Multilayer Ceramic Capacitor
Type CMR

Δ Application

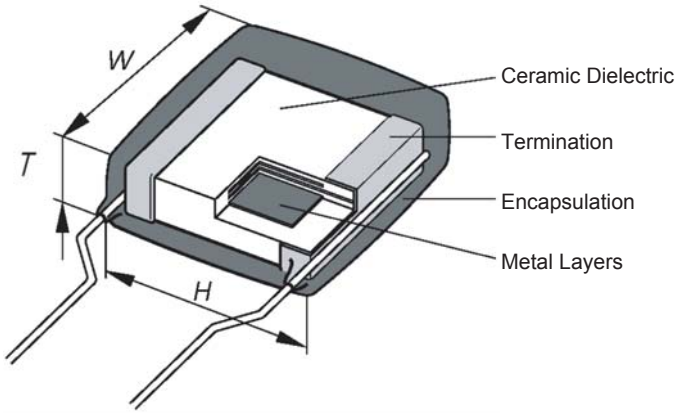
NPO: Temperature compensation type, have little or no change in capacitance with variation in temperature. Hence, they are used in radio frequency oscillators, precision timing circuits, ultra stable amplifiers, etc.

X7R: Temperature stable type for by-pass and decoupling in radio and television receivers, computer servo systems. Audio tone and coupling, etc. where moderate capacitance variations are permissible and dissopation factor is not critical.

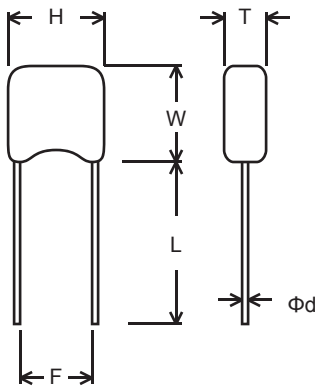
Z5U/ Y5V: General type for by-pass and filtering applications.

- Guaranteed long life (2,000 hours at 85° C)
- Suitable for medical, telecom and consumer electronic equipment use.

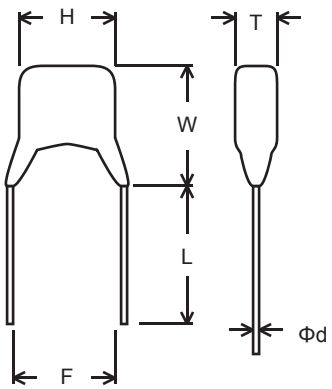
Δ Construction



1. Straight Long Lead



2. Straight Cut Lead



Size Code			
R15	H 4.5mm	W 4.5mm	T 2.5mm
R18	H 5.5mm	W 5.5mm	T 3.0mm

Δ Ordering Terminology

CMR	100	ZU	1C	M	1	
Series Code	Capacitance Code in pF ID0=1pF 100=10pF 101=100pF 102=1000pF (.001μF) 103=10000pF (.01μF) 104=100000pF (.1μF) 105=1000000pF (1μF)	T.C. Code CG = NPO XR = X7R YV = Y5V ZU = Z5U	Voltage Code 1A = 10V 1C = 16V 1E = 25V 1H = 50V 1J = 63V 2A = 100V	Tolerance: C = ± .25pf D = ± .50pf J = ± 5% K = ± 10% M = ± 20%	Lead Spacing: 1 = .10" 2 = .20" 3 = .30" 4 = .40"	Ommited in bulk package T = Taped/Box K = Crimped leads

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Fax: (888)820-8884 email: sales@libertycomponents.com website: www.libertycomponents.com

Multilayer Ceramic Capacitor
Type CMR

∆ Specifications

Temperature coefficient

- NPO: ±30ppm/°C, -55°C to +125°C
- X7R: ±15%, -55°C to +125°C
- Z5U: +22%, -56%, +10°C to +85°C
- Y5V: ±22%, -82%, -30°C to +85°C

Capacitance test 25°C

- NPO: 1 VRMS max at 1KHz (1MHz for 100pF or less)
- X7R: 1 VRMS max at 1KHz
- Z5U: 1 VRMS max at 1KHz
- Y5V: 1 VRMS max at 1KHz

Dissipation Factor 25°C

NPO: 0.15% max a 1KHz, 1VRMS max (1MHz for 1000pF or less)

Z5U: 5% max (at 1KHz, 1VRMS max)

X7R: (at 1KHz, 1VRMS max)

Max	Rated Voltage
2.5%	≥50V
3.5%	25V & 16V
5.0%	10V & 6.3V

Y5V: (at 1KHz, 1VRMS max)

Max	Rated Voltage
5%	≥50V
7%	25V & 16V
10%	10V & 6.3V

Dielectric strength 25°C (Flash Test)

- NPO and X7R: 300% rated voltage for 5 seconds with 50mA max charging current.
- Z5U and Y5V: 250% rated voltage for 5 seconds with 50mA max charging current.

