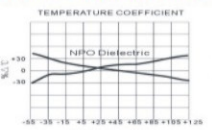
MULTILAYER CERAMIC RADIAL,AXIAL CAPACITORS EPOXY DIPPED(MLC)

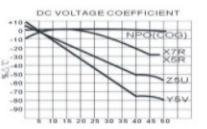
MLC Series 積層陶瓷型電容器（獨石電容器）

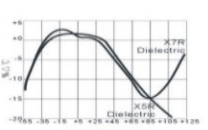
Electrical Specifications

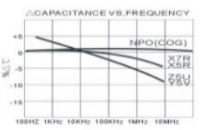
- Capacitance Range: 1pF to 100μF
- Capacitance Tolerance: (Standard)
  NPO: F=±1%(10pF and above)---special tolerance
  G=±2%(10pF and above)---special tolerance
  B=±0.1PF(10PF and below)---special tolerance
  C=±0.25PF(10PF and below)---general tolerance
  D=±0.5pF(10pF and below)---general tolerance
  J=±5%(10pF and above)---general tolerance
  K=±10%(6.8pF and above)---general tolerance
  X7R/X5R: J=±5%---special tolerance
  K=±10%,M=±20%---general tolerance
  Z5U,Y5V: M=±20%
  Z=+80/-20%---general tolerance
- Voltage: 16,25, 50, 63, 100, 200, 250, 400,500, 630,1K 2K 3K 4K VDC
- Temperature Characteristics:
  NPO: 0±60 ppm/℃, -55℃ to +125℃
  X7R: ±15%△C, -55℃ to + 125℃
  X5R: ±15%△C, -55℃ to + 85℃
  Y5V: +22% to -82%△C, -25℃ to + 85℃
  Z5U: +22% to -56%△C, +10℃ to + 85℃
- Insulation Resistance
  NPO, 10,000 MΩ min. or 1000 Ω-Farads min.
  Whichever is less at 25℃ at it is voltage.
  X7R/X5R: 3,000 MΩ min. or 500Ω-Farads min.
  Whichever is less at 25℃ at it is voltage.
  Z5U,Y5V:1,000 MΩ min. or 100Ω-Farads min.
  whichever is less at 25℃ at it is voltage.
- MECHANICAL SPECIFICATIONS
- Cast: Conformal coated (epoxy)
- Lead Material:Solder coated, cp-wire
- Package Method:Bulk, Tape Ammo/Reel Package,
- Solderability:(MIL-STD-202,Method 208)
- Leach Resistance:Temp 250℃,20 seconds
  immersion is Sn62
- STANDARD TOLERANCE
  NPO: J,K,D(under 10PF).
  X7R/X5R:K,M.
  Y5V:Z,M
  Z5U:M
- Capacitance Test @25℃ Or referred to+25℃:
  NPO,X7R,X5R
  1.0 Vrms ±0.25 Vrms and 1 kHz;
  1MHz for values below 100pF.
  Z5U,Y5V:0.1 Vrms maximum and 1kHz.
- Dissipation Factor:
  NPO:0.1% maximum @25℃, 1.0 Vrms ±0.25Vrms and 1kHz, 1 MHz for values below 100pf.
  X7R/X5R:7% for ≥50VDC, ≥1μF.10% Maximum; ≤25VDC12% Maximum≥1μF,16% @25℃, 1.0 Vrms ±0.25Vrms and 1KHz.
  Y5V:7% for ≥50VDC >1μF.10% maximum;≤25V DC 12% maximum @25℃, 0.1 Vrms maximum and 1kHz
  Z5U:7% for ≥50VDC maximum≤25VDC 15% maximum @25℃, 0.5 Vrms maximum and 1kHz
- Dielectric Strength:
  NPO,X7R,X5R:250%rated voltage with 50 mA max charging current<100VDC,≥100VDC125%.
  Z5U,Y5V:200% rated voltage with 50 mA Maximum charging current≤100VDC.
- Life Test:(1000 hrs)
  NPO,X7R:150% rated voltage at +125℃≤50VDC; >50VDC100%
  X5R,Z5U; Y5V:150% rated voltage at+ 85℃ ≤50VDC
- Humidity Resistance:
  (Same MLCC Method 13)
  NPO,X7R,X5R,Z5U,Y5V: 96 hrs at 40℃ relative
- Humidity 90~95%
- Storage: store all capacitors indoors 5~35℃ humidity <75%. They are warranted for a period of 2 years from the date of manufacture.

