

# Multilayer Ceramic Chip Capacitors

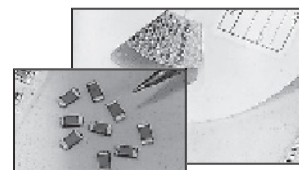
NMC Series X7R

## FEATURES

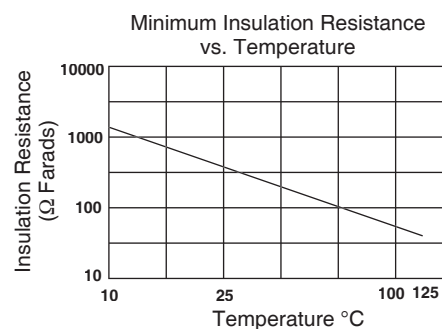
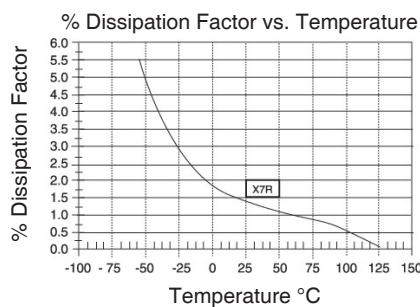
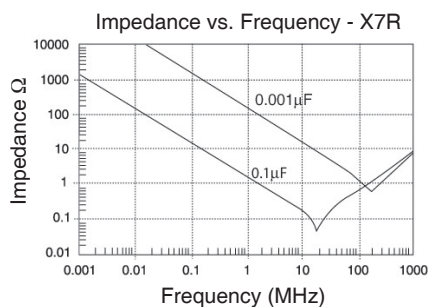
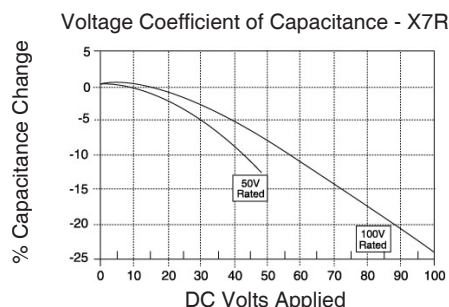
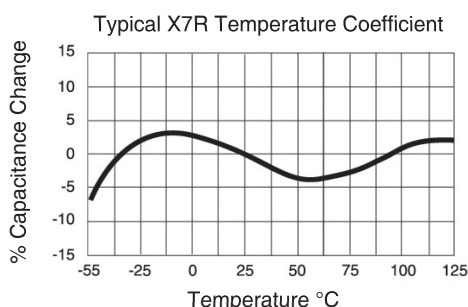
- CLASS II DIELECTRIC, TEMPERATURE STABLE
- EXCELLENT FREQUENCY CHARACTERISTICS, NON-LINEAR CAPACITANCE CHANGE
- HIGHER CAPACITANCE THAN NPO
- NICKEL BARRIER TERMINATIONS AND EXCELLENT MECHANICAL STRENGTH
- EIA MARKING AVAILABLE

**RoHS Compliant**  
includes all homogeneous materials

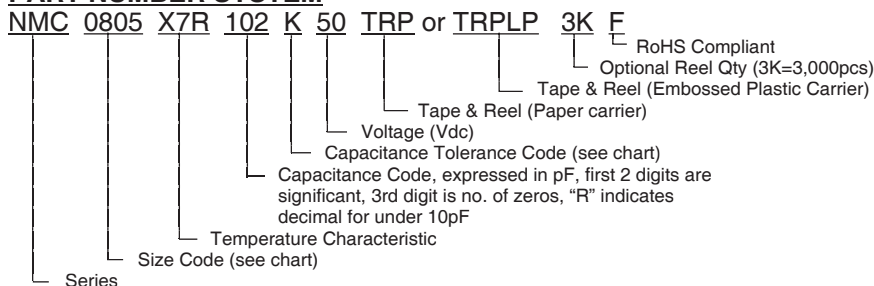
\*See Part Number System for Details



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



## PART NUMBER SYSTEM



**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																								
0.0075µF																								
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0.68µF																								
0.82µF																			*	*				

\* 2.20mm maximum thickness

**See NMC High CV series for values above 0.82µF**