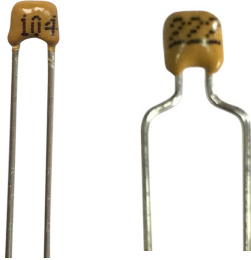


# Ceramic Multilayer Capacitors - Leaded

**multicomp** PRO

**RoHS  
Compliant**



## Description

Our Radial Leaded, Epoxy dipped Multilayer Ceramic Capacitors are built by Superior moisture and shock resistant epoxy coating can be supplied in bulk or taped & reel Package for automatic insertion in PCB. These capacitors have wide applications in computer, data processing, telecommunication, industrial control and instrumentation equipment, etc.

## Electrical Specifications

Capacitance Range : 47pF to 0.1uF  
Capacitance Tolerance : (Standard)  
NP0 : J =  $\pm 5\%$   
X7R : K =  $\pm 10\%$   
Y5V : M =  $\pm 20\%$

Working Voltage : 50V DC, 100V DC

## Temperature Characteristic:

NP0 : 0  $\pm 30$  ppm $^{\circ}\text{C}$ , -55 $^{\circ}\text{C}$  to +125 $^{\circ}\text{C}$   
X7R :  $\pm 15\%$   $\Delta\text{C}$ , -55 $^{\circ}\text{C}$  to +125 $^{\circ}\text{C}$   
Y5V :  $\pm 22\%$  to -82%  $\Delta\text{C}$ , -10 $^{\circ}\text{C}$  to +85 $^{\circ}\text{C}$

## Insulation Resistance

NP0, X7R : 100M $\Omega$  min. or 1000 $\Omega$ -Farads min. whichever is less at 25 $^{\circ}\text{C}$ .  
Y5V : 10.000M $\Omega$  min. or 1000 $\Omega$ -Farads min. whichever is less at 25 $^{\circ}\text{C}$ .

## Mechanical Specifications

Cast : Conformal coated (epoxy)  
Lead Material : Solder coated, copper  
Package Method : Bulk, Tape & Ammo Pack  
Solderability : (MIL-STD-202. Method 208)  
Leach Resistance : Temp 230 $^{\circ}\text{C}$ , 20 Seconds immersion in SN62

## Capacitance Test @25 $^{\circ}\text{C}$ or referred to $\pm 25^{\circ}\text{C}$

NP0, X7R:  
1 VRMS  $\pm .25$  VRMS and 1kHz; 1MHz for values below 100pF  
Y5V : 0.1 VRMS maximum and 1 kHz

## Dissipation Factor:

NP0 : 0.1% Maximum @25 $^{\circ}\text{C}$  1 VRMS  $\pm .25$  VRM and 1kHz 1 MHz for values below 100pF  
X7R : 2.5% Maximum @25 $^{\circ}\text{C}$  1 VRMS  $\pm .25$  VRM and 1kHz 1 kHz  
Y5V : 7% for  $\geq 50$  VDC Maximum <50VDC 9% Maximum @25 $^{\circ}\text{C}$ , 0.5 VRMS, maximum and 1 kHz

## Dielectric Strength:

NP0, X7R : 250% rated voltage with 50 mA maximum charging current  
Y5V : 200% rated voltage with 50 mA maximum charging current

## Life Test

: (1000 hrs)  
NP0 and X7R : 200 % rated voltage at +125 $^{\circ}\text{C}$   
Y5V : 150% rated voltage at +85 $^{\circ}\text{C}$

## Humidity Resistance : (MIL-STD-202 method 106)

Y5V, NP0, X7R : 96 hrs at 40 $^{\circ}\text{C}$  relative humidity 90-95%

## Thermal Shock

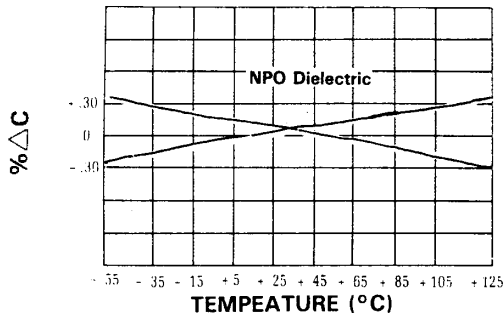
: (MIL-STD-202 Method 107, condition A)

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Farnell.com/multicomp-pro  
Element14.com/multicomp-pro

