

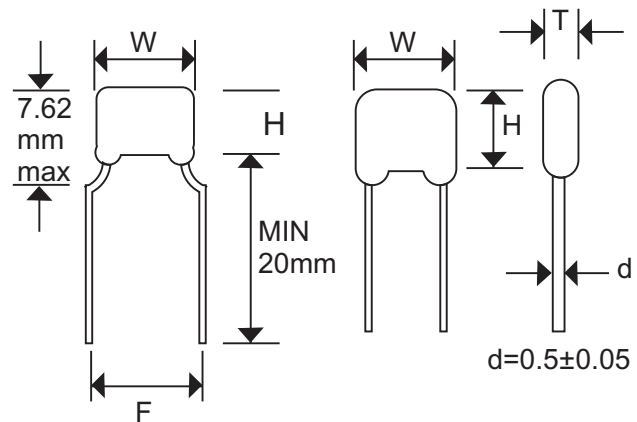
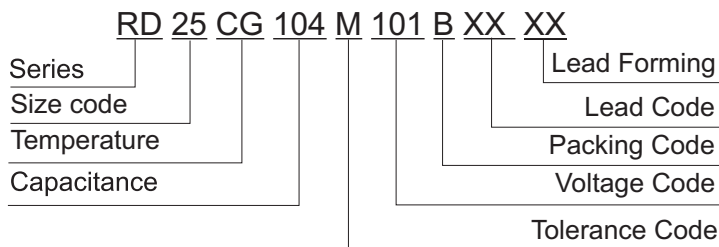
INTRODUCTION

Radial Ledded Multilayer Ceramic Capacitors are made with a superior epoxy coating for moisture and mechanical protection. The small size is suitable for a wide range of applications, including: data processing, telecommunications, instrumentation, and industrial controls.

FEATURES

- Epoxy Coating
- Minature Size
- Auto Insertable
- Operating Temperature Range -55 to 125°C
- Temperature Characteristics 0 ± 30 PPM/°C

PART NUMBER EXAMPLE



SIZE CODE & CAPACITANCE RANGE

Size Code	Dimensions (mm)			Voltage Vdc	Voltage Code	C0G/NPO (pF)
	W	H	T			
RD2*	4.0	4.0	2.5	6.3V	060	
				10V	100	
				16V	160	
				25V	250	
				50V	500	1~10,000
				100V	101	1~4,700
				250V	251	100~2,700
RD3*	5.0	5.0	3.0	6.3V	060	
				10V	100	
				16V	160	
				25V	250	
				50V	500	3,900~33,000
				100V	101	3,900~10,000
				250V	251	3,300~8,200
500V	501	100~3,300				

*2 = 2.5mm ± 1mm Lead Spacing, F Dimension

*5 = 5.0mm ± 1mm Lead Spacing, F Dimension

CAPACITANCE CODE

Code	1R0	3R3	100	470	101	102	222	103	333
Capacitance	1.0pF	3.3pF	10pF	47pF	100pF	1000pF	2200pF	10000pF	33000 pF

■ TOLERANCE CODE

Symbol	Cap.	Tol.
C	±0.25pF	
D	±0.5pF	
F	±1%	
G	±2%	
J	±5%	
K	±10%	
M	±20%	
Z	±80%, -20%	

■ TEMPERATURE COEFFICIENT

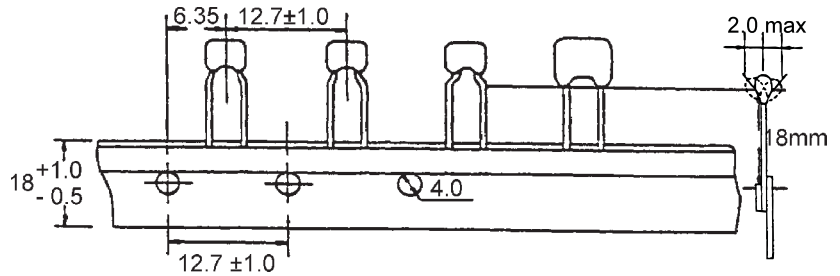
Code	Temp. Charact.	Temperature Range	Capacitance Change
CG	C0G/NPO	-55 ~ 125°C	0±30 ppm/°C
X5R	X5R	-55 ~ 85°C	±15°C
XR	X7R	-55 ~ 125°C	±15°C
YV	Y5V	-30 ~ 85°C	+22°C, -82%
ZU	Z5U	+10 ~ 85°C	+22°C, -56%

* See other RD Series for X5R, X7R, Y5V, Z5U

■ TAPING & PACKAGING

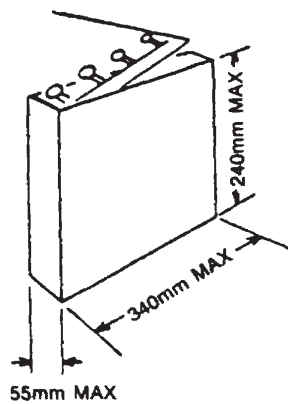
■ PACKAGING CODE

Code	Style	Quantity
B	BULK	1000
A	AMMO	3000
R	REEL	3000

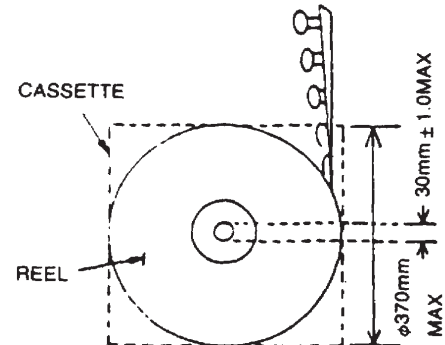


■ Lead Forming

Code	Stand off forming
KO	Kink Out
KI	Kink In



AMMO BOX



REEL-PACK

■ LEAD LENGTH EXAMPLE (Bulk Only)

