQ2**	5	850Ω (Typ.)	50	1500
6	**DLW5ATN272SQ2**	5	2700Ω (Typ.)	50	1000
7	**DLW5BSM191SQ2**	5	190Ω (Typ.)	50	5000
8	**DLW5BSM351SQ2**	5	350Ω (Typ.)	50	2000
9	**DLW5BSM102SQ2**	5	1000Ω (Typ.)	50	1500
10	**DLW5BSM152SQ2**	5	1500Ω (Typ.)	50	1000
11	**DLW5BSM302SQ2**	5	3000Ω (Typ.)	50	500
12	**DLW5BTM101SQ2**	5	100Ω (Typ.)	50	6000
13	**DLW5BTM251SQ2**	5	250Ω (Typ.)	50	5000
14	**DLW5BTM501SQ2**	5	500Ω (Typ.)	50	4000
15	**DLW5BTM102SQ2**	5	1000Ω (Typ.)	50	2000
16	**DLW5BTM142SQ2**	5	1400Ω (Typ.)	50	1500

●EKEPBLCKC

No.	Part Number	Quantity (pcs.)	Common Mode Impedance (at 10MHz, 20 degrees C)	Rated Voltage (Vdc)	Rated Current (A)
1	PLT10HH401100PN	2	400Ω (Typ.)	100	10
2	PLT10HH501100PN	2	500Ω (Typ.)	100	10
3	PLT10HH9016R0PN	2	900Ω (Typ.)	100	6
4	PLT10HH1026R0PN	2	1000Ω (Typ.)	100	6

No.	Part Number	Quantity (pcs.)	Insertion Loss	Rated Voltage (Vdc)	Rated Current (A)
5	BNX002-01	1	1MHz to 1GHz : 40dB min.	50	10
6	BNX003-01	1	5MHz to 1GHz : 40dB min.	150	10
7	BNX005-01	1	1MHz to 1GHz : 40dB min.	50	15
8	BNX012-01	1	1MHz to 1GHz : 40dB min.	50	15
9	BNX016-01	1	100kHz to 1GHz : 40dB min.	25	15
10	BNX022-01	2	1MHz to 1GHz : 35dB min.	50	10
11	BNX023-01	2	1MHz to 1GHz : 35dB min.	100	15
12	BNX024H01	2	100kHz to 1GHz : 35dB min.	50	15
13	BNX025H01	2	50kHz to 1GHz : 35dB min.	25	15

Memo

BNX

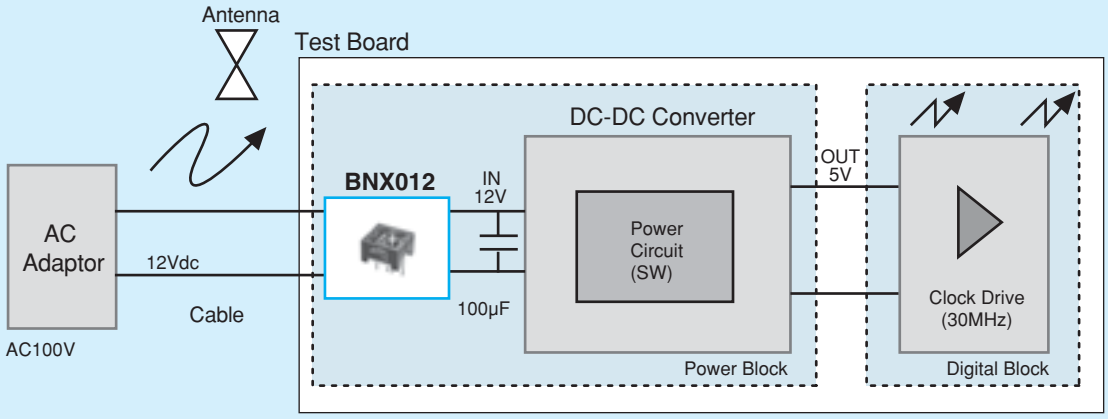
Block Type EMIFIL®

C31E.pdf
Jul.27,2012

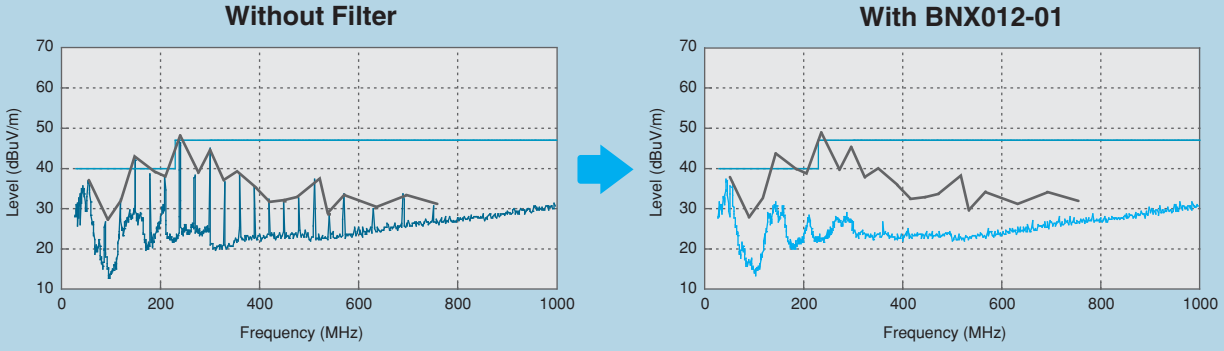
muRata

Type	Part Number	Thickness (mm)	Rated Voltage	Effective Frequency Range	Rated Current	Kit ≥3A Flow ReFlow
SMD Type for Power Lines p199	**BNX022-01**	3.1	50Vdc	1MHz to 1GHz:35dB min.	10A	Kit ≥3A ReFlow
	BNX023-01	3.1	100Vdc	1MHz to 1GHz:35dB min.	15A	Kit ≥3A ReFlow
	BNX024H01	3.5	50Vdc	100kHz to 1GHz:35dB min.	15A	Kit ≥3A ReFlow
	BNX025H01	3.5	25Vdc	50kHz to 1GHz:35dB min.	15A	Kit ≥3A ReFlow
Lead Type for Power Lines p201	**BNX002-01**	18.0	50Vdc	1MHz to 1GHz:40dB min.	10A	Kit ≥3A Flow
	BNX003-01	18.0	150Vdc	5MHz to 1GHz:40dB min.	10A	Kit ≥3A Flow
	BNX005-01	18.5	50Vdc	1MHz to 1GHz:40dB min.	15A	Kit ≥3A Flow
Lead Type Low Profilefor Power Lines p202	**BNX012-01**	8.0	50Vdc	1MHz to 1GHz:40dB min.	15A	Kit ≥3A Flow
	BNX016-01	8.0	25Vdc	100kHz to 1GHz:40dB min.	15A	Kit ≥3A Flow

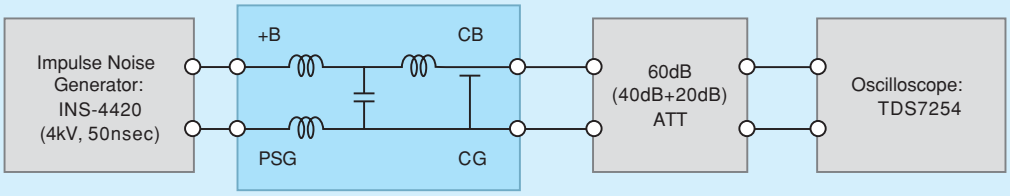
Noise Suppression of Radiation Noise from Power Line Cable