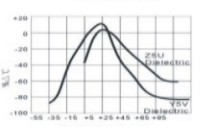
Typical Characteristics

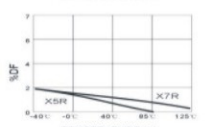


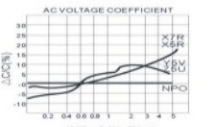


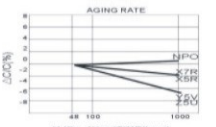






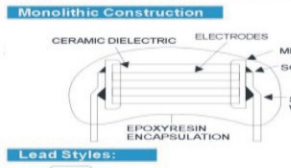


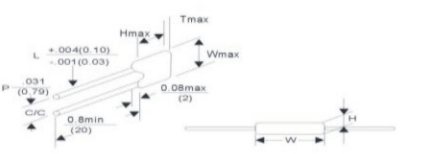




MLC Series 積層陶瓷型電容器（獨石電容器）

Monolithic Construction





Lead Styles:

Size code and dimensions: units in inches (mm)

SIZE CODE	W	H	T	LEAD DIAMETER(G)	LEAD LENGTH(L)	LEAD SPACING(S)	LEAD STYLES
R10	.10" ±.04 2.5±1	.08" ±.04 2±1	.08" ±.04 2±1	.020" 0.50±0.1	.10" (2.50) 1.0" (25.0)	.100" (2.54) .200" (5.08)	H.L. H
R15	.14" ±.04 3.5±1	.14" ±.04 3.5±1	.10" ±.04 2.54±1	.020" 0.50±0.1	.10" (2.50) 1.0" (25.0)	.100" (2.54) .200" (5.08)	H.L. H.A.
R20	.18" ±.06 4.5±1.5	.18" ±.06 4.5±1.5	.12" ±.06 3±1.5	.024" 0.60±0.1	.10" (2.50) 1.0" (25.0)	.100" (2.54) .200" (5.08)	L H.A.
R30	.25" ±.06 6.35±1.5	.25" ±.06 6.35±1.5	.13" ±.06 3.3±1.5	.024" 0.60±0.1	.10" (2.50) 1.0" (25.0)	.100" (2.54) .200" (5.08)	K H.A.
R40	.32" ±.06 8.1±1.5	.3" ±.06 7.6±1.5	.16" ±.06 4±1.5	.027" 0.70±0.1	.10" (2.50) 1.0" (25.0)	.200" (5.08) .300" (7.62)	L H.A.
A15	.18" ±.06 4.5±1.5	.12" ±.06 3±1.5		.020" 0.50±0.15	.8" (20mini)		Axial

Marking

First line marked the Capacitance value.
Second line marked the TOL, WVDC, & T.C.
TOL:J=±5%, K=±10%,M=±20%,Z=+80/-20%
WVDC:1E=25V,1H=50V,1J=63V,2A=100V,2C=160V,2D=200V.....same how to order
T.C.:N=NPO(COG),X=X7R, Y=Y5V

COLOR	SIZE CODE	Capacitance	Tolerance	Rated Voltage	Temp. Char.
YELLOW、BLUE	R10	✓	—	—	—
YELLOW、BLUE	R15	✓	—	—	✓
YELLOW、BLUE	R20	✓	—	—	✓
YELLOW、BLUE	R30	✓	—	—	✓
YELLOW、BLUE	R40	✓	✓	✓	✓

MLC Series 積層陶瓷型電容器（獨石電容器）

Description

ZONKAS Multilayer ceramic radial,axial capacitors epoxy dipped are build by superior moisture and shock resistant epoxy coating can be supplied in bulk or taped ammo/ reel package for automatic insertion in PCB.Our series capacitors have wide applications in computer, date processing, telecommunication, industrial contrial and instrumentation equipment, etc.