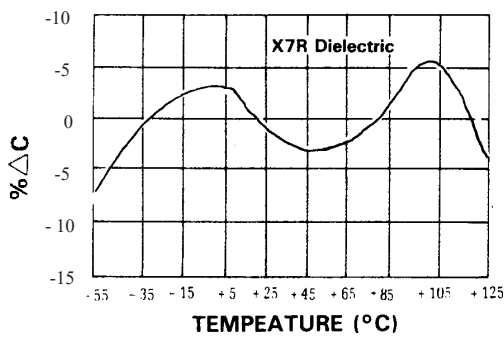
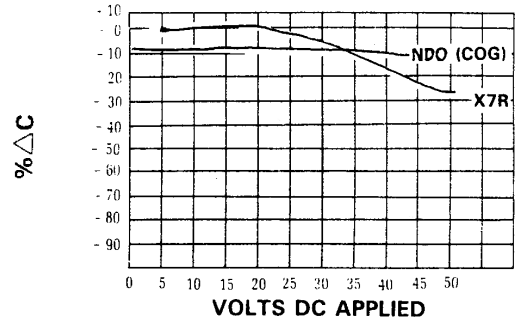
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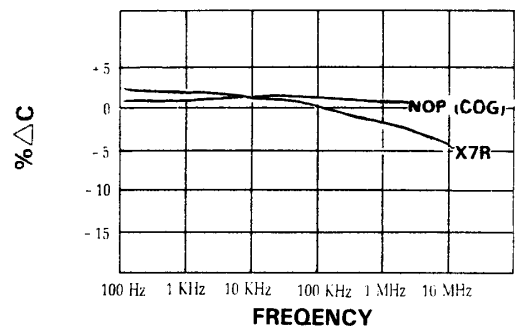
**TEMPERATURE COEFFICIENT**



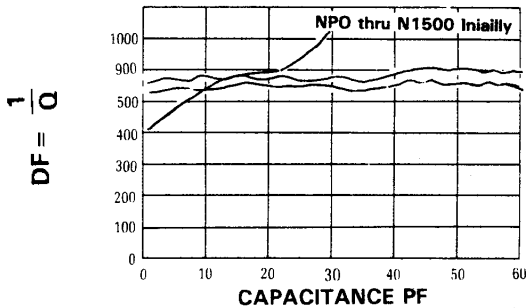
**DC VOLTAGE COEFFICIENT**



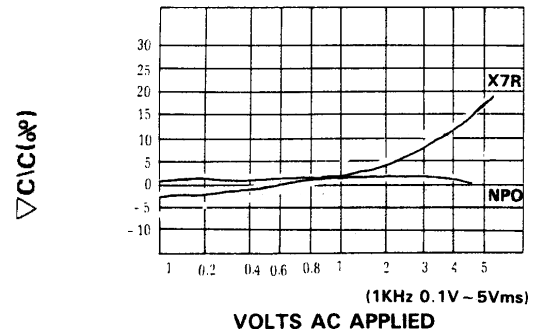
**ΔCAPACITANCE VS, FREQUENCY**



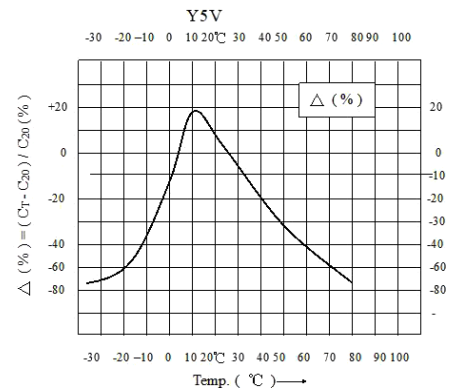
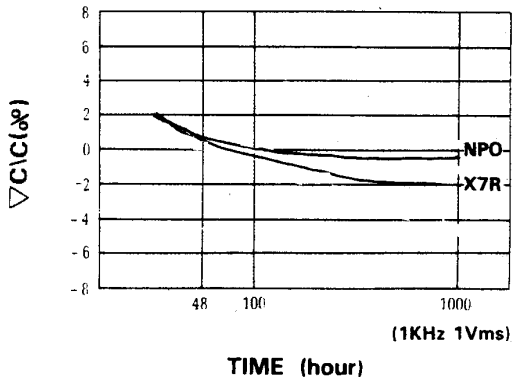
**DF AND Q**



