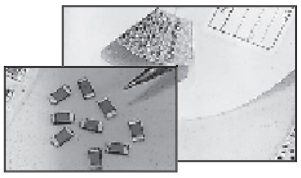
Multilayer Ceramic Chip Capacitors

FEATURES

- CLASS II DIELECTRIC, TEMPERATURE STABLE
- EXCELLENT FREQUENCY CHARACTERISTICS, NON-LINEAR CAPACITANCE CHANGE
- HIGHER CAPACITANCE THAN NPO
- NICKEL BARRIER TERMINATIONS AND EXCELLENT MECHANICAL STRENGTH
- EIA MARKING AVAILABLE



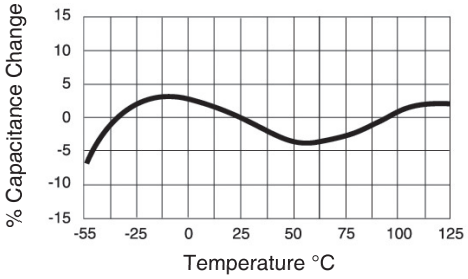
RoHS Compliant

includes all homogeneous materials

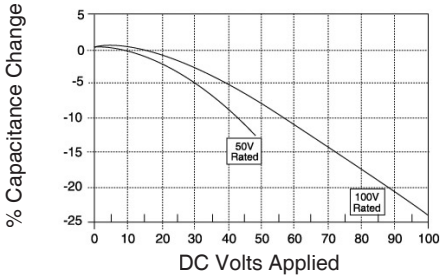
*See Part Number System for Details

Capacitance Range	470pF ~ 0.82µF (see high CV datasheet for higher capacitance values)
Capacitance Tolerance	±5% (J), ±10% (K), ±20% (M)
Operating Temperature Range	-55°C ~ +125°C
Temperature Characteristics	±15%Δ max. over temperature range (with 0 Vdc applied)
Rated Voltages	16Vdc, 25Vdc, 35Vdc, 50Vdc (see NMC-H Series for higher voltages)
Dissipation Factor	2.5% max. (50Vdc, 100Vdc); 3.5% max. (16Vdc, 25Vdc) 5% max. (10Vdc) @ 1.0Vrms and 1KHz, +25°C
insulation Resistance	100Gigohms min. or 1000Megohm/µF min. whichever is less @ +25°C
Dielectric Withstanding Voltage	250% of Rated Voltage for 5 ±1 seconds, 50mA maximum current
Test Conditions (EIA-198-2E)	1KHz, 1.0V ±0.2Vrms

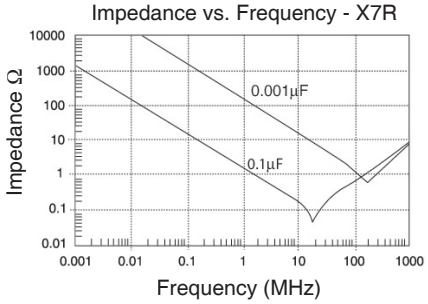
Typical X7R Temperature Coefficient



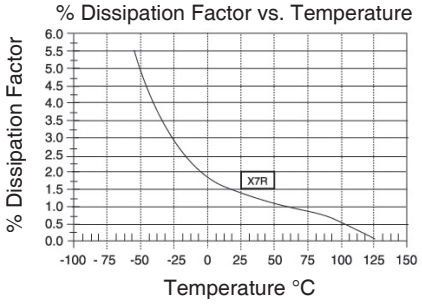
Voltage Coefficient of Capacitance - X7R



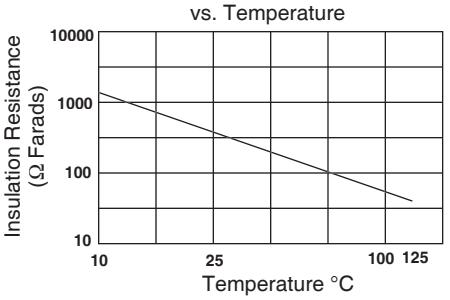
Impedance vs. Frequency - X7R



% Dissipation Factor vs. Temperature



Minimum Insulation Resistance vs. Temperature



PART NUMBER SYSTEM

NMC 0805 X7R 102 K 50 TRP or TRPLP 3K F

- F — RoHS Compliant
- 3K — Optional Reel Qty (3K=3,000pcs)
- TRPLP — Tape & Reel (Embossed Plastic Carrier)
- TRP — Tape & Reel (Paper carrier)
- 50 — Voltage (Vdc)
- K — Capacitance Tolerance Code (see chart)
- 102 — Capacitance Code, expressed in pF, first 2 digits are significant, 3rd digit is no. of zeros, "R" indicates decimal for under 10pF
- X7R — Temperature Characteristic
- 0805 — Size Code (see chart)
- NMC — Series

X7R CAPACITOR SIZE CHART (mm)

EIA Case Size	0201			0402				0603					0805				
Length (L)	0.6±0.03			1.0±0.05				1.6±0.15					2.0±0.2				
Width (W)	0.3±0.03			0.5±0.05				0.8±0.15					1.25±0.2				
Thickness max. (T)	0.3±0.03			0.6				1.0					1.35				
Termination Width (P)	0.15±0.05			0.2±0.1				0.12 ~ 0.51					0.25 ~ 0.71				
Capacitance	Working Voltage (Vdc)																
	16	25	50	10	16	25	50	10	16	25	50	100	10	16	25	50	100
47pF ~ 91pF																	
100pF ~ 470pF																	
510pF																	
560pF																	
620pF																	
680pF																	
750pF																	
820pF																	
910pF																	
0.001µF																	
0.0012µF																	
0.0015µF																	
0.0018µF																	
0.0022µF																	
0.0027µF																	
0.0030µF																	
0.0033µF																	
0.0039µF																	
0.0047µF																	
0.0056µF																	
0.0068µF																	
0.0075µF																	
0.0082µF																	
0.01µF																	
0.012µF																	
0.015µF																	
0.018µF																	
0.022µF																	
0.033µF																	
0.039µF																	
0.047µF																	
0.056µF																	
0.068µF																	
0.082µF																	
0.1µF																	*
0.15µF														*	*	*	
0.18µF														*	*	*	
0.22µF														*	*	*	
0.33µF														*	*		
0.39µF														*	*		
0.47µF														*	*		
0.56µF														*	*		
0.68µF														*	*		
0.82µF													*	*	*		

*1.45mm maximum thickness

See NMC High CV series for values above 0.82µF

X7R CAPACITOR SIZE CHART (mm)

EIA Case Size	1206						1210						1812					2225		
Length (L)	3.2±0.2						3.2±0.2						4.5±0.3					5.7±0.4		
Width (W)	1.6±0.2						2.5±0.2						3.2±0.25					6.35±0.25		
Thickness max. (T)	1.80						1.80						1.8					1.80		
Termination Width (P)	0.25 ~ 0.71						0.25~0.75						0.25 ~ 0.75					0.25 ~ 1.02		
Capacitance	Working Voltage (Vdc)																			
	6.3	10	16	25	50	100	10	16	25	35	50	100	10	16	25	50	100	25	50	100
150pF ~ 910pF																				
0.001																				
0.0012µF																				
0.0015µF																				
0.0018µF																				
0.0022µF																				
0.0027µF																				
0.0033µF																				
0.0036µF																				
0.0039µF																				
0.0043µF																				
0.0047µF																				
0.0056µF																				
0.0068µF																				
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0.47µF																				
0.56µF																				
0.68µF																				
0.82µF																*	*			

* 2.20mm maximum thickness

See NMC High CV series for values above 0.82µF