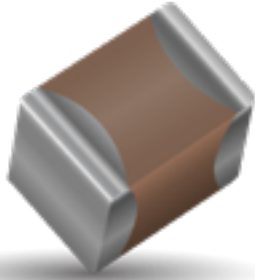


High Voltage MLC Chips, KGM Series

For 600V to 5000V Applications



High value, low leakage and small size are difficult parameters to obtain in capacitors for high voltage systems. KYOCERA AVX special high voltage MLC chip capacitors meet these performance characteristics and are designed for applications such as snubbers in high frequency power converters, resonators in SMPS, and high voltage coupling/dc blocking. These high voltage chip designs exhibit low ESRs at high frequencies.

Larger physical sizes than normally encountered chips are used to make high voltage MLC chip products. Special precautions must be taken in applying these chips in surface mount assemblies. The temperature gradient during heating or cooling cycles should not exceed 4°C per second. The preheat temperature must be within 50°C of the peak temperature reached by the ceramic bodies through the soldering process. Chip sizes 1210 and larger should be reflow soldered only. Capacitors may require protective surface coating to prevent external arcing.

For 1825, 2225 and 3640 sizes, KYOCERA AVX offers leaded version in either thru-hole or SMT configurations (for details see section on high voltage leaded MLC chips)

NEW 630V RANGE

HOW TO ORDER

KGM	05	A	CG	1E	101	M	U
Series	Size	Thickness	Dielectric	Voltage	Capacitance Code Code (in pF)	Capacitance Tolerance	Packaging
General Purpose	21 = 0805	44 = 1825	See Cap Chart	2J = 630V	2 Significant Digits	B = ± 0.1pF(<10pF)*	See Table Below
Tin/Nickel Finish	31 = 1206	55 = 2220	C0G = CG	3A = 1000V	+Number of zeros	C = ± 0.25pF(<10pF)*	
	32 = 1210	56 = 2225	X7R = R7	3N = 1500V	eg. 10µF = 106	D = ± 0.5pF(<10pF)*	
	42 = 1808	91 = 3640		3D = 2000V	10nF = 103	G = ±2%*	
	43 = 1812				47pF = 470	F = ±1%*	
						J = ±5%	
						K = ±10%	
						M = ±20%	



PACKAGING CODES

Code	EIA (inch)	IEC(mm)	7" Paper	7" Embossed	13" Paper	13" Embossed
21	0805	2012		U		L
31	1206	3216		U		L
32	1210	3225		U		L
42	1808	4520		Y		K
43	1812	4532		V		S
44	1825	4564		V		S
55	2220	5750		V		S
56	2225	5763		V		S
91	3640	9110		N/A		N/A

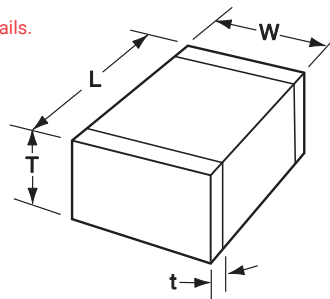
* COG ONLY

Notes:

- Capacitors with X7R dielectrics are not intended for applications across AC supply mains or AC line filtering with polarity reversal. Contact plant for recommendations. Contact factory for availability of Termination and Tolerance options for Specific Part Numbers.
- *Terminations with 5% minimum lead (Pb) is available, see pages 100 and 101 for LD style.
Leaded terminations are available, see pages 102-106.

**The 3640 Style is not available on Reels.

*** KYOCERA AVX offers nonstandard chip sizes. Contact factory for details.



DIMENSIONS: millimeters (inches)