■Test Result

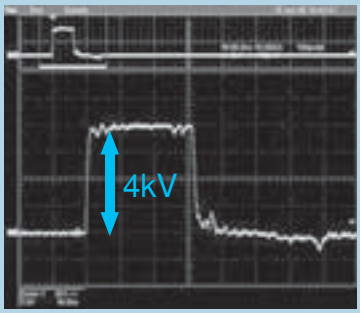


Impulse Noise Countermeasure



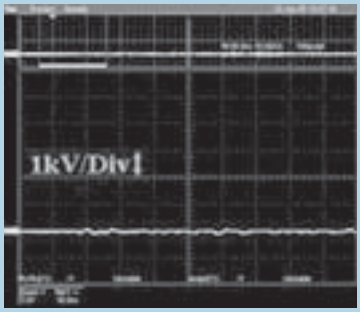
BNX

■Without Filter

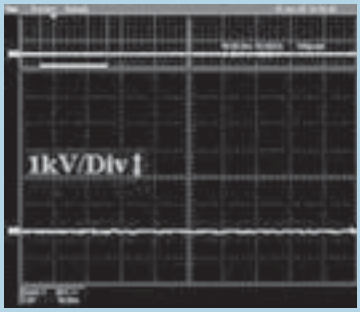


Applied Impulse Voltage: 4kV/50nS
Y-AXIS: 1kV/div

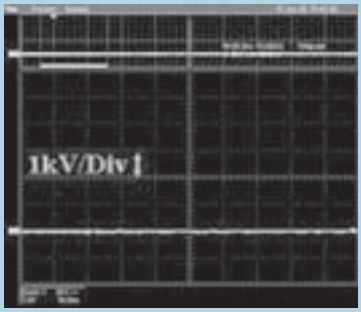
■With Filter



BNX002-01

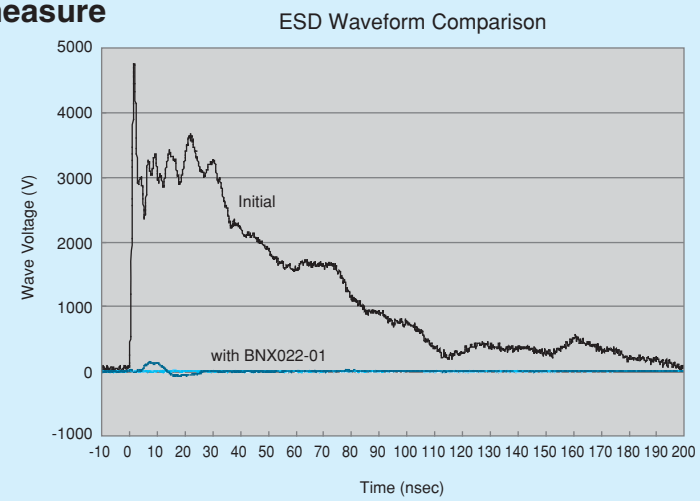


BNX012-01

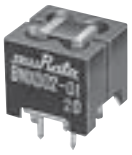


BNX022-01

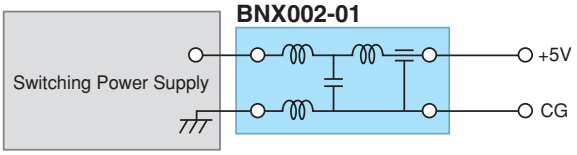
ESD Countermeasure

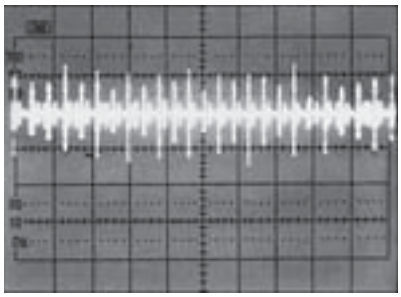
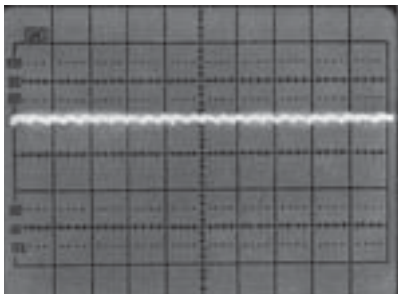


Suppression of Ripple Noise of DC Side in the Switching Power Supply

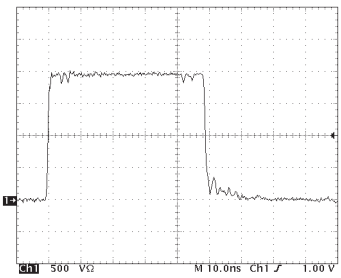
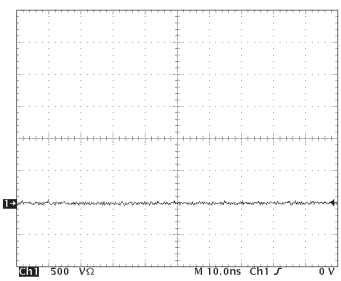


Test Circuit



Type of Filter	EMI Suppression Effect / Description
Without Filter	+5.0V→ 50μs/div 0.2V/div  There is high frequency noise of 0.5V maximum.
When **BNX002-01** is used	+5.0V→ 50μs/div 0.2V/div  BNX002-01 can suppress most of noise.

Example of Impulse Noise Suppression

Type of Filter	EMI Suppression Effect
Without Filter	 Impulse Noise 2000V/50ns Y-axis: 500V/div X-axis: 10ns/sec
When **BNX002** is used	 Y-axis: 500V/div X-axis: 10ns/sec

⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

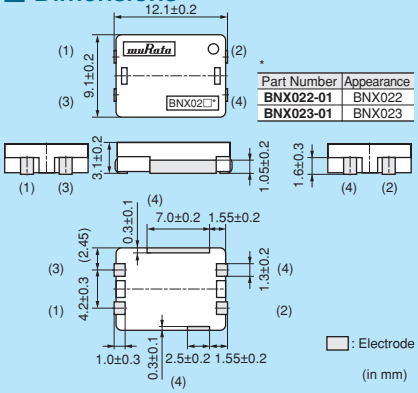
BNX02□ Series

Hi Power Reflow OK

SMD package of block type EMIFIL®.

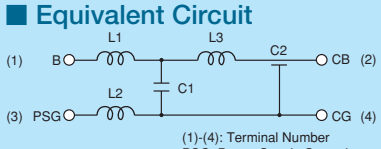
BNX022/BNX023

■ Dimensions



Part Number	Appearance
BNX022-01	BNX022
BNX023-01	BNX023

■ Equivalent Circuit



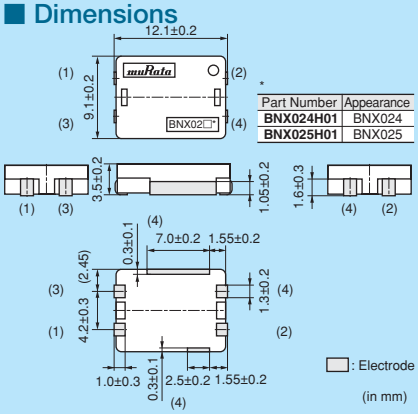
(1)-(4): Terminal Number
PSG: Power Supply Ground
CG: Circuit Ground
CB: Circuit+B

■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	400
K	330mm Reel Embossed Tape	1500
B	Bulk(Bag)	100

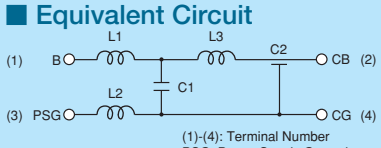
BNX024H/BNX025H

■ Dimensions



Part Number	Appearance
BNX024H01	BNX024
BNX025H01	BNX025

■ Equivalent Circuit



(1)-(4): Terminal Number
PSG: Power Supply Ground
CG: Circuit Ground
CB: Circuit+B

■ Packaging

Code	Packaging	Minimum Quantity
L	180mm Reel Embossed Tape	400
K	330mm Reel Embossed Tape	1500
B	Bulk(Bag)	100

Refer to pages from p.205 to p.206 for mounting information.