LifeTest:
(1000hrs at max temp. applied with Flash test voltage Recovery: 6-24hrs for NPO and 24±2hrs for X7R & Z5U)

- NPO: ≤ ±3% at 200% rated voltage, 125°C
- X7R: ≤ ±3% at 200% rated voltage, 125°C
- Z5U: ≤ ±3% at 200% rated voltage, 85°C
- Y5V: ≤ ±3% at 200% rated voltage, 85°C

Insulation Resistance after 60 sec., charging at rated voltage, 25°C, 55% R.H. max

- NPO: 100GΩ or 1000MΩ-uF whichever is less
- X7R: 10GΩ or 100MΩ-uF whichever is less
- Z5U: 10GΩ or 100MΩ-uF whichever is less
- Y5V: 10GΩ or 1000MΩ-uF whichever is less

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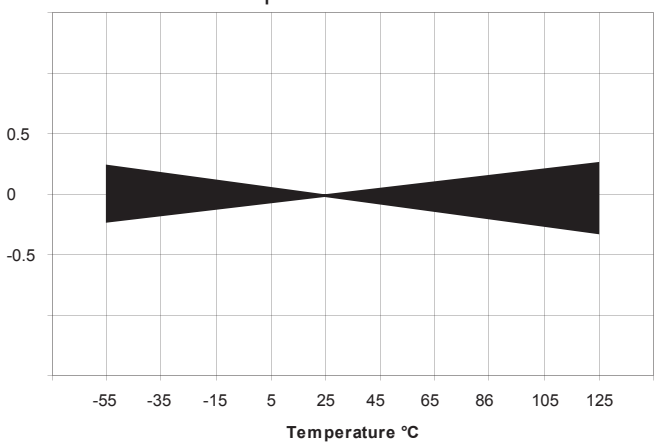
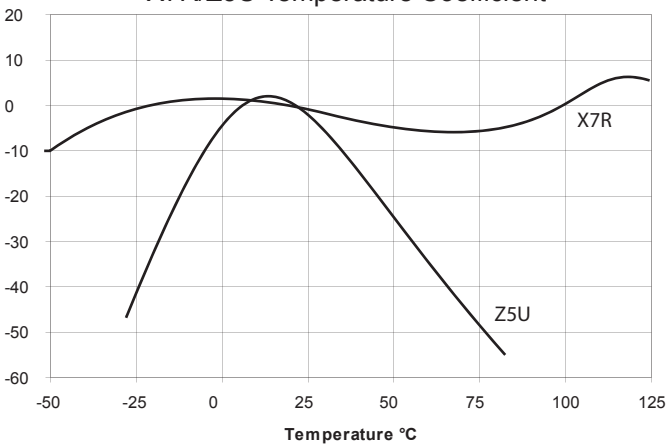
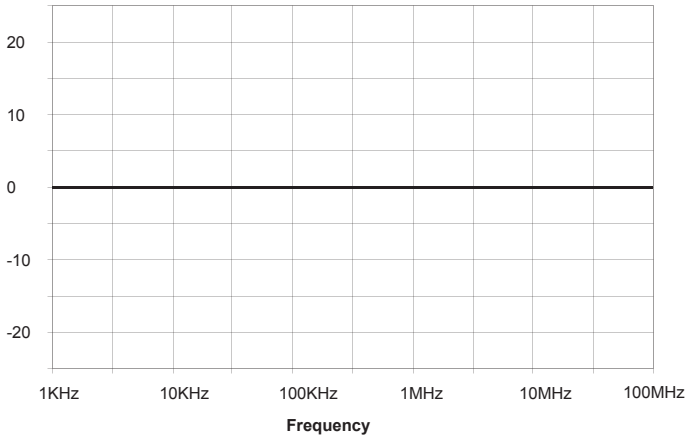
NPO Temperature Coefficient