SIZE	0805	1206	1210*	1808*	1812*	1825*	2220*	2225*	3640*
(L) Length	2.10 ± 0.20 (0.083 ± 0.008)	3.30 ± 0.30 (0.130 ± 0.012)	3.30 ± 0.40 (0.130 ± 0.016)	4.60 ± 0.50 (0.181 ± 0.020)	4.60 ± 0.50 (0.181 ± 0.020)	4.60 ± 0.50 (0.181 ± 0.020)	5.70 ± 0.50 (0.224 ± 0.020)	5.70 ± 0.50 (0.224 ± 0.020)	9.14 ± 0.25 (0.360 ± 0.010)
(W) Width	1.25 ± 0.20 (0.049 ± 0.008)	1.60 ± 0.20 (0.063 ± 0.008)	2.50 ± 0.30 (0.098 ± 0.012)	2.00 ± 0.20 (0.079 ± 0.008)	3.20 ± 0.30 (0.126 ± 0.012)	6.30 ± 0.40 (0.248 ± 0.016)	5.00 ± 0.40 (0.197 ± 0.016)	6.30 ± 0.40 (0.248 ± 0.016)	10.2 ± 0.25 (0.400 ± 0.010)
(t) terminal min. max.	0.50 ± 0.20 (0.020 ± 0.008)	0.60 ± 0.20 (0.024 ± 0.008)	0.75 ± 0.35 (0.030 ± 0.014)	0.75 ± 0.35 (0.030 ± 0.014)	0.75 ± 0.35 (0.030 ± 0.014)	0.75 ± 0.35 (0.030 ± 0.014)	0.85 ± 0.35 (0.033 ± 0.014)	0.85 ± 0.35 (0.033 ± 0.014)	0.76 (0.030) 1.52 (0.060)

*Reflow Soldering Only



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at www.kyocera-avx.com/disclaimer/ by reference and should be reviewed in full before placing any order.

TDS-SMDMLCC-0041 | Rev 0

High Voltage MLC Chips, KGM Series

For 600V to 5000V Applications



NP0 (C0G) DIELECTRIC – PERFORMANCE CHARACTERISTICS

Capacitance Range	10 pF to 0.100 μ F (25°C, 1.0 $\pm$ 0.2 Vrms at 1kHz, for $\leq$ 1000 pF use 1 MHz)
Capacitance Tolerances	$\pm$ 5%, $\pm$ 10%, $\pm$ 20%
Dissipation Factor	0.1% max. (+25°C, 1.0 $\pm$ 0.2 Vrms, 1kHz, for $\leq$ 1000 pF use 1 MHz)
Operating Temperature Range	-55°C to +125°C
Temperature Characteristic	0 $\pm$ 30 ppm/°C (0 VDC)
Voltage Ratings	600, 630, 1000, 1500, 2000, 2500, 3000, 4000 & 5000 VDC (+125°C)
Insulation Resistance (+25°C, at 500 VDC)	100K M Ω min. or 1000 M Ω - μ F min., whichever is less
Insulation Resistance (+125°C, at 500 VDC)	10K M Ω min. or 100 M Ω - μ F min., whichever is less
Dielectric Strength	Minimum 120% rated voltage for 5 seconds at 50 mA max. current