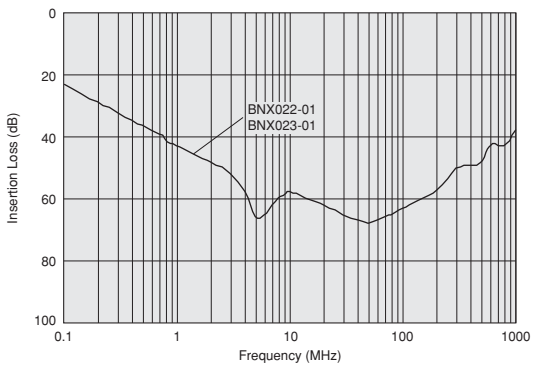
■ Rated Value (□: packaging code)

Part Number	Rated Voltage	Withstand Voltage	Rated Current	Insulation Resistance (min.)	Insertion Loss (20 to 25 degrees C line impedance=50 ohm)	
BNX022-01□	50Vdc	125Vdc	10A	500M ohm	1MHz to 1GHz:35dB min.	Kit ≧3A
BNX023-01□	100Vdc	250Vdc	15A	500M ohm	1MHz to 1GHz:35dB min.	Kit ≧3A
BNX024H01□	50Vdc	125Vdc	15A	100M ohm	100kHz to 1GHz:35dB min.	Kit ≧3A
BNX025H01□	25Vdc	62.5Vdc	15A	50M ohm	50kHz to 1GHz:35dB min.	Kit ≧3A

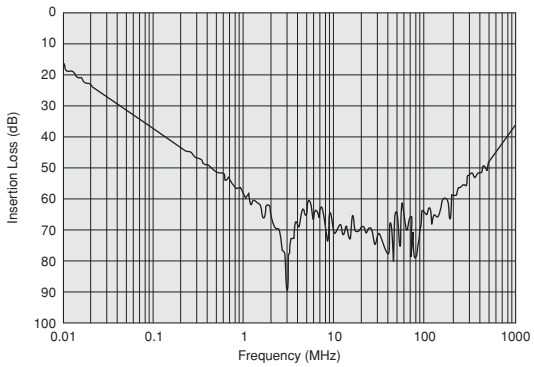
Operating Temperature Range: -40°C to +125°C (BNX022/BNX023), -55°C+125°C (BNX024H/BNX025H)

■ Insertion Loss Characteristics (Main Items)

BNX022/023



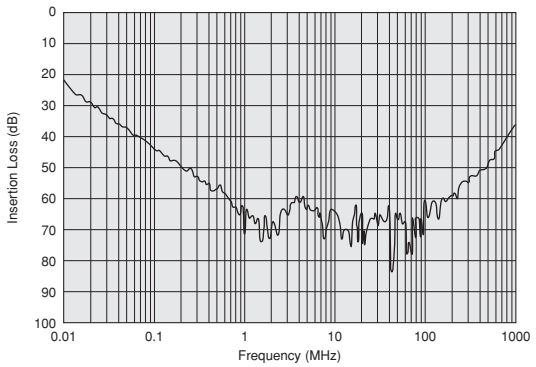
BNX024H01



Continued on the following page.

■ Insertion Loss Characteristics (Main Items)

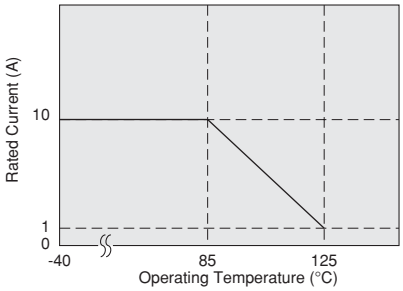
BNX025H01



■ Notice (Rating)

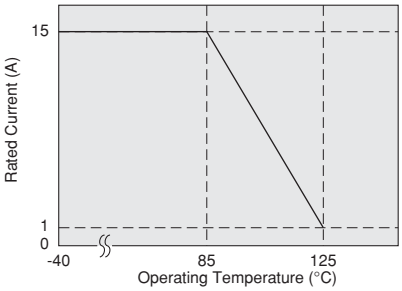
In operating temperature exceeding +85°C, derating of current is necessary for BNX022 series. Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



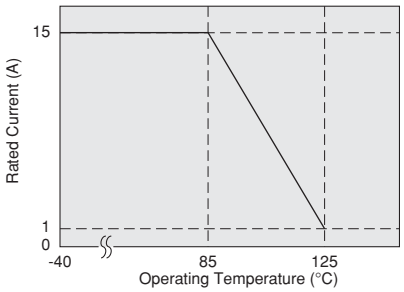
In operating temperature exceeding +85°C, derating of current is necessary for BNX023 series. Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



In operating temperature exceeding +85°C, derating of current is necessary for BNX024H/025H series. Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



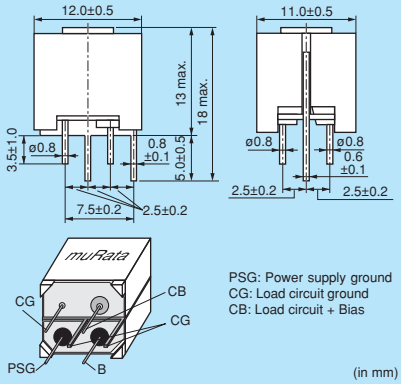
BNX00□ Series

Hi Power Flow OK

Large insertion loss from several hundred kHz to several GHz.

BNX002/BNX003

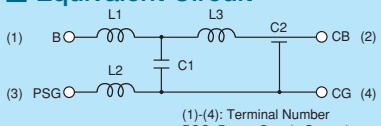
■ Dimensions



PSG: Power supply ground
CG: Load circuit ground
CB: Load circuit + Bias

(in mm)

■ Equivalent Circuit



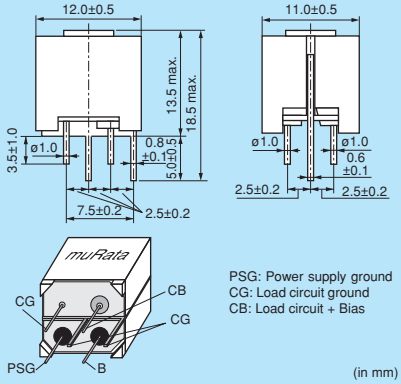
(1)-(4): Terminal Number
PSG: Power Supply Ground
CG: Circuit Ground
CB: Circuit+B

■ Packaging

Code	Packaging	Minimum Quantity
-	Box	100

BNX005

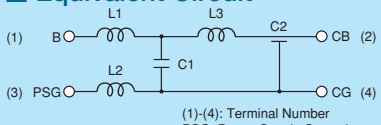
■ Dimensions



PSG: Power supply ground
CG: Load circuit ground
CB: Load circuit + Bias

(in mm)

■ Equivalent Circuit



(1)-(4): Terminal Number
PSG: Power Supply Ground
CG: Circuit Ground
CB: Circuit+B

■ Packaging

Code	Packaging	Minimum Quantity
-	Box	100

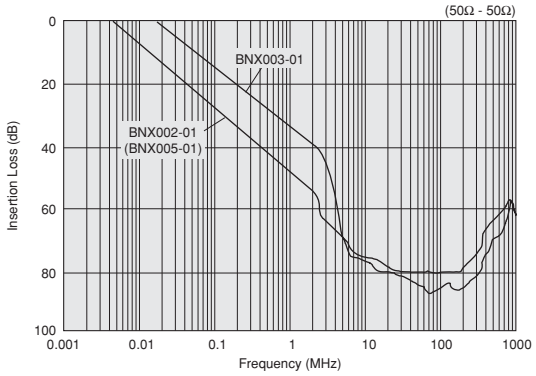
Refer to pages from p.207 to p.208 for mounting information.

■ Rated Value

Part Number	Rated Voltage	Withstand Voltage	Rated Current	Insulation Resistance (min.)	Insertion Loss (20 to 25 degrees C line impedance=50 ohm)	
BNX002-01	50Vdc	125Vdc	10A	100M ohm	1MHz to 1GHz:40dB min.	Kit ≧3A
BNX003-01	150Vdc	375Vdc	10A	100M ohm	5MHz to 1GHz:40dB min.	Kit ≧3A
BNX005-01	50Vdc	125Vdc	15A	100M ohm	1MHz to 1GHz:40dB min.	Kit ≧3A

Operating Temperature Range: -30°C to +85°C

■ Insertion Loss Characteristics (Main Items)



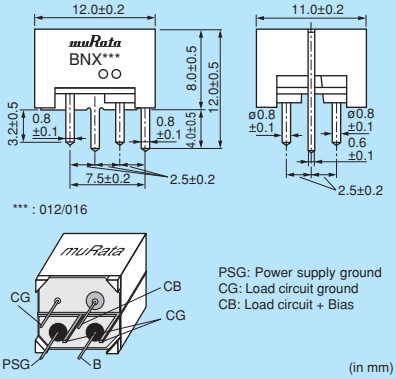
⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

BNX01□ Series

Hi Power Flow OK

Low profile version of BNX series.

