

Low Inductance Capacitors with SnPb Terminations

LD15/LD16/LD17/LD18 Tin-Lead Termination "B"

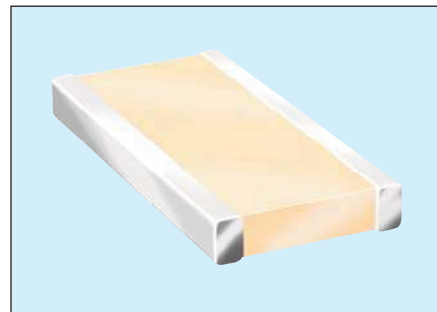
GENERAL DESCRIPTION

The key physical characteristic determining equivalent series inductance (ESL) of a capacitor is the size of the current loop it creates. The smaller the current loop, the lower the ESL.

A standard surface mount MLCC is rectangular in shape with electrical terminations on its shorter sides. A Low Inductance Chip Capacitor (LICC®) sometimes referred to as Reverse Geometry Capacitor (RGC) has its terminations on the longer sides of its rectangular shape. The image on the right shows the termination differences between an MLCC and an LICC®.

When the distance between terminations is reduced, the size of the current loop is reduced. Since the size of the current loop is the primary driver of inductance, an 0306 with a smaller current loop has significantly lower ESL than an 0603. The reduction in ESL varies by EIA size, however, ESL is typically reduced 60% or more with an LICC® versus a standard MLCC.

AVX LICC® products are available with a lead termination for high reliability military and aerospace applications that must avoid tin whisker reliability issues.



PERFORMANCE CHARACTERISTICS

Capacitance Tolerances	K = $\pm 10\%$; M = $\pm 20\%$
Operation Temperature Range	X7R = -55°C to +125°C X5R = -55°C to +85°C X7S = -55°C to +125°C
Temperature Coefficient	X7R, X5R = $\pm 15\%$; X7S = $\pm 22\%$
Voltage Ratings	4, 6.3, 10, 16, 25 VDC
Dissipation Factor	4V, 6.3V = 6.5% max; 10V = 5.0% max; 16V = 3.5% max; 25V = 3.0% max
Insulation Resistance (@+25°C, RVDC)	100,000M Ω min, or 1,000M Ω per μ F min., whichever is less

***Not RoHS Compliant**

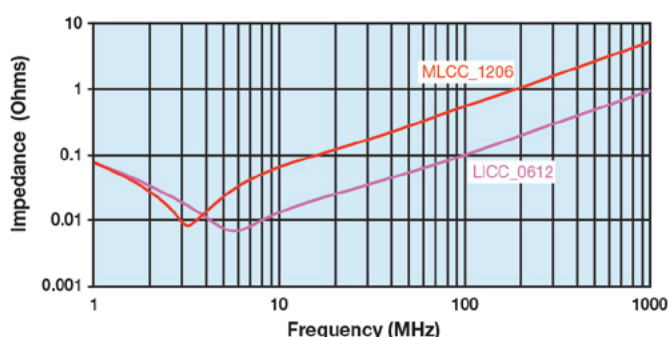
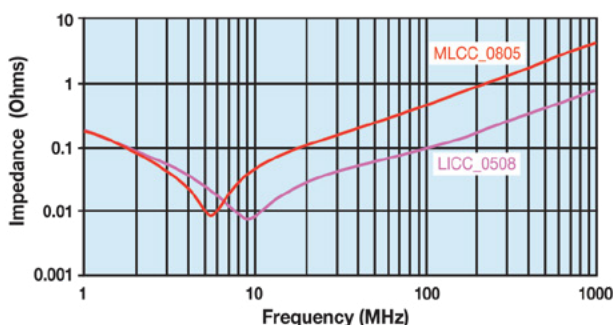
HOW TO ORDER

LD18	Z	D	105	M	A	B	2	A*
Size LD15 = 0204 LD16 = 0306 LD17 = 0508 LD18 = 0612	Voltage 4 = 4V 6 = 6.3V Z = 10V Y = 16V 3 = 25V 5 = 50V	Dielectric C = X7R D = X5R W = X6S Z = X7S	Capacitance Code (In pF) 2 Sig. Digits + Number of Zeros	Capacitance Tolerance K = $\pm 10\%$ M = $\pm 20\%$	Failure Rate A = N/A	Terminations B = 5% min lead	Packaging Available 2 = 7" Reel 4 = 13" Reel	Thickness <u>Thickness</u> mm (in) 0.56 (0.022) 0.76 (0.030) 1.02 (0.040) 1.27 (0.050)

*See the thickness tables on the next page.

NOTE: Contact factory for availability of Termination and Tolerance Options for Specific Part Numbers.