NP0 (C0G) CAPACITANCE RANGE

Case Size Soldering		0805		1206				1210				1808				1812												
(L) Length	mm (in.)	Reflow/Wave		Reflow/Wave				Reflow Only				Reflow Only				Reflow Only												
(W) Width	mm (in.)	2.10 ± 0.20 (0.085 ± 0.008)		3.30 ± 0.30 (0.130 ± 0.012)				3.30 ± 0.40 (0.130 ± 0.016)				4.60 ± 0.50 (0.181 ± 0.020)				4.60 ± 0.50 (0.181 ± 0.020)												
(t) Terminal	mm (in.)	1.25 ± 0.20 (0.049 ± 0.008)		1.60 ± 0.30/-0.10 (0.063 ± 0.012/-0.004)				2.50 ± 0.30 (0.098 ± 0.012)				2.00 ± 0.20 (0.079 ± 0.008)				3.20 ± 0.30 (0.126 ± 0.012)												
		0.50 ± 0.20 (0.020 ± 0.008)		0.60 ± 0.20 (0.024 ± 0.008)				0.75 ± 0.35 (0.030 ± 0.014)				0.75 ± 0.35 (0.030 ± 0.014)				0.75 ± 0.35 (0.030 ± 0.014)												
Voltage (V)	Cap (pF) 0.50	630	1000	630	1000	1500	2000	630	1000	1500	2000	3000	630	1000	1500	2000	3000	4000	630	1000	1500	2000	3000	4000				
0R5		Z	A																									
1R0		Z	A																									
1R2		Z	A																									
1R5		Z	A	B	B	B	B																					
1R8		Z	A	B	B	B	B																					
2R2		Z	A	B	B	B	B						A	A		A	A	A										
2R7		Z	A	B	B	B	B						A	A	A	A	A	A										
3R3		Z	A	B	B	B	B						A	A	A	A	A	A										
3R9		Z	A	B	B	B	B						A	A	A	A	A	A										
4R7		Z	A	B	B	B	B						A	A	A	A	A	A										
5R6		Z	A	B	B	B	B						A	A	A	A	A	A										
6R8		Z	A	B	B	B	B						A	A	A	A	A	A										
8R2		Z	A	B	B	B	B						A	A	A	A	A	A										
100		Z	A	D	D	D	D	E	E	E	E	J	A	A	A	A	A	A	B	B	B	B	B	B	E			
120		Z	A	D	D	D	D	E	E	E	E	J	A	A	A	A	A	A	B	B	B	B	B	B	E			
150		Z	A	D	D	D	D	E	E	E	E	J	A	A	A	A	A	A	B	B	B	B	B	B	E			
180		Z	A	D	D	D	D	E	E	E	E	J	A	A	A	A	A	A	B	B	B	B	B	B	E			
220		Z	A	D	D	D	D	E	E	E	E	J	A	A	A	A	A	A	B	B	B	B	B	B	E			
270		Z	A	D	D	D	D	E	E	E	E	J	A	A	A	A	A	A	B	B	B	B	F	B	E			
330		Z	A	D	D	D	D	E	E	E	E	J	A	A	A	A	A	A	C	B	B	B	F	B	E			
390		Z	A	D	D	D	D	E	E	E	E	J	A	A	A	A	A	A	C	B	B	B	F	B	E			
470		Z	A	D	D	D	D	E	E	E	E	J	A	A	A	A	A	A	C	B	B	B	F	B	E			
560		Z	A	D	D	D	D	E	E	E	E	J	A	A	A	A	A	A		B	B	B	F	B	F			