■ Dimensions

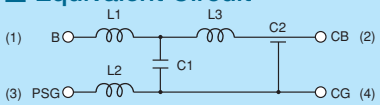


*** : 012/016

PSG: Power supply ground
CG: Load circuit ground
CB: Load circuit + Bias

(in mm)

■ Equivalent Circuit



(1)-(4): Terminal Number
PSG: Power Supply Ground
CG: Circuit Ground
CB: Circuit+B

■ Packaging

Code	Packaging	Minimum Quantity
-	Box	150

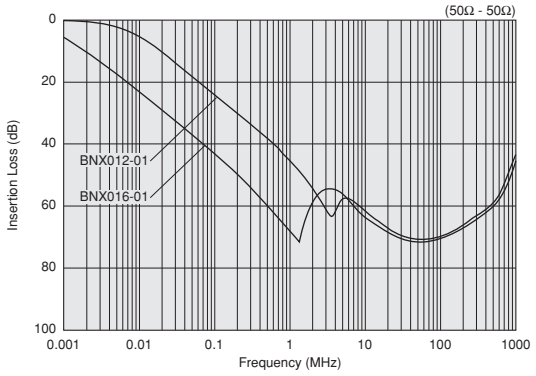
Refer to pages from p.207 to p.208 for mounting information.

■ Rated Value

Part Number	Rated Voltage	Withstand Voltage	Rated Current	Insulation Resistance (min.)	Insertion Loss (20 to 25 degrees C line impedance=50 ohm)	
BNX012-01	50Vdc	125Vdc	15A	500M ohm	1MHz to 1GHz:40dB min.	Kit ≧3A
BNX016-01	25Vdc	62.5Vdc	15A	50M ohm	100kHz to 1GHz:40dB min.	Kit ≧3A

Operating Temperature Range: -40°C to +125°C

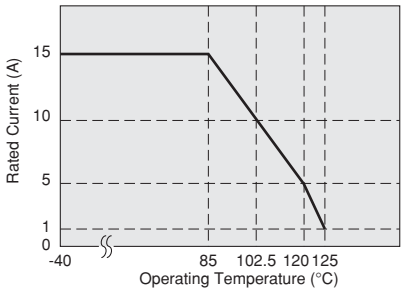
■ Insertion Loss Characteristics (Main Items)



■ Notice (Rating)

In operating temperature exceeding +85°C, derating of current is necessary for BNX01□ series. Please apply the derating curve shown in chart according to the operating temperature.

Derating of Rated Current



● Connecting ± power line

In case of using ± power line, please connect to each terminal as shown.

Power Supply (BNX Input)	BNX		Circuit (BNX Output)
Power Supply +Bias	B	CB	Load Circuit +Bias
Power Supply Ground	PSG	CG	Load Circuit Ground
Power Supply -Bias	B	CB	Load Circuit -Bias
Power Supply Ground	PSG	CG	Load Circuit Ground

⚠Caution

● Rating

Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.

Notice

● Storage and Operating Conditions

<Operating Environment>
Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
Do not use products in the environment close to the organic solvent.
<Storage and Handling Requirements>
1. Storage Period
   BNX series should be used within 12 months. Solderability should be checked if this period is exceeded.
2. Storage Conditions
   (1) Storage temperature: -10 to +40°C
   Relative humidity: 15 to 85%
   Avoid sudden changes in temperature and humidity.
   (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

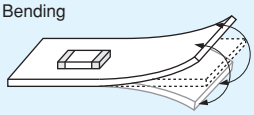
● Notice (Soldering and Mounting)

1. Cleaning
   Do not clean BNX series (SMD Type).
   Before cleaning, please contact Murata engineering.
2. Soldering
   Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in mounting information.
3. Other
   Noise suppression levels resulting from Murata's EMI suppression filters EMIFIL® may vary, depending on the circuits and ICs used, type of noise, mounting pattern, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

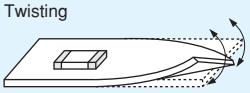
● Handling

1. Resin Coating
   Using resin for coating/molding products may affect the products performance.
   So please pay careful attention in selecting resin.
   Prior to use, please make the reliability evaluation with the product mounted in your application set.
2. Handling of a Substrate (for BNX02☐)
   After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting to the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening screw to the substrate.
   Excessive mechanical stress may cause cracking in the Product.

Bending



Twisting



⚠Caution

● Rating

Do not use products beyond the rated current and rated voltage as this may create excessive heat and deteriorate the insulation resistance.

Notice

● Storage and Operating Conditions

<Operating Environment>

1. Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
2. Do not use products near water, oil or organic solvents.

<Storage and Handling Requirements>

1. Storage Period
   BNX Series should be used within 12 months. Solderability should be checked if this period is exceeded.
2. Storage Conditions
   (1) Storage temperature: -10 to +40°C
   Relative humidity: 15 to 85%
   Avoid sudden changes in temperature and humidity.
   (2) Do not store products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.

● Notice (Soldering and Mounting)

1. Cleaning
   Failure and degradation of a product are caused by the cleaning method. When you clean in conditions that are not in mounting information, please contact Murata engineering.
2. Soldering
   Reliability decreases with improper soldering methods. Please solder by the standard soldering conditions shown in mounting information.
3. Other
   Noise suppression levels resulting from Murata's EMI suppression filters "EMIFIL" may vary, depending on the circuits and ICs used, type of noise, mounting pattern, lead wire length, mounting location, and other operating conditions. Be sure to check and confirm in advance the noise suppression effect of each filter, in actual circuits, etc. before applying the filter in a commercial-purpose equipment design.

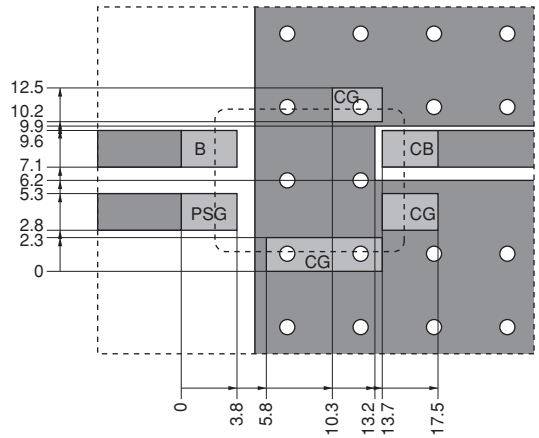
● Notice (Appearance)

Although some part of the product surface seems to be white in some cases, do not care because it is the result of waxing process for humidity resistance improvement. This wax does not make bad affection to mechanical or electrical performance, reliability of the product.

1. Standard Land Pattern Dimensions

Land Pattern + Solder Resist
Land Pattern Solder Resist
(in mm)

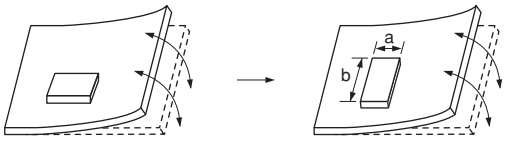
BNX022
BNX023
BNX024
BNX025



(1) A double-sided print board (or multilayer board) as shown in the left figure is designed, and please apply a soldering Cu electrode with a product electrode to a "Land Pattern", apply resist to a "Land Pattern + Solder Resist" at Cu electrode.
(2) This product has large rated current of 10A/15A. Please consider real current and make Cu electrode thick enough. (Please design line resistance suitable for real current)
(3) Please drop CG on a ground electrode on the back layer (the same also in a multilayer case) by the through hole. And a surface to ground electrode layer may also take a large area as much as possible.
(4) It is recommended to use a double-sided printed circuit board with BNX mounting on one side and the ground pattern on the other in order to maximize filtering performance, multiple feed through holes are required to maximize the BNX's connection to ground.
(5) The ground pattern should be designed to be as large as possible to achieve maximum filtering performance.

● PCB Warping (for BNX02□)
PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.

Products should be located in the sideways direction (Length: a<b) to the mechanical stress.