**AC VOLTAGE COEFFICIENT**

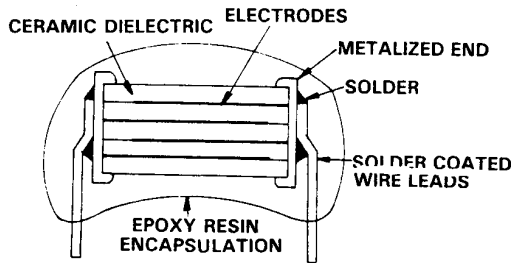


**AGING RATE**

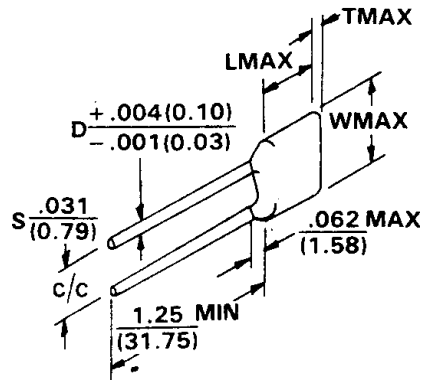


# Ceramic Multilayer Capacitors - Leaded

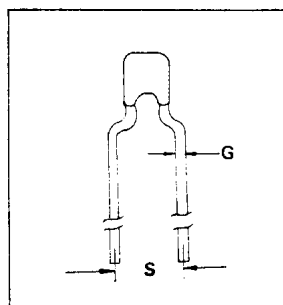
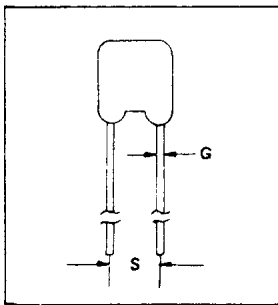
## MONOLITHIC CONSTRUCTION



## CASE SIZE



## Lead Styles

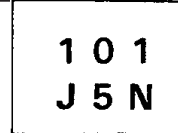


## Size Code and Dimensions : Units in inches (millimetre)

Size code	L	W	T	Lead Diameter (G)	Lead Length (L)	Lead Spacing (S)	Lead Styles
R15	0.15 (3.81)	0.15 (3.81)	0.1 (2.54)	0.02 (0.5)	0.1(2.5)	0.1 (2.54)	L
						0.2 (5.08)	H

## Marking

First line marked the Capacitance value.  
 Second line marked the Tol, WVDC, & T.C.  
 Tol : J =  $\pm 5\%$ , K =  $\pm 10\%$ , M =  $\pm 20\%$ , Z =  $+80\%$  -20%.  
 WVDC : 2 = 25V, 5 = 50V, A = 100V, B = 200V.  
 T.C. : N = NP0 (COG), X = X7R, Z5U.



Colour	Size Code	Capacitance	Tolerance	Rated Voltage	Temp.Char.
Blue	R15	✓	-	-	-
Yellow	R15	✓	-	-	-

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## Part Number Table

Description	Part Number
Ceramic Multilayer Capacitor, 15pF, 100V, $\pm 5\%$ , NP0, 2.54mm Pitch	MPMLR100V150JNPOTB2.5
Ceramic Multilayer Capacitor, 30pF, 100V, $\pm 5\%$ , NP0, 2.54mm Pitch	MPMLR100V300JNPOTB2.5
Ceramic Multilayer Capacitor, 47pF, 100V, $\pm 5\%$ , NP0, 2.54mm Pitch	MPMLR100V470JNPOTB2.5
Ceramic Multilayer Capacitor, 0.1 $\mu$ F, 50V, $\pm 10\%$ , X7R, 2.54mm Pitch	MPMLR50V104KX7RTB2.5
Ceramic Multilayer Capacitor, 0.1 $\mu$ F, 50V, $\pm 10\%$ , X7R, 5.08mm Pitch	MPMLR50V104KX7RTB5
Ceramic Multilayer Capacitor, 0.22 $\mu$ F, 50V, $\pm 10\%$ , X7R, 5.08mm Pitch	MPMLR50V224KX7RTB5
Ceramic Multilayer Capacitor, 0.33 $\mu$ F, 50V, $\pm 10\%$ , X7R, 5.08mm Pitch	MPMLR50V334KX7RTB5
Ceramic Multilayer Capacitor, 0.1 $\mu$ F, 50V, $\pm 20\%$ , Y5V, 2.54mm Pitch	MPMLR50V104MY5VTB2.5

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