680		Z	A	D	D	D	D	E	E	E	E	J	A	A	A	A	A	A		B	B	B	F	B	F			
820		B	A	D	D	D	D	E	E	E	E	J	A	A	A	A	A	A		B	B	B	F	B	F			
101		B	A	D	D	D	D	E	E	E	E	J	A	A	A	A	A	C		B	B	B	F	B	F			
121		A	A	D	D	A	A	E	E	E	E	J	A	A	A	A	A	C		B	B	B	F	B	J			
151		A	A	D	D	A	A	E	E	H	H	J	A	A	A	C	C	C		B	B	B	F	B	J			
181		A	A	D	A	A	A	E	H	H	H	J	A	A	A	C	C	C		B	B	B	F	B	J			
221		A	A	D	A	A	A	E	H	H	H	J	A	A	A	C	C	C		B	B	B	F	B	J			
271		A	A	D	A	A	A	E	H	H	H	L	A	A	A	C	C	C		B	B	B	F	B	J			
331		A	A	D	A	A	A	E	H	H	H		A	A	A	C	C	C		B	B	B	F	B	J			
391		A	A	D	A	A	A	E	H	H	H		A	A	A	C	C	C		B	B	B	F	B	J			
471		A		D	A	A	A	E	H	H	H		A	A	A	C	C	C		B	B	B	F	B	J			
561		A		D	A			E	H	H	H		A	A	A	C	C	C		B	B	B	F	B	J			
681		A		D	A			E	H	H	H		A	A	A	C	C	C		B	B	B	F	B	J			
751		A		D	A			E	H	H	H		A	A	A	C	C	C		B	B	B	F	B	J			
821		A		D	A			E	H	H	H		A	A	A	C	B	C		B	B	B	F	B	J			
102		A		A	A			E	H	J	J		A	A	C	B	C	C		B	B	B	F	B	J			
122				A				E	H		J		A	A	C	B	C			B	B	B	F	B	J			
152				A				E	J		L		A	A	C	C	C			B	B	B	F	B	J			
182				A				E	L		L		A	A	C	C		C		B	B	B	F	B	J			
222				A				E	L		L		A	A	C	C				B	B	B	F	B	J			
272				A				E	L		L		A	A	C					B	B	B	F	B	J			
332				A				E	L		L		A	A	C					B	B	B	F	B	J			
392				A				E	L		L		A	A	C					B	B	B	F	B	J			
472				A				E	G		G		A	A	C					B	B	B	F	B	J			
562				G				H	G		G		A	A	C					B	B	B	F	B	J			
682				G				H	G		G		A	A	C					B	B	B	F	B	J			
822				G				J	G		G		A	A	C					B	B	B	F	B	J			
103				G				J	L		L		A	A	C					B	B	B	F	B	J			
123								J					A	A	C					B	B	B	F	B	J			
153								L					A	A	C					B	B	B	F	B	J			
183								L					A	A	C					B	B	B	F	B	J			
223								L					A	A	C					B	B	B	F	B	J			
273								L					A	A	C					B	B	B	F	B	J			
333								L					A	A	C					B	B	B	F	B	J			
473													A	A	C					B	B	B	F	B	J			
563													A	A	C					B	B	B	F	B	J			
683													A	A	C					B	B	B	F	B	J			
104													A	A	C					B	B	B	F	B	J			
Voltage (V)		630	1000	630	1000	1500	2000	630	1000	1500	2000	3000	630	1000	1500	2000	3000	4000	630	1000	1500	2000	3000	4000				
Case Size		0805			1206			1210			1808			1812														

