

High Voltage MLC Chips

For 600V to 5000V Applications

X7R Dielectric

Performance Characteristics

Capacitance Range	10 pF to 0.82 μF (25°C, 1.0 ±0.2 Vrms at 1kHz)
Capacitance Tolerances	±10%; ±20%; +80%, -20%
Dissipation Factor	2.5% max. (+25°C, 1.0 ±0.2 Vrms, 1kHz)
Operating Temperature Range	-55°C to +125°C
Temperature Characteristic	±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 MΩ min. or 1000 MΩ - μF min., whichever is less
Insulation Resistance (+125°C, at 500 VDC)	10K MΩ min. or 100 MΩ - μF min., whichever is less
Dielectric Strength	Minimum 120% rated voltage for 5 seconds at 50 mA max. current

X7R CAPACITANCE RANGE – PREFERRED SIZES ARE SHADED

Case Size Soldering	0805			1206					1210					1808								1812							
	Reflow/Wave			Reflow/Wave					Reflow Only					Reflow Only								Reflow Only							
(L) Length	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 (0.177 ±0.012)							
W) Width	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 ±0.008)							
(T) Thickness	1.35 (0.053)			1.80 (0.071)					2.80 (0.110)					2.20 (0.087)								2.80 (0.100)							
(t) Terminal	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)	600	630	1000	600	630	1000	1500	2000	600	630	1000	1500	2000	600	630	1000	1500	2000	2500	3000	4000	600	630	1000	1500	2000	2500	3000	4000
Cap (pF) 100	101	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
120	121	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
150	151	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
180	181	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
220	221	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
270	271	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
330	331	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
390	391	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
470	471	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
560	561	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
680	681	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
750	751	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
820	821	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
1000	102	X	X	X	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
1200	122	X	X	X	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
1500	152	X	X	X	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
1800	182	X	X	C	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
2200	222	X	X	X	C	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
2700	272	C	C		C	C	E	E		E	E	E	F	E	E	E	E	F	F			F	F	F	F	F	G	G	
3300	332	C	C		C	C	E			E	E	E	F	E	E	E	E	F	F			F	F	F	F	F	G	G	
3900	392	C	C		C	C	E			E	E	E	F			E	E	E	F			F	F	F	F	F	G	G	
4700	472	C	C		C	C	E			E	E	E	F			E	E	E	F			F	F	F	F	F	G	G	
5600	562	C	C		C	C	E			E	E	E	F			E	E	E	F			F	F	F	F	G	G	G	
6800	682	C	C		C	C	E			E	E	E				E	E	E	F			F	F	F	G	G			
8200	822	C	C		C	C	E			E	E	E				E	E	E				F	F	F	G	G			
Cap (μF) 0.010	103	C	C		C	C	E			E	E	E				E	E	E				F	F	F	G	G			
0.015	153	C	C		E	E	E			E	E	E				F	F	F				F	F	F	G				
0.018	183	C	C		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					E	E					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	1000	600	630	1000	1500	2000	600	630	1000	1500	2000	600	630	1000	1500	2000	2500	3000	4000	600	630	1000	1500	2000	2500	3000	4000
Case Size	0805			1206					1210					1808								1812							

Letter	A	C	E	F	G	X	7
Max. Thickness	0.813 (0.032)	1.448 (0.057)	1.8034 (0.071)	2.2098 (0.087)	2.794 (0.110)	0.940 (0.037)	3.30 (0.130)