TYPICAL IMPEDANCE CHARACTERISTICS

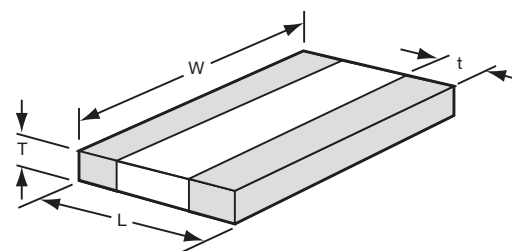


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LD15/LD16/LD17/LD18 Tin-Lead Termination "B"

SIZE		LD15 (0204)				LD16 (0306)					LD17 (0508)					LD18 (0612)				
Packaging		Paper				Paper					Paper/Embossed					Paper/Embossed				
mm (in.)		0.50 ± 0.05 (0.020 ± 0.002)				0.81 ± 0.15 (0.032 ± 0.006)					1.27 ± 0.25 (0.050 ± 0.010)					1.60 ± 0.25 (0.063 ± 0.010)				
Width mm (in.)		1.00 ± 0.05 (0.040 ± 0.002)				1.60 ± 0.15 (0.063 ± 0.006)					2.00 ± 0.25 (0.080 ± 0.010)					3.20 ± 0.25 (0.126 ± 0.010)				
Cap Code	WVDC	4	6.3	10	16	4	6.3	10	16	25	6.3	10	16	25	50	6.3	10	16	25	50
102	Cap 0.001					A	A	A	A	S	S	S	S	V	S	S	S	S	S	V
222	(μF) .0022					A	A	A	A	S	S	S	S	V	S	S	S	S	S	V
332	0.0033					A	A	A	A	S	S	S	S	V	S	S	S	S	S	V
472	0.0047					A	A	A	A	S	S	S	S	V	S	S	S	S	S	V
682	0.0068					A	A	A	A	S	S	S	S	V	S	S	S	S	S	V
103	0.01					A	A	A	A	S	S	S	S	V	S	S	S	S	S	V
153	0.015					A	A	A	A	S	S	S	S	V	S	S	S	S	S	W
223	0.022					A	A	A	A	S	S	S	S	V	S	S	S	S	S	W
333	0.033					A	A	A		S	S	S	V	V	S	S	S	S	S	W
473	0.047					A	A	A		S	S	S	V	A	S	S	S	S	S	W
683	0.068					A	A	A		S	S	S	A	A	S	S	S	S	V	W
104	0.1	C				A	A	A		S	S	V	A	A	S	S	S	S	V	W
154	0.15					A	A			S	S	V			S	S	S	S	W	W
224	0.22					A	A			S	S	A			S	S	V	W		
334	0.33									V	V	A			S	S	V			
474	0.47									V	V	A			S	S	V			
684	0.68									A	A				V	V	W			
105	1					A				A	A				V	V	A			
155	1.5									A					W	W				
225	2.2														A	A				
335	3.3														A					
475	4.7																			
685	6.8																			
106	10																			

PHYSICAL DIMENSIONS AND PAD LAYOUT



PHYSICAL DIMENSIONS MM (IN.)

Size	L	W	t
LD15 (0204)	0.50 ± 0.05 (0.020 ± 0.002)	1.00 ± 0.05 (0.040 ± 0.002)	0.18 ± 0.08 (0.007 ± 0.003)
LD16 (0306)	0.81 ± 0.15 (0.032 ± 0.006)	1.60 ± 0.15 (0.063 ± 0.006)	0.13 min. (0.005 min.)
LD17 (0508)	1.27 ± 0.25 (0.050 ± 0.010)	2.00 ± 0.25 (0.080 ± 0.010)	0.13 min. (0.005 min.)
LD18 (0612)	1.60 ± 0.25 (0.063 ± 0.010)	3.20 ± 0.25 (0.126 ± 0.010)	0.13 min. (0.005 min.)

T - See Range Chart for Thickness and Codes

PAD LAYOUT DIMENSIONS MM (IN.)

Size	A	B	C
LD15 (0204)			
LD16 (0306)	0.31 (0.012)	1.52 (0.060)	0.51 (0.020)
LD17 (0508)	0.51 (0.020)	2.03 (0.080)	0.76 (0.030)
LD18 (0612)	0.76 (0.030)	3.05 (0.120)	0.635 (0.025)

Solid = X7R

= X5R

= X7S

= X6S

mm (in.)	
LD15 (0204)	
Code	Thickness
C	0.35 (0.014)

mm (in.)	
LD16 (0306)	
Code	Thickness
A	0.56 (0.022)

mm (in.)	
LD17 (0508)	
Code	Thickness
S	0.56 (0.022)
V	0.76 (0.030)
A	1.02 (0.040)

mm (in.)	
LD18 (0612)	
Code	Thickness
S	0.56 (0.022)
V	0.76 (0.030)
W	1.02 (0.040)
A	1.27 (0.050)