Case Size	0805 (KGM 21)			1206 (KGM31)			1210 (KGM32)				1808 (KGM42)			1812 (KGM43)		
Thickness Letter	A	B	Z	A	B	D	E	H	J	L	A	B	C	B	F	J
Max Thickness (mm)	1.45	0.94	0.85	1.80	0.94	1.45	1.45	1.80	2.21	2.80	1.45	1.80	2.21	1.45	2.21	2.80
Carrier Tape	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB
Packaging Code 7"reel	U	U	U	U	U	U	U	U	U	U	Y	Y	Y	V	V	V
Packaging Code 13"reel	L	L	L	L	L	L	L	L	L	L	K	K	K	S	S	S
	Embossed(EMB)															



High Voltage MLC Chips, KGM Series

For 600V to 5000V Applications



NP0 (C0G) CAPACITANCE RANGE

SIZE		1825						2220						2225						3640												
Soldering		Reflow Only						Reflow Only						Reflow Only						Reflow Only												
(L)	mm	4.60 ± 0.50						5.70 ± 0.50						5.70 ± 0.50						9.14 ± 0.25												
Length	(in.)	(0.181 ± 0.020)						(0.224 ± 0.020)						(0.224 ± 0.020)						(0.360 ± 0.010)												
(W)	mm	6.30 ± 0.40						5.00±0.40						6.30 ± 0.40						10.20 ± 0.25												
Width	(in.)	(0.248 ± 0.016)						(0.197±0.016)						(0.248 ± 0.016)						(0.400± 0.010)												
(t)	mm	0.75 ± 0.35						0.85 ± 0.35						0.85 ± 0.35						0.76 (0.030)												
	(in.)	(0.030 ± 0.014)						(0.033 ± 0.014)						(0.033 ± 0.014)						1.52 (0.060)												
Voltage (V)		630	1000	2000	2500	3000	4000	630	1000	1500	2000	2500	3000	4000	5000	630	1000	1500	2000	2500	3000	4000	5000	630	1000	1500	2000	2500	3000	4000	5000	
1R5	Cap (pF)	1.5																														
1R8		1.8																														
2R2		2.2																														
2R7		2.7																														
3R3		3.3																														
3R9		3.9																														
4R7		4.7																														
5R6		5.6																														
6R8		6.8																														
8R2		8.2																														
100		10	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	D									
120		12	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	D									
150		15	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	D									
180		18	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	D									
220		22	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	D									
270		27	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	D									
330		33	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	D									
390		39	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	D									
470		47	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	D	G							A	
560		56	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	D	G							A	
680		68	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	D	G							A	
820		82	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	D	G							A	
101		100	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	G	G			A	A	A	A	A	A
121		120	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	G	G			A	A	A	A	A	A
151		150	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	G	G			A	A	A	A	A	A
181		180	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	D	D	D	D	D	D	D	G	G			A	A	A	A	A	A
221		220	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z	C	D	D	D	D	D	D	G	G			A	A	A	A	A	A
271		270	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z		D	D	D	D	D	D	D	G	G		A	A	A	A	A	A
331		330	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z		D	D	D	D	D	D	D				A	A	A	A	A	A
391		390	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z		D	D	D	D	D	D	D				A	A	A	A	A	A
471		470	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z		D	D	D	D	D	D	D				A	A	A	A	A	A
561		560	C	C	C	C	C	C	Z	Z	Z	Z	Z	Z	Z		D	D	D	D	D	D	D				A	A	A	A	A	A
681		680	C	C	C	C	F	F	Z	Z	Z	Z	Z	Z	Z		D	D	D	D	D	D	D				A	A	A	A	A	A
751		750	C	C	C	F	F	F	Z	Z	Z	Z	Z	Z	Z		D	D	D	D	D	D	D				A	A	A	A	A	A
821		820	C	C	C	F	F	F	Z	Z	Z	Z	Z	Z	Z		D	D	D	D	D	D	D				A	A	A	A	A	A
102		1000	C	C	C	F	F	F	Z	Z	Z	Z	Z	Z	Z		D	D	D	D	C	D				A	A	A	A	A	A	
122		1200	C	C	C	F			Z	Z	Z	Z	C	C			D	D	D	D	D	D				A	A	A	A	A	A	A
152		1500	C	C	F	F			Z	Z	Z	Z	C	C			D	D	D	D	D	D				A	A	A	A	A	A	
182		1800	C	C	F	F			Z	Z	Z	Z					D	D	D	D	G	G				A	A	A	A	A	A	
222		2200	C	C	F				Z	Z	C	C					D	D	D	D						A	A	A	A	A	A	
272		2700	C	C	F				Z	Z	C	C					D	D	D	D						A	A	A	A	A	A	
332		3300	C	C	F				Z	Z	C	C					D	D	D	D						A	A	A	A	A		
392		3900	C	C	F				Z	Z	C	C					D	D	G	G						A	A	A	A	A	A	
472		4700	C	C	F				Z	Z	C	C					D	D	G	G						A	A	A	A			
562		5600	C	C					Z	Z	C						D	D	G	G						A	A	A	A			
682		6800	C	C					Z	Z							D	D	G	G						A	A	A	A			
822		8200	C	F					C	C							G	G								A	A	A				
103	Cap (μF)	0.010	C	F					D	D							G	G								A	A	A				
123		0.012	C	F													G									A	A					
153		0.015	C														G									A	A					
183		0.018	C														G									A	A					
223		0.022	C														G									A	A					
273		0.027	C														G									A						
333		0.033	C														G									A						
393		0.039	F														G									A						
473		0.047															G									A						
563		0.056															G															
683		0.068															G															
104		0.100																														
Voltage (V)		630	1000	2000	2500	3000	4000	630	1000	1500	2000	2500	3000	4000	5000	630	1000	1500	2000	2500	3000	4000	5000	630	1000	1500	2000	2500	3000	4000	5000	
Case Size		1825						2220						2225						3640												