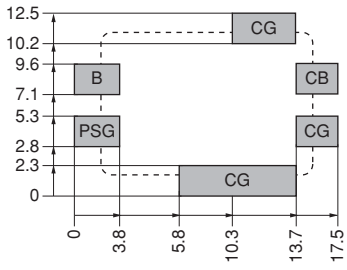


Poor example Good example

2. Solder Paste Printing and Adhesive Application

When reflow soldering the block type EMIFIL®, the printing must be conducted in accordance with the following cream solder printing conditions.
If too much solder is applied, the chip will be prone to damage by mechanical and thermal stress from the PCB and may crack.
Standard land dimensions should be used for resist and copper foil patterns.

Series	Solder Paste Printing	Adhesive Application
BNX022 **BNX023** **BNX024** **BNX025**	●Guideline of solder paste thickness: 150-200μm	



3. Standard Soldering Conditions

(1) Soldering Methods

Use reflow soldering methods only.
Use standard soldering conditions when soldering block type EMIFIL® SMD type.
In cases where several different parts are soldered, each having different soldering conditions, use those conditions requiring the least heat and minimum time.

Solder: Use Sn-3.0Ag-0.5Cu solder. Use of Sn-Zn based solder will deteriorate performance of products.

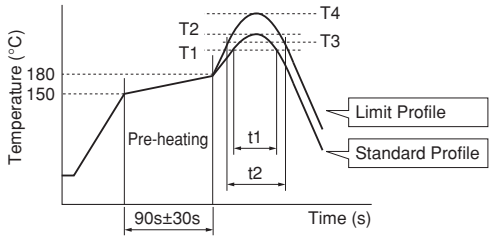
Flux:

- Use Rosin-based flux.
  In case of using RA type solder, products should be cleaned completely with no residual flux.
- Do not use strong acidic flux (with chlorine content exceeding 0.20wt%)
- Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

(2) Soldering Profile

●Reflow Soldering Profile
(Sn-3.0Ag-0.5Cu solder)



Series	Standard Profile				Limit Profile			
	Heating		Peak Temperature (T2)	Cycle of Reflow	Heating		Peak Temperature (T4)	Cycle of Reflow
	Temp. (T1)	Time. (t1)			Temp. (T3)	Time. (t2)		
BNX022/023/024/025	220°C min.	30 to 60s	250±3°C	2 times max.	230°C min.	60s max.	260°C/10s	2 times max.

(3) Reworking with Solder Iron

The following conditions must be strictly followed when using a soldering iron.
Pre-heating: 150°C 60s min.
Soldering iron power output: 100W max.
Temperature of soldering iron tip / Soldering time / Times:
450°C max. / 5s max. / 2 time

Do not allow the tip of the soldering iron to directly contact the chip.
For additional methods of reworking with a soldering iron, please contact Murata engineering.

4. Cleaning

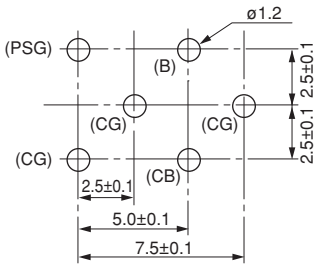
Do not clean BNX022/023/024/025 series. In case of cleaning, please contact Murata engineering.

1. Mounting Hole

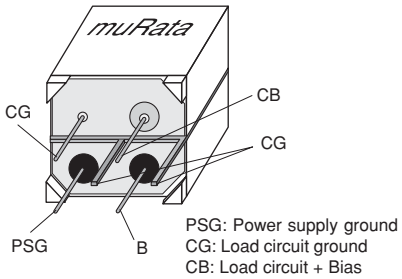
■ Mounting holes should be designed as specified below.

BNX00□/01□

Component Side



Terminal Layout (Bottom figure)



2. Using the Block Type EMIFIL® (Lead Type) Effectively

(1) How to use effectively

This product effectively prevents undesired radiation and external noise from going out / entering the circuit by grounding the high frequency components which cause noise problems. Therefore, grounding conditions may affect the performance of the filter and attention should be paid to the following for effective use.

(a) Design maximized grounding area in the P.C. board, and grounding pattern for all the grounding terminals of the product to be connected. (Please follow the specified recommendations.)

(b) Minimize the distance between ground of the P.C. board and the ground plate of the product. (Recommend using the through hole connection between grounding area both of component side and bottom side.)

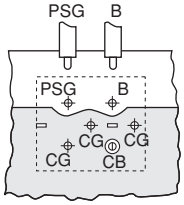
(c) Insert the terminals into the holes on P.C. board completely.

(d) Don't connect PSG terminal with CG terminal directly. (See the item 1. Terminal Layout)

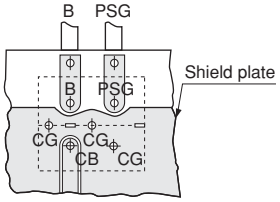
P. C. Board Patterns

Use a bilateral P.C. board. Insert the BNX into the P.C.board until the root of the terminal is secured, then solder.

(1) Component Side View



(2) Bottom View



Copper foil pattern

(2) Self-heating

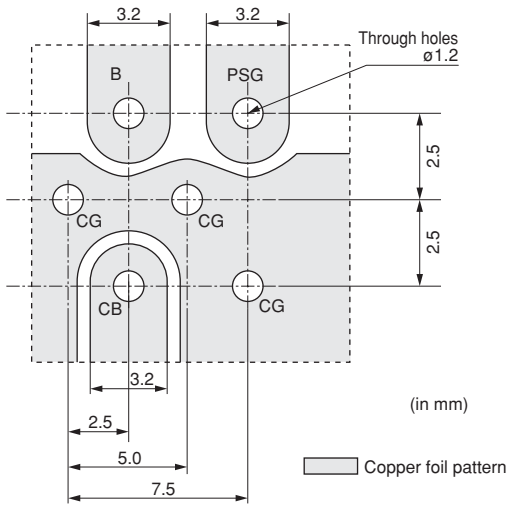
Though this product has a large rated current, localized selfheating may be caused depending on soldering conditions. To avoid this, attention should be paid to the following:

(a) Use P.C. board with our recommendation on hole diameter / land pattern dimensions, mentioned in the right hand drawing, especially for 4 terminals which pass current.

(b) Solder the terminals to the P.C. board with soldercover area at least 90%. Otherwise, excess self-heating at connection between terminals and P.C. board may lead to smoke and / or fire of the product even when operating at rated current.

(c) After installing this product in your product, please make sure the self-heating is within the rated current recommended.

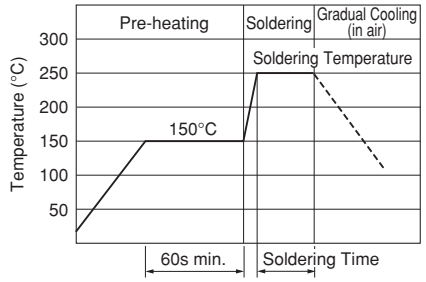
Recommended Land Pattern



Copper foil pattern

3. Soldering

(1) Use Sn-3.0Ag-0.5Cu solder.
(2) Use Rosin-based flux. Do not use strong acidic flux with halide content exceeding 0.2wt% (chlorine conversion value).
(3) Products and the leads should not be subjected to any mechanical stress during the soldering process, or while subjected to the equivalent high temperatures.
(4) Standard flow soldering profile