NOTE: Contact factory for non-specified capacitance values

High Voltage MLC Chips

For 600V to 5000V Applications



X7R CAPACITANCE RANGE

PREFERRED SIZES ARE SHADED

Case Size	1825								2220								2225								3640										
Soldering	Reflow Only								Reflow Only								Reflow Only								Reflow Only										
(L) Length	4.60 ± 0.50 (0.181 ± 0.020)								5.70 ± 0.50 (0.224 ± 0.020)								5.70 ± 0.50 (0.225 ± 0.010)								9.14 ± 0.25 (0.360 ± 0.010)										
(W) Width	6.30 ± 0.40 (0.248 ± 0.016)								5.00 ± 0.40 (0.197 ± 0.016)								6.30 ± 0.40 (0.250 ± 0.010)								10.2 ± 0.25 (0.400 ± 0.010)										
(T) Thickness	3.40 (0.134)								3.40 (0.134)								3.40 (0.100)								2.54 (0.100)										
(t) Terminal max	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)										
Voltage (V)	600	630	1000	1500	2000	2500	3000	4000	600	630	1000	1500	2000	2500	3000	4000	5000	600	630	1000	1500	2000	2500	3000	4000	5000	600	630	1000	1500	2000	2500	3000	4000	5000
Cap (pF)	100	101																																	
120	121																																		
150	151																																		
180	181																																		
220	221																																		
270	271																																		
330	331																																		
390	391																																		
470	471																																		
560	561																																		
680	681																																		
750	751																																		
820	821																																		
1000	102	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	F	F	F	F	F	F	F	G	G	G	G	G	G	G	G	G	
1200	122	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	F	F	F	F	F	F	F	G	G	G	G	G	G	G	G	G	
1500	152	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	F	F	F	F	F	F	F	G	G	G	G	G	G	G	G	G	
1800	182	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	F	F	F	F	F	F	F	G	G	G	G	G	G	G	G	G	
2200	222	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	F	F	F	F	F	F	F	G	G	G	G	G	G	G	G	G	
2700	272	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	F	F	F	F	F	F	F	G	G	G	G	G	G	G	G	G	
3300	332	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	F	F	F	F	F	F	F	G	G	G	G	G	G	G	G	G	
3900	392	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	F	F	F	F	F	F	F	G	G	G	G	G	G	G	G	G	
4700	472	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	F	F	F	F	F	F	F	G	G	G	G	G	G	G	G	G	
5600	562	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	F	F	F	F	F	F	F	G	G	G	G	G	G	G	G	G	
6800	682	F	F	F	G	G	G	G	F	F	F	F	F	G	G	F	F	F	F	F	G	G	G	G	G	G	G	G	G	G	G	G	G		
8200	822	F	F	F	G	G	G	G	F	F	F	G	G	G	G	F	F	F	F	F	G	G	G	G	G	G	G	G	G	G	G	G	G		
Cap (uF)	0.010	103	F	F	F	G	G	G	F	F	F	G	G	G	F	F	F	F	F	G	G	G	G	G	G	G	G	G	G	G	G	G			
0.015	153	F	F	F	G	G	G		F	F	F	G	G	G	F	F	F	G	G	G	G	G	G	G	G	G	G	G	G	G	G				
0.018	183	F	F	F	G	G			F	F	F	G	G	G	F	F	F	G	G	G	G	G	G	G	G	G	G	G	G	G					
0.022	223	F	F	F	G	G			F	F	F	G	G		F	F	F	G	G	G	G	G	G	G	G	G									
0.027	273	F	F	F	G				F	F	F	G	G		F	F	F	G	G		G	G	G	G	G	G									
0.033	333	F	F	F	G				F	F	F	G			F	F	F	G	G		G	G	G	G											
0.039	393	F	F	F	G				F	F	F	G			F	F	F	G		G	G	G	G												
0.047	473	F	F	F	P				F	F	F	G			F	F	F	G		G	G	G	G												
0.056	563	F	F	F	G				F	F	F	G			F	F	F	G		G	G	G	G												
0.068	683	F	F	G					F	F	G				F	F	F	G		G	G	G	G												
0.082	823	F	F	G					F	F	G				F	F	G			G	G														
0.100	104	F	F	G					F	F	G				F	F	G			G	G														
0.150	154	F	F						F	F	G				F	F	G			G	G														
0.220	224	F	F						F	F	G				F	F				G	G														
0.270	274	F	F						F	F					F	F				G	G														
0.330	334	F	F						F	F					F	F				G	G														
0.390	394	F	F						F	F					F	F				G	G														
0.470	474	F	F						F	F					F	F				G	G														
0.560	564	G	G						G	G					F	F				G	G														
0.680	684								G	G					G	G																			
0.820	824														G	G																			
1.000	105														G	G																			
Voltage (V)	600	630	1000	1500	2000	2500	3000	4000	600	630	1000	1500	2000	2500	3000	4000	5000	600	630	1000	1500	2000	2500	3000	4000	5000	600	630	1000	1500	2000	2500	3000	4000	5000
Case Size	1825								2220								2225								3640										