High Voltage MLC Chips, KGM Series

For 600V to 5000V Applications



X7R Dielectric

Performance Characteristics

Capacitance Range	10 pF to 0.82 μ F (25°C, 1.0 $\pm$ 0.2 Vrms at 1kHz)
Capacitance Tolerances	$\pm$ 10%; $\pm$ 20%; +80%, -20%
Dissipation Factor	2.5% max. (+25°C, 1.0 $\pm$ 0.2 Vrms, 1kHz)
Operating Temperature Range	-55°C to +125°C
Temperature Characteristic	$\pm$ 15% (0 VDC)
Voltage Ratings	600, 630, 1000, 1500, 2000, 2500, 3000, 4000 & 5000 VDC (+125°C)
Insulation Resistance (+25°C, at 500 VDC)	100K M Ω min. or 1000 M Ω - μ F min., whichever is less
Insulation Resistance (+125°C, at 500 VDC)	10K M Ω min. or 100 M Ω - μ F min., whichever is less
Dielectric Strength	Minimum 120% rated voltage for 5 seconds at 50 mA max. current

X7R CAPACITANCE RANGE

Case Size		0805				1206				1210				1808				1812			
Soldering		Reflow/Wave				Reflow/Wave				Reflow Only				Reflow Only				Reflow Only			
(L) Length	mm (in.)	2.10 $\pm$ 0.20 (0.085 $\pm$ 0.008)				3.30 $\pm$ 0.30 (0.130 $\pm$ 0.012)				3.30 $\pm$ 0.40 (0.130 $\pm$ 0.016)				4.60 $\pm$ 0.50 (0.181 $\pm$ 0.020)				4.60 $\pm$ 0.50 (0.181 $\pm$ 0.020)			
(W) Width	mm (in.)	1.25 $\pm$ 0.20 (0.049 $\pm$ 0.008)				1.60 $\pm$ 0.30/-0.10 (0.063 $\pm$ 0.012/-0.004)				2.50 $\pm$ 0.30 (0.098 $\pm$ 0.012)				2.00 $\pm$ 0.20 (0.079 $\pm$ 0.008)				3.20 $\pm$ 0.30 (0.126 $\pm$ 0.012)			
(t) Terminal	mm max	0.50 $\pm$ 0.20 (0.020 $\pm$ 0.008)				0.60 $\pm$ 0.20 (0.024 $\pm$ 0.008)				0.75 $\pm$ 0.35 (0.030 $\pm$ 0.014)				0.75 $\pm$ 0.35 (0.030 $\pm$ 0.014)				0.75 $\pm$ 0.35 (0.030 $\pm$ 0.014)			
Voltage (V)		600	630	600	630	1000	2000	600	630	1000	2000	600	630	1000	1500	2000	600	630	1000	1500	2000
Cap (pF)	100	101	X	X	C	C	E	E	E	E	E	E	E								
	120	121	X	X	C	C	E	E	E	E	E	E	E								
	150	151	X	X	C	C	E	E	E	E	E	E	E								
	180	181	X	X	C	C	E	E	E	E	E	E	E								
	220	221	X	X	C	C	E	E	E	E	E	E	E								
	270	271	X	X	C	C	E	E	E	E	E	E	E					E	E	E	E
	330	331	X	X	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	390	391	X	X	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	470	471	X	X	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	560	561	X	X	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	680	681	X	X	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	750	751	X	X	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	820	821	X	X	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	1000	102	X	X	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	1200	122	X	X	C	C	E	E	E	E	E	E	E	E	E	E	F	F	F	F	F
	1500	152	X	X	C	C	E	E	E	E	E	E	E	E	E	E	F	F	F	F	F
	1800	182	X	X	C	C	E	E	E	E	E	E	E	E	E	E	F	F	F	F	F
	2200	222	X	X	C	C	E	E	E	E	E	E	E	E	F	F	F	F	F	F	F
	2700	272	C	C	C	C	E		E	E	E	E	E	E	F	F	F	F	F	F	F
	3300	332	C	C	C	C	E		E	E	E	E	E	E	F	F	F	F	F	F	F
	3900	392	C	C	C	C	E		E	E	E	E	E	E	F		F	F	F	F	F
	4700	472	C	C	C	C	E		E	E	E	E	E	F			F	F	F	F	F
	5600	562	C	C	C	C	E		E	E	E	E	E	F			F	F	F	G	G
	6800	682	C	C	C	C	E		E	E	E	E	E	F			F	F	F	G	G
	8200	822	C	C	C	C	E		E	E	E	E	E				F	F	F	G	G
Cap (μ F)	0.010	103	C	C	C	C	E		E	E	E	E	E				F	F	F	G	G
	0.015	153	C	C	E	E	E		E	E	E	E	F	F	F		F	F	F	G	
	0.018	183	C	C	E	E			E	E	E	E	F	F	F		F	F	G		
	0.022	223	C	C	E	E			E	E	F		F	F	F		F	F	G		
	0.027	273			E	E			E	E			F	F			F	F	G		
	0.033	333			E	E			E	E			F	F			F	F	G		
	0.039	393							E	E			F	F			F	F	G		
	0.047	473							E	E			F	F			F	F	G		
	0.056	563							F	F			F	F			F	F			
	0.068	683							F	F			F	F			F	F			
	0.082	823							F	F							F	F			
	0.100	104							F	F							F	F			
	0.150	154															G	G			
	0.220	224															G	G			
	0.270	274																			
	0.330	334																			
	0.390	394																			
	0.470	474																			
	0.560	564																			
	0.680	684																			
	0.820	824																			
	1.000	105																			
Voltage (V)		600	630	600	630	1000	2000	600	630	1000	2000	600	630	1000	1500	2000	600	630	1000	1500	2000
Case Size		0805				1206				1210				1808				1812			