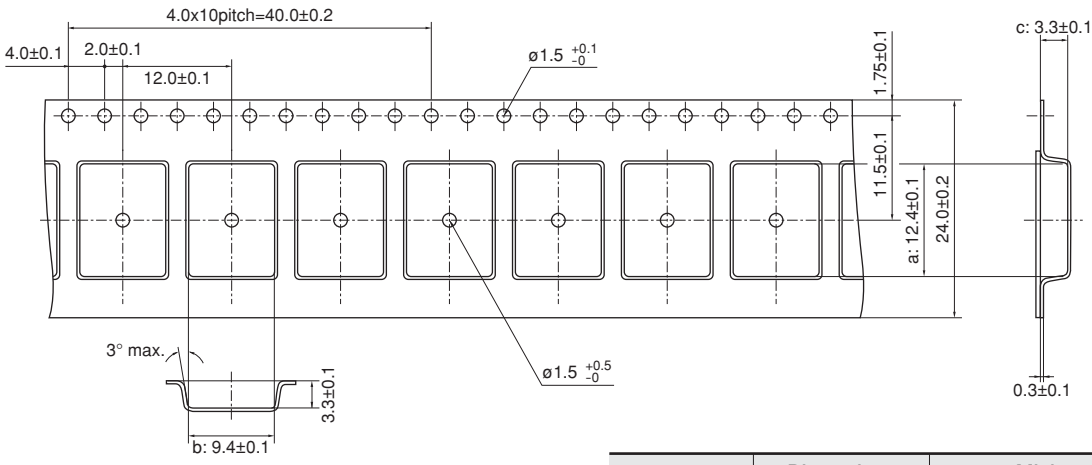


Solder	Soldering Temperature	Soldering Time
Sn-3.0Ag-0.5Cu solder	250 to 260°C	4 to 6s

4. Cleaning

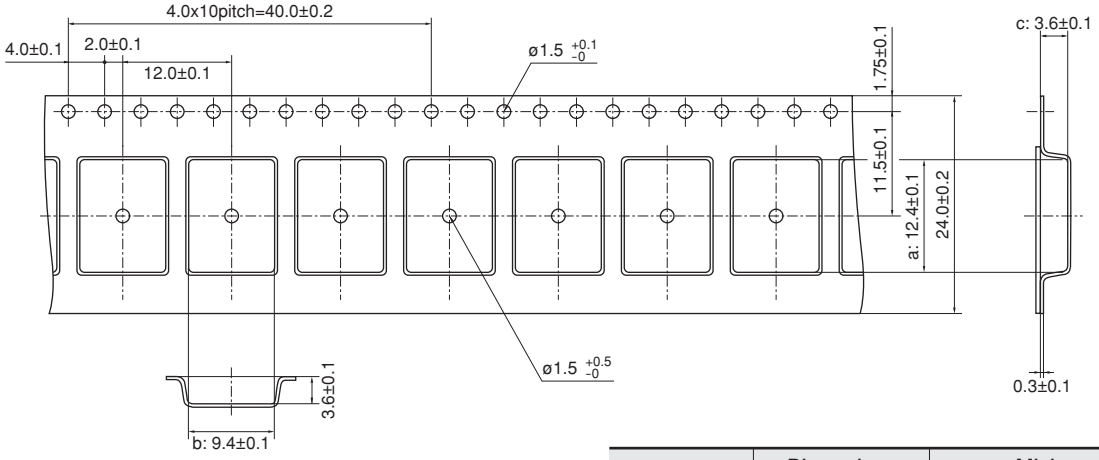
Clean the block Type EMIFIL®(Lead Type) in the following conditions.
(1) Cleaning temperature should be limited to 60°C max. (40°C max for alcohol type cleaner).
(2) Ultrasonic cleaning should comply with the following conditions, avoiding the resonance phenomenon at the mounted products and P.C.B.
Power: 20W/liter max.
Frequency: 28 to 40kHz
Time: 5 min. max.
(3) Cleaner
(a) Alcohol type cleaner
Isopropyl alcohol (IPA)
(b) Aqueous agent
Pine Alpha ST-100S
(4) There should be no residual flux or residual cleaner left after cleaning.
In the case of using aqueous agent, products should be dried completely after rinsing with de-ionized water in order to remove the cleaner.
(5) The surface of products may become dirty after cleaning, but there is no deterioration on mechanical, electrical characteristics and reliability.
(6) Other cleaning: Please contact us.

■ Minimum Quantity and Dimensions of 24mm Width Embossed Tape



Dimension of the cavity is measured at the bottom side.

Part Number	Dimensions			Minimum Qty. (pcs.)		
	a	b	c	ø180mm Reel	ø330mm Reel	Bulk
BNX022/023	12.4	9.4	3.3	400	1500	100



Dimension of the cavity is measured at the bottom side.

Part Number	Dimensions			Minimum Qty. (pcs.)		
	a	b	c	ø180mm reel	ø330mm reel	Bulk
BNX024/025	12.4	9.4	3.6	400	1500	100

(in mm)

"Minimum Quantity" means the number of units of each delivery or order. Thequantity should be an integral multiple of the "Minimum Quantity".

●EKEPBLCKC

No.	Part Number	Quantity (pcs.)	Common Mode Impedance (at 10MHz, 20 degrees C)	Rated Voltage (Vdc)	Rated Current (A)
1	PLT10HH401100PN	2	400Ω (Typ.)	100	10
2	PLT10HH501100PN	2	500Ω (Typ.)	100	10
3	PLT10HH9016R0PN	2	900Ω (Typ.)	100	6
4	PLT10HH1026R0PN	2	1000Ω (Typ.)	100	6

No.	Part Number	Quantity (pcs.)	Insertion Loss	Rated Voltage (Vdc)	Rated Current (A)
5	BNX002-01	1	1MHz to 1GHz : 40dB min.	50	10
6	BNX003-01	1	5MHz to 1GHz : 40dB min.	150	10
7	BNX005-01	1	1MHz to 1GHz : 40dB min.	50	15
8	BNX012-01	1	1MHz to 1GHz : 40dB min.	50	15
9	BNX016-01	1	100kHz to 1GHz : 40dB min.	25	15
10	BNX022-01	2	1MHz to 1GHz : 35dB min.	50	10
11	BNX023-01	2	1MHz to 1GHz : 35dB min.	100	15
12	BNX024H01	2	100kHz to 1GHz : 35dB min.	50	15
13	BNX025H01	2	50kHz to 1GHz : 35dB min.	25	15

EA

Microwave Absorber

C31E.pdf
Jul.27,2012

Part Numbering

(Part Number)

EA	1026	A	160	M	200	200
❶	❷	❸	❹	❺	❻	❼

❶Product ID

Product ID	
EA	Microwave Absorber

❷Sheet Type

Code	Sheet Type
10□□	Iron carbonyl type (UL certified type/Halogen Free type)
2070	Metal Flake Powder (Halogen Free type)
2100	Metal Flake Powder (UL certified type)
3008	Magnetic material (UL certified type/Halogen Free type)

❸Adhesive Tape Type

Code	Adhesive Tape Type
A	Standard tape type (Halogen Free type)
B	Thin Adhesive tape type (Halogen Free type)
L	No tape type
U	UL certified type (Halogen Free type)

❹Sheet Thickness

Expressed by 3 digits including the second decimal place in mm.

Ex.)

Code	Sheet Thickness
020	0.20mm

❺Unit of Dimension

One capital letter expresses Unit of Dimension (❻) and Dimensions Length (❼).

Code	Unit of Dimension
M	in mm (Standard)
C	in cm (Standard)

Standard shape is a rectangle.
Please contact us for other shapes.

❻Dimension (Length)

Expressed by 3 digits including the first decimal place.

❼Dimension (Width)

Expressed by 3 digits including the first decimal place.

Ex.)

Code	Dimension (Length × Width)
M300150	30.0×15.0 mm
C150100	15.0×10.0 cm

EA10 Series

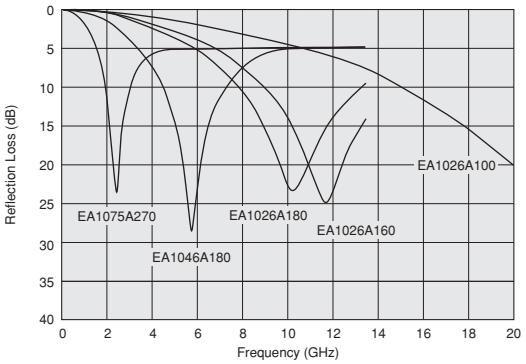
■ Packaging

When inquiring, please contact us with size code,
refering to "Part Numbering."