Letter	A	C	E	F	G	X	7
Max. Thickness	0.813 (0.032)	1.448 (0.057)	1.8034 (0.071)	2.2098 (0.087)	2.794 (0.110)	0.940 (0.037)	3.30 (0.130)

NOTE: Contact factory for non-specified capacitance values

Mouser Electronics

Authorized Distributor

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AVX:

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[1210AC103KAJ1A](#) [1210CC102KAJ1A](#) [1808AC102MAJ1A](#) [1808CC153KBT9A](#) [1812AC103JAJ1A](#) [1812CC102KAJ1A](#)
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[2220CC224KAJ1A](#) [2225CC334KAJ1A](#) [1206SC182KAJ1A](#) [1206AC102MAJ1A](#) [1206CC102MAJ1A](#)
[1206CC332KAJ1A](#) [1206GC102MAJ1A](#) [1210AC272KAJ1A](#) [1210CC272KAJ1A](#) [1210CC563KAJ1A](#)
[1210CC563MAJ1A](#) [1206AC152KAJ1A](#) [1206AC561KAJ1A](#) [1206CC152KAJ1A](#) [1206CC223KAJ1A](#) [1210AC512KAJ1A](#)
[1206AC221KAJ1A](#) [1206CC103JAJ1A](#) [1206GC221KAJ1A](#) [1210AC822KAJ1A](#) [1206AC272KAJ1A](#)
[1210CC473KAJ1A](#) [1808CC153KAJ1A](#) [1812CC683KAJ1A](#) [2220AC223KAJ1A](#) [2220CC223KAJ1A](#) [1808AC152KAJ1A](#)
[1812CC124KAJ1A](#) [1825AC272KAJ3A](#) [1825CC154KAJ3A](#) [1825CC224KAJ1A](#) [2220AC104KAJ1A](#)
[2220CC154KAJ1A](#) [2225AC104MAJ1A](#) [2225CC154KAJ1A](#) [2225CC154MAJ1A](#) [1210CC273KAJ1A](#) [1210CC223KAJ1A](#)
[1812CC563KAJ1A](#) [1812VA223JAT2A](#) [1812VA333JAT2A](#) [1812VA473JAT2A](#)

Kyocera AVX:

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[1206AA470KAT1A](#) [1206AA471JAT1A](#) [1206AC102KAT1A](#) [1206AC222KAT1A](#) [1206AC272KAT1A](#) [1206AC392KAT1A](#)
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[1206CC102KAT1A](#) [1206CC102MAT1A](#) [1206CC103KAT1A](#) [1206CC153KAT1A](#) [1206CC153MAT1A](#)
[1206CC271KAT1A](#) [1206CC471KAT1A](#) [1206CC472KBT1A](#) [1206CC822KAT1A](#) [1206GA220JAT1A](#)
[1206GA330KAT1A](#) [1206GC101KAT1A](#) [1206GC101MAT1A](#) [1206GC102KAT1A](#) [1206GC221KAT1A](#)
[1206GC471KA11A](#) [1206GC471KAT1A](#) [1206GC471MAT1A](#) [1206JA102KAT2A](#) [1206SA101JAT1A](#) [1206SA390JAT1A](#)
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[1808AA330KAT1A](#) [1808AA331KAT1A](#) [1808AA331KAT2A](#) [1808AA560JAT1A](#) [1808AA680KAT1A](#) [1808AC102KAT1A](#)
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[1808GC102KAT1A](#) [1808GC102MAT1A](#) [1808GC152KA11A](#) [1808GC152KAT1A](#) [1808GC152KAT3A](#)
[1808GC152MAT1A](#)