Case Size	0805 (KGM 21)		1206 (KGM31)		1210 (KGM32)			1808 (KGM42)		1812 (KGM43)		
Thickness Letter	A	B	A	D	H	J	L	B	C	E	F	J
Max Thickness (mm)	1.45	0.94	1.80	1.45	1.80	2.21	2.80	1.80	2.21	1.80	2.21	2.80
Carrier Tape	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB
Packaging Code 7" reel	U	U	U	U	U	U	U	Y	Y	V	V	V
Packaging Code 13" reel	L	L	L	L	L	L	L	K	K	S	S	S
Embossed(EMB)												

High Voltage MLC Chips, KGM Series

For 600V to 5000V Applications



X7R CAPACITANCE RANGE

Case Size		1825						2220						2225						3640						
Soldering		Reflow Only						Reflow Only						Reflow Only						Reflow Only						
(L) Length	mm	4.60 ± 0.50						5.70 ± 0.50						5.70 ± 0.50						9.14 ± 0.25						
	(in.)	(0.181 ± 0.020)						(0.224 ± 0.020)						(0.224 ± 0.020)						(0.360 ± 0.010)						
(W) Width	mm	6.30 ± 0.40						5.00 ± 0.40						6.30 ± 0.40						10.2 ± 0.25						
	(in.)	(0.248 ± 0.016)						(0.197 ± 0.016)						(0.248 ± 0.016)						(0.400 ± 0.010)						
(t) Terminal	mm	0.75 ± 0.35						0.85 ± 0.35						0.85 ± 0.35						0.76 (0.030)						
	max	(0.030 ± 0.014)						(0.033 ± 0.014)						(0.033 ± 0.014)						1.52 (0.060)						
Voltage (V)		600	630	1000	1500	2000	2500	600	630	1000	1500	2000	2500	600	630	1000	1500	2000	2500	600	630	1000	1500	2000	2500	3000
101	Cap(pF)100																									
121	120																									
151	150																									
181	180																									
221	220																									
271	270																									
331	330																									
391	390																									
471	470																									
561	560																									
681	680																									
751	750																									
821	820																									
102	1000	C	C	C	C	C	C	Z	Z	Z	Z	Z	C	D	D	D	D	D	D	A	A	A	A	A	A	A
122	1200	C	C	C	C	C	C	Z	Z	Z	Z	Z	C	D	D	D	D	D	D	A	A	A	A	A	A	A
152	1500	C	C	C	C	C	C	Z	Z	Z	Z	Z	C	D	D	D	D	D	D	A	A	A	A	A	A	A
182	1800	C	C	C	C	C	C	Z	Z	Z	Z	Z	C	D	D	D	D	D	D	A	A	A	A	A	A	A
222	200	C	C	C	C	C	C	Z	Z	Z	Z	Z	C	D	D	D	D	D	D	A	A	A	A	A	A	A