■ Rated Value

Part Number	Applicable Frequency (Typ.)	Thickness (Typ.)	Flame Class	Halogen	Operating Temperature Range
EA1026A100	20.0GHz	1.0mm	UL94V-0	Halogen Free	-40°C to +80°C
EA1026A160	11.5GHz	1.6mm	UL94V-0	Halogen Free	-40°C to +80°C
EA1026A180	10.0GHz	1.8mm	UL94V-0	Halogen Free	-40°C to +80°C
EA1046A180	5.8GHz	1.8mm	UL94V-0	Halogen Free	-40°C to +80°C
EA1075A270	2.5GHz	2.7mm	UL94V-0	Halogen Free	-40°C to +80°C

■ Reflection Loss (Typ.)



EA20/EA21 Series

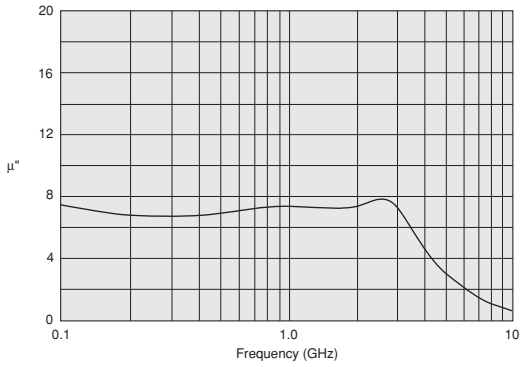
■ Packaging

When inquiring, please contact us with size code, refering to "Part Numbering."

■ Rated Value

Part Number	Applicable Frequency (Typ.)	Thickness (Typ.)	Flame Class	Halogen	Operating Temperature Range
EA2070A020	0.1 to 3.0GHz	0.20mm	-	Halogen Free	-40°C to +120°C
EA2070A050	0.1 to 3.0GHz	0.50mm	-	Halogen Free	-40°C to +120°C
EA2070A100	0.1 to 3.0GHz	1.00mm	-	Halogen Free	-40°C to +120°C
EA2070B005	0.1 to 3.0GHz	0.05mm	-	Halogen Free	-40°C to +120°C
EA2070B010	0.1 to 3.0GHz	0.10mm	-	Halogen Free	-40°C to +120°C
EA2070B013	0.1 to 3.0GHz	0.13mm	-	Halogen Free	-40°C to +120°C
EA2070B020	0.1 to 3.0GHz	0.20mm	-	Halogen Free	-40°C to +120°C
EA2070B050	0.1 to 3.0GHz	0.50mm	-	Halogen Free	-40°C to +120°C
EA2100A020	0.1 to 3.0GHz	0.20mm	UL94V-0	-	-40°C to +120°C
EA2100A050	0.1 to 3.0GHz	0.50mm	UL94V-0	-	-40°C to +120°C
EA2100A100	0.1 to 3.0GHz	1.00mm	UL94V-0	-	-40°C to +120°C
EA2100B020	0.1 to 3.0GHz	0.20mm	UL94V-0	-	-40°C to +120°C
EA2100B050	0.1 to 3.0GHz	0.50mm	UL94V-0	-	-40°C to +120°C
EA2100B100	0.1 to 3.0GHz	1.00mm	UL94V-0	-	-40°C to +120°C

■ Magnetic Permeability-Reluctance



EA30 Series

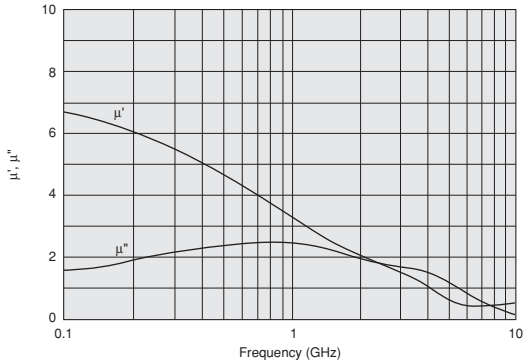
■ Packaging

When inquiring, please contact us with size code,
refering to "Part Numbering."

■ Rated Value

Part Number	Applicable Frequency (Typ.)	Thickness (Typ.)	Flame Class	Halogen	Operating Temperature Range
EA3008U025	0.1 to 3.0GHz	0.25mm	UL94V-0	Halogen Free	-40°C to +120°C
EA3008U035	0.1 to 3.0GHz	0.35mm	UL94V-0	Halogen Free	-40°C to +120°C
EA3008U050	0.1 to 3.0GHz	0.50mm	UL94V-0	Halogen Free	-40°C to +120°C
EA3008U100	0.1 to 3.0GHz	1.00mm	UL94V-0	Halogen Free	-40°C to +120°C
EA3008U250	0.1 to 3.0GHz	2.50mm	UL94V-0	Halogen Free	-40°C to +120°C

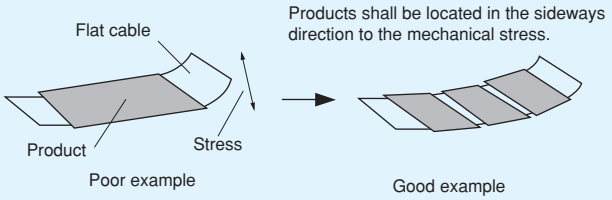
■ Magnetic Permeability-Reluctance



Notice

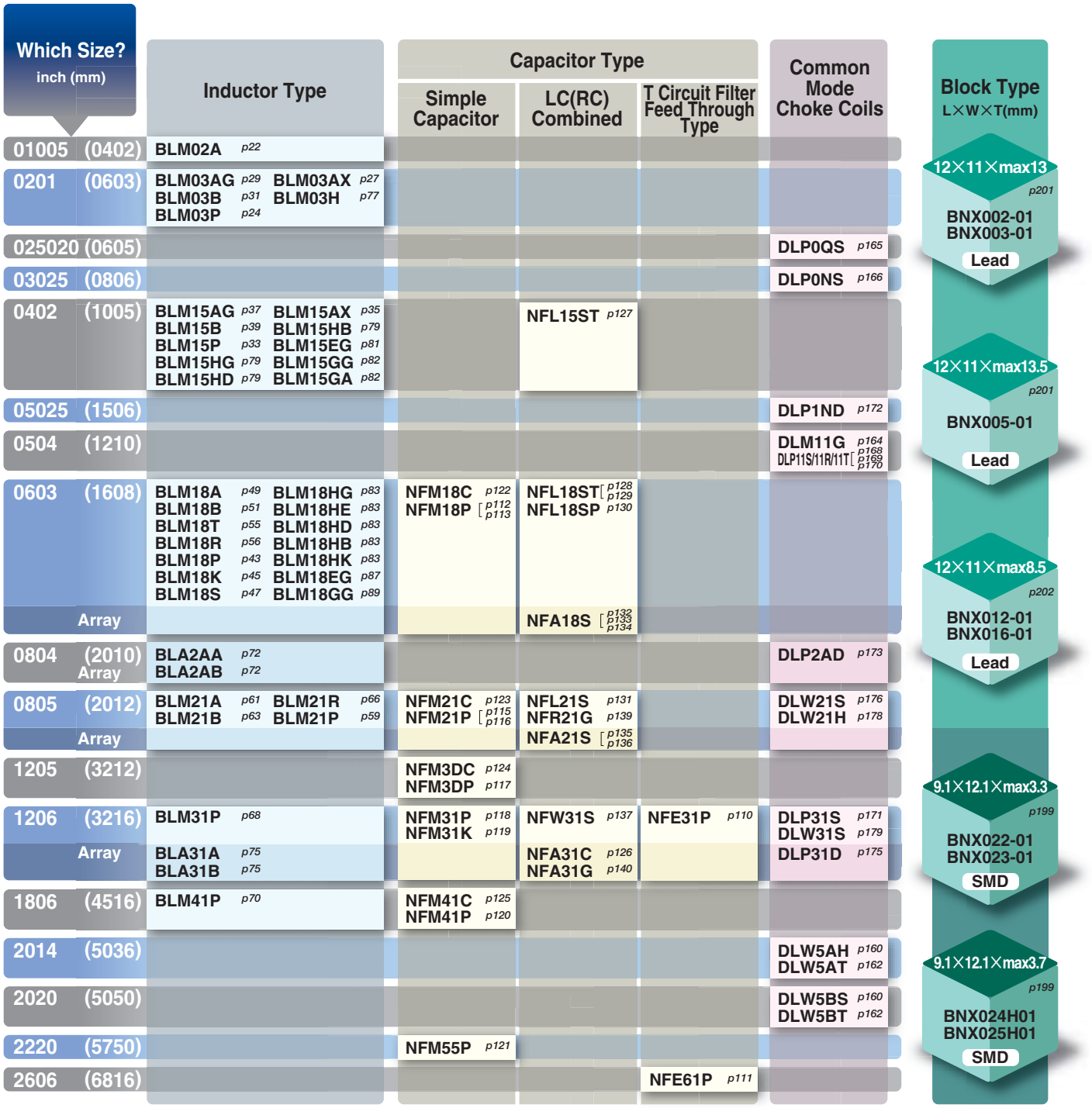
● Storage and Operating Conditions

1. Adhesive Tape Stress
   This product is designed to use adhesive tape to hold itself to the object.
   And please avoid causing mechanical stress by bending or variation of the object.