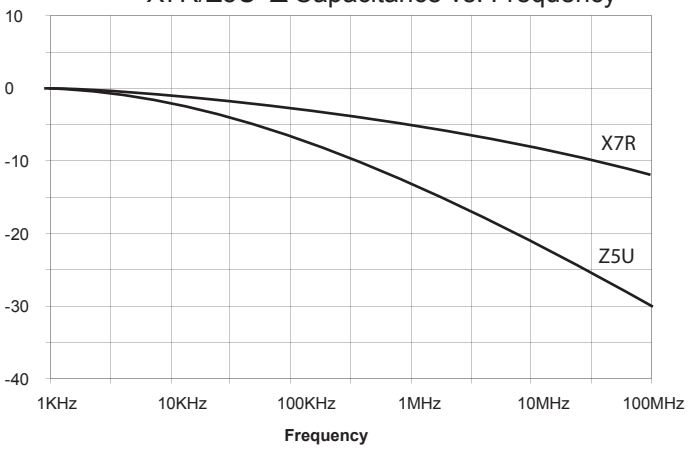
X7R/Z5U Temperature Coefficient



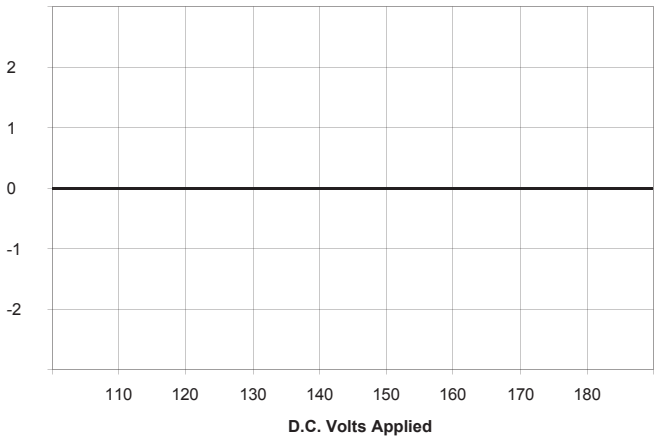
NPO Δ Capacitance vs. Frequency



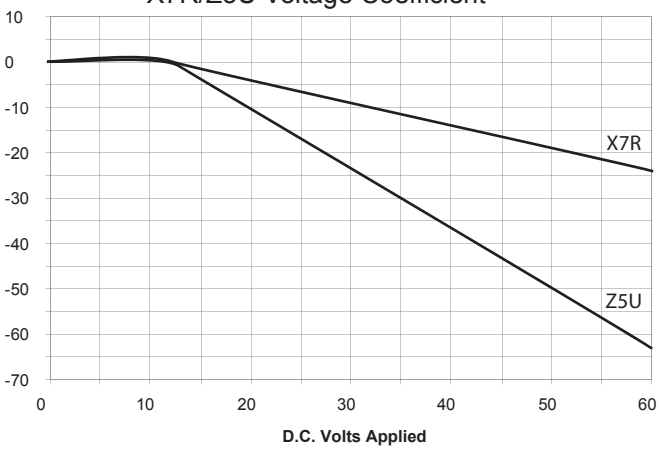
X7R/Z5U Δ Capacitance vs. Frequency



NPO Voltage Coefficient



X7R/Z5U Voltage Coefficient



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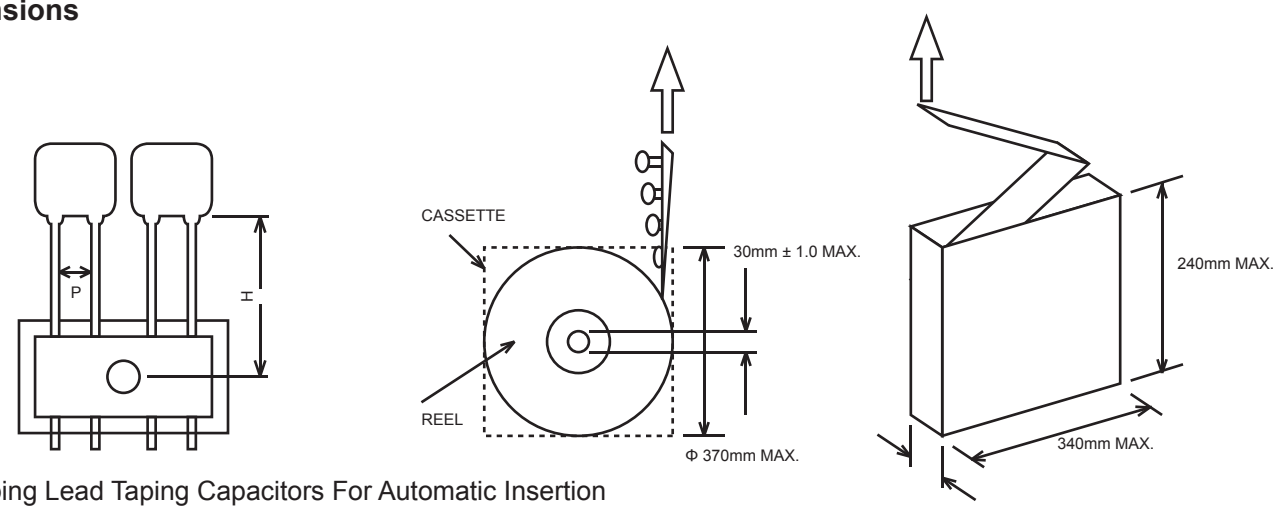
Δ Dimensions



Taping Lead Taping Capacitors For Automatic Insertion

* For Monolithic (Multilayer) Only 16mm

Symbol	D	d	P	P0	P1	P2	F	H	H0	H1	D0	W	L	t
Value	Max 11.0	0.6	12.7	12.7	3.85	6.35	5.0	16.0 20.0	16.0	Max 32.25	4.0	18.0	Max 11.0	0.7
Tolerance	-	0.06 - 0.05	±1	±0.2	±0.7	±1	+0.8 -0.2	+1.5 -1.0	±0.5	-	±0.2	±0.5	-	±0.2

units: mm

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