272	2700	C	C	C	C	C	C	Z	Z	Z	Z	Z	C	D	D	D	D	D	D	A	A	A	A	A	A	A
332	3300	C	C	C	C	C	C	Z	Z	Z	Z	Z	C	D	D	D	D	D	D	A	A	A	A	A	A	A
392	3900	C	C	C	C	C	C	Z	Z	Z	Z	Z	C	D	D	D	D	D	D	A	A	A	A	A	A	A
472	4700	C	C	C	C	C	C	Z	Z	Z	Z	Z	C	D	D	D	D	D	D	A	A	A	A	A	A	A
562	5600	C	C	C	C	F	F	Z	Z	Z	Z	Z	C	D	D	D	D	G	G	A	A	A	A	A	A	A
682	6800	C	C	F	F	F	F	Z	Z	Z	Z	C	C	D	D	D	D	G	G	A	A	A	A	A	A	A
822	8200	C	C	F	F	F	F	Z	Z	C	C	C	C	D	D	D	D	G	G	A	A	A	A	A	A	A
103	Cap(μF) 0010	C	C	F	F	F	F	Z	Z	C	C	C	C	D	D	D	D	G	G	A	A	A	A	A	A	A
153	0015	C	C	F	F	F	F	Z	Z	C	C	C	C	D	D	G	G	G	H	A	A	A	A	A	A	A
183	0018	C	C	F	F			Z	Z	C	D	C		D	D	G	G	G	G	A	A	A	A	A	A	A
223	0022	C	C	F	F			Z	Z	C	D			D	D	G	G	G	G	A	A	A	A	A	A	A
273	0027	C	C	F				Z	Z	C	D			D	D	G	G	G		A	A	A	A	A	A	A
333	0033	C	C	F				Z	Z	D				D	D	G	G	G		A	A	A	A	A	A	A
393	0039	C	C	F				Z	Z	D				D	D	G	G	G		A	A	A	A	A	A	A
473	0047	C	C	F				Z	Z	D				D	D	G	G	G		A	A	A	A	A	A	A
563	0056	C	C	F				Z	Z	D				D	D	H	H	H		A	A	A	A	A	A	A
683	0068	C	F					Z	C					D	D	H	H	H		A	A	A	A	A	A	A
823	0082	C	F					Z	C					D	G					A						
104	0100	C	F					Z	C					D	G					A						
154	0150	C						Z	D					D	H					A						
224	0220	C						Z	D					D						A						
274	0270	C						Z						D						A						
334	0330	C						Z						D						A						
394	0390	C						Z						D						A						
474	0470	C						Z						D						A						
564	0560	F						C						D						A						
684	0680							C						G												
824	0820													G												
105	1000																									
Voltage (V)		600	630	1000	1500	2000	2500	600	630	1000	1500	2000	2500	600	630	1000	1500	2000	2500	600	630	1000	1500	2000	2500	3000
Case Size		1825						2220						2225						3640						

Case Size	1825 (KGM 44)		2220 (KGM55)			2225 (KGM56)			3640 (KGM91)
Thickness Letter	C	F	C	D	Z	D	G	H	A
Max Thickness (mm)	2.21	2.80	2.80	3.30	2.21	2.21	2.80	3.3	2.80
Carrier Tape	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB
Packaging Code 7"reel	V	V	V	V	V	V	V	V	N/A
Packaging Code 13"reel	S	S	S	S	S	S	S	S	N/A
Embossed(EMB)									



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