2. Cleaning
   Avoid cleaning this product.
3. Handling of the Product
   Adhesive tape must be clean to maintain the quality of adhesion.
   Please wipe off any dirt, dust and any kind of oil from the surface of the object before use.
4. Storage Conditions
(1) Storage period
   Products that were inspected by Murata over 6 months ago should be examined and used. This can be confirmed by the inspection No. marked on the container.
   Adhesiveness should be checked if this period is exceeded.
(2) Storage conditions
   · Products should be stored in the warehouse in the following conditions:
      Temperature: -10 to +40˚C
      Humidity: 30 to 70% relative humidity
      No rapid change of temperature or humidity
   · Products should be stored in the warehouse without heat shock condition, vibration, direct sunlight and so on.

Product Guide by Size



Part Number Quick Reference

Alphabetic Product Name Index

Please refer to catalogs below for ferrite cores, Microwave Absorber and leaded EMIFIL®.

Ferrite Core, Microwave Absorber

Ferrite Corefor EMI Suppression Microwave Absorber

Contents
- Thin Type Sandwich Core <FSSA>
- Core for Flat Cables <FSRC>
- Beads Core <FSRH>
- Ring Core <FSRB>
- Microwave Absorber <EA>

This Catalog is PDF version only. Please refer to following URL.
http://www.murata.com/products/catalog/pdf/o63e.pdf

Lead Type EMIFIL®

EMI Suppression Filters (Lead Type EMIFIL®)

Contents
- Ferrite Beads Inductors <BL01/02/03>
- Disc Type EMIFIL®<DS□6/DS□9>
- EMIGUARD®(EMIFIL® with Varistor Function) <VF□3/VF□6/VF□9>
- Common Mode Choke Coils <PLT>

EMICON-FUN!

Let's learn basics and how to use
Noise suppression filters/Inductors/Capacitors.
http://www.murata.com/products/emicon_fun/

EMICON COLUMN introduce hand-made columns with know-how of capacitors, inductors and EMI suppression filters.
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You can register from Murata Manufacturing Web site page TOP.
http://www.murata.com/

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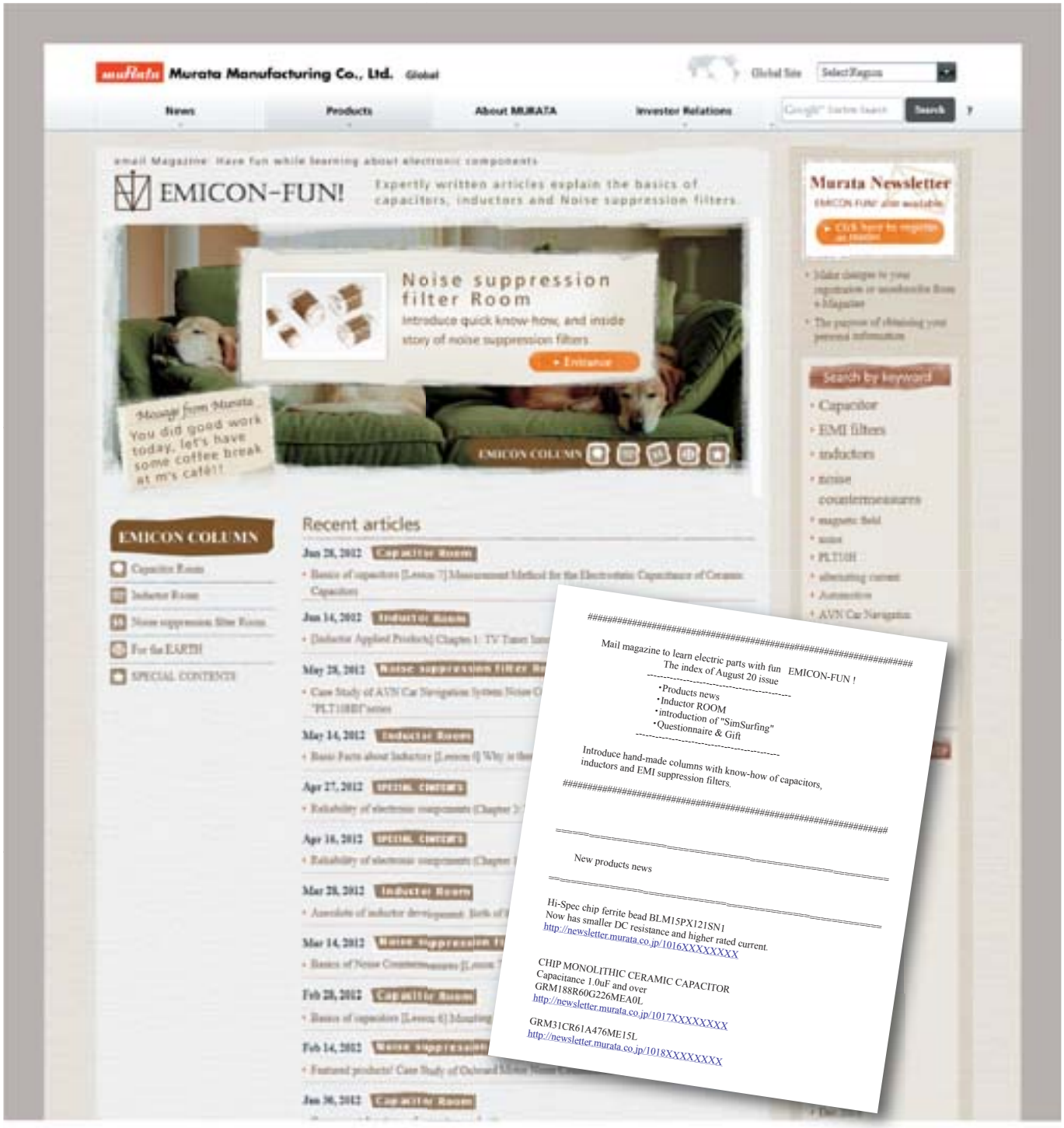

⚠Note:

1. Export Control
   <For customers outside Japan>
   No Murata products should be used or sold, through any channels, for use in the design, development, production, utilization, maintenance or operation of, or otherwise contribution to (1) any weapons (Weapons of Mass Destruction [nuclear, chemical or biological weapons or missiles] or conventional weapons) or (2) goods or systems specially designed or intended for military end-use or utilization by military end-users.
   <For customers in Japan>
   For products which are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.
2. Please contact our sales representatives or product engineers before using the products in this catalog for the applications listed below, which require especially high reliability for the prevention of defects which might directly damage a third party's life, body or property, or when one of our products is intended for use in applications other than those specified in this catalog.
   ① Aircraft equipment ② Aerospace equipment
   ③ Undersea equipment ④ Power plant equipment
   ⑤ Medical equipment ⑥ Transportation equipment (vehicles, trains, ships, etc.)
   ⑦ Traffic signal equipment ⑧ Disaster prevention / crime prevention equipment
   ⑨ Data-processing equipment ⑩ Application of similar complexity and/or reliability requirements to the applications listed above
3. Product specifications in this catalog are as of May 2012. They are subject to change or our products in it may be discontinued without advance notice.
   Please check with our sales representatives or product engineers before ordering. If there are any questions,please contact our sales representatives or product engineers.
4. Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
5. This catalog has only typical specifications.Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.
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