Code	20	04	10	16	30
Length (mm)	standard	4±1	10±1	16± ^{1.5} ₁	30±3

■ **ELECTRICAL CHARACTERISTICS**

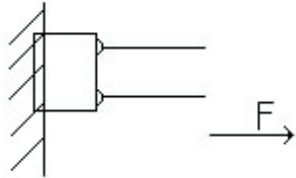
C0G/NPO

Parameter	Specification	Measuring Condition
Capacitance	With the specified tolerance	Shall be measured at 25°C ± 2°C at the frequency and voltage
Q	$C \geq 30\text{pF}: Q \geq 1000$ $C < 30\text{pF}: Q \geq 400 + 20 \times C$ (C is nominal capacitance)	$C \leq 1000\text{pF}@1\text{MHz} \pm 20\%, 1 \pm 0.2\text{Vrms}$ $C > 1000\text{pF}@1\text{KHz} \pm 10\%, 1 \pm 0.2\text{Vrms}$
Withstanding Voltage	No defects	Applied voltage : Rated voltage × 2.5 100V ~ 500V Rated voltage(over) × 1.5 Duration : 1 to 5 sec. The charge/discharge current is less than 50mA
Insulation Resistance	More than 10GΩ or 500MΩ · μr whichever is less 16Vdc product : More than 10GΩ or 100MΩ · μr whichever is less	Apply rated voltage for 1 minute at 25°C ± 2°C and 70%R.H.max. 16Vdc product : Measurement voltage is 25Vdc

■ **STORAGE**

1. The storage conditions <40°C, <70% R.H.
2. After opening the package, please store in desiccators.

■ **ENVIRONMENTAL AND TEST CHARACTERISTICS**

Parameter	Specification	Measuring Condition
Strength of termination	Termination not to be broken or loosened Force : 2 LB min. Keep time : 10±1 sec.	
Solderability of leads	Lead wire to be soldered vertically up to the coating end point. At least 75% of lead surface is covered	Solder temperature: 260 ± 5°C Dipping: 2 ± 0.5 sec. (Containing Ag 2~5%) (Flux shall be used)

ELECTRICAL CHARACTERISTICS

C0G/NPO

Item	Specification	Measuring Condition	Measuring Condition
		Resistance to Soldering heat	Thermal shock
ΔC	$\pm 2.5\%$ or $\pm 0.25\text{pF}$ (Whichever is greater)	The lead wire is immersed in the melted solder 1.5mm to 2mm from the main body at $260 \pm 5^\circ\text{C}$ for $10 \pm 0.5\text{sec}$	
Q	$C \geq 30\text{pF}$: $Q \geq 1000$ $C < 30\text{pF}$: $Q \geq 400 + 20 \times C$ (C is nominal capacitance)	Let sit at room temperature for $24 \pm 2\text{hrs.}$ then measure.	Perform the five cycles according to the four heat treatments listed in the following table. Remove and let sit at room temperature for $24 \pm 2\text{hrs.}$, then measure.
I.R.	More than $10\text{G}\Omega$ or $500\text{M}\Omega \cdot \mu\text{F}$, whichever is less. 16V dc product: More than $10\text{G}\Omega$ or $100\text{M}\Omega \cdot \mu\text{F}$, whichever is less.	Perform the initial measurement.	

Step	1	2	3	4
Temp. ($^\circ\text{C}$)	Min. Operating Temp.	Room Temp.	Max. Operating Temp.	Room Temp.
Time	30 ± 3	15	30 ± 3	15

Item	Specification	Measuring Condition	Measuring Condition
		Moisture resistance (Steady state)	High temperature loading
ΔC	(Whichever is greater) $\pm 5\%$ or $\pm 0.5\text{pF}$ (Moisture resistance) $\pm 3\%$ or $\pm 0.5\text{pF}$ (High temperature loading)	Apply the rated DC voltage at $40 \pm 2^\circ\text{C}$ and 90 to 95% R.H. for 500^{+24} hrs.	Apply 200% of the rated DC voltage for 1000^{+48} hrs. at the maximum operating temperature $\pm 2^\circ\text{C}$. Remove and let sit at room temperature for $24 \pm 2\text{hrs.}$, then measure.
Q	$C \geq 30\text{pF}$: $Q \geq 350$ $10\text{pF} > C < 30\text{pF}$: $Q \geq 275 + \frac{5}{2} \times C$ $C \leq 10\text{pF}$: $Q \geq 200 + 10 \times C$ (C is nominal capacitance)	Remove and let sit at room temperature for $24 \pm 2\text{hrs.}$, then measure.	The charge/discharge current is less than 50mA.
I.R.	More than $1000\text{M}\Omega$ or $50\text{M}\Omega \cdot \mu\text{F}$, whichever is less. 16V dc product: More than $1000\text{G}\Omega$ or $10\text{M}\Omega \cdot \mu\text{F}$, whichever is less.	Perform the initial measurement.	Perform the initial measurement. *100% for 100V~500V over.

- Withstanding voltage: No defects
- Exterior: No abnormalibus