HOW TO ORDER

ZONKAS Part Number are designed as:

R 20 X7R 104 K 5 H 5 1E Y N

Product Type:
R:Mono Radial
(Radial Leaded)
A:Axial

Size Code:
See sizechart for available size by value and voltage
10
15
20
30
40

Temperature Characteristic:
NPO=COG
X7R/X5R
Z5U/Y5V

Capacitance(pf):
0R5~0.5PF
010~1PF
100~10PF
101~100PF
102~1000PF
102~1nF
102~0.001μF
103~10000PF
103~10nF
103~0.01μF
104~100μF
104~0.1μF
105~1μF
106~10μF
107~100μF
108~1000μF

Capacitance Tolerance:
C=±0.25PF
D=±0.5PF
F=±1%
G=±2%
J=±5%
K=±10%
M=±20%
Z=+80% -20%

Working Voltage:
1C=16V
1E=25V
1H=50V
1J=63V
2A=100V
2C=160V
2D=200V
2E=250V
2G=400V
2H=500V
2J=630V
3A=1KV
3D=2KV
3F=3KV
3G=4KV

Lead length:
3=3mm 7=7 mm A=2.5mm
4=4mm 8=8 mm B=3.5mm
5=5mm 9=9 mm C=4.5mm
6=6mm 0=10mm D=5.5mm
E=6.0mm G=8.5mm
F=7.5mm H=9.5mm
S=25mm Min
R=Tape & Reel Package
T=Tape& AMMO Package

Lead Style:
L:Straight leads
K:Outward king
H:High seated &right angle.
A:High seated &slope angle.

Lead Spacing
2=2.54 mm(0.100")
5=5.08 mm(0.200")
7=7.5 mm(0.300")
0=10.0mm(0.400")--for Axial
t : other--for Axial

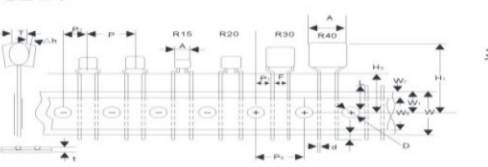
COLOR:
Y=Yellow
B=Blue

RoHS

MLC Series 積層陶瓷型電容器（獨石電容器）

Radial tape & reel

ZONKAS has developed a tape and reel system of radially leaded components which is suitable for the auto insertion machine.



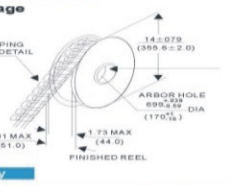
Dimension:

Units in inches (millimeter)

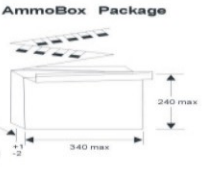
Description	Symbol	Dimensions	Description	Symbol	Dimensions
Body	A	.400"×.400"(10.16×10.16)Maximum	Feed hole pitch	P_0	0.5"±.040"(12.7±1.0)Accumu. Lative pitch over Two units
Wire lead diameter (Mono-Kap)	d	.024"±.004"(0.61±0.1)	Feed hole off alignment	P_1 P_2	.150"±.020"(3.81±0.51)for P5mm .250"±.040"(6.35±1.02)
Feed Hole Diameter	D	.157"±0.012"(4±0.30)	Overall tape thickness	t	.035"(0.89)Maximum
Lead end protrustion	l	0.04"(1.0)max	Body thickness	T	.18"(4.5)Maximum
Lead spacing	F	.20"±.030"(5.08±0.76) .10"±.030"(2.54±0.76)	Lead crimp height	H_0	.630"±.020to.710±.020 (16.0±.05to18.0±.051)
Body inclination	△h	0±.040"(0±1.02)	Carrier tape width	W	.710"±.020"(18.03±0.51)
Top height	H_1	1.27"(32.25)Maximum	Adhesive tape width	W_0	0.2"-0.51" (5-13)
Rejected component out height	L	.433"(11.00)Maximum	Feed hole height off alignment	W_1	.350"±0.20(8.89±0.51)
Taping pitch	P	.500"±0.39(12.70±0.99)	Adhesive tape margin	W_2	.120"(3.05)±0.04"(1)

Reel and box dimensions (mm)

Reel Package



AmmoBox Package



Packaging quantity

Size Code	Taping Type	
	Quantity per reel	Quantity Ammo per box
R10	4,000	2,000
R15	4,000/3,000	2,000
R20	4,000/3,000	2,000
R30	3,000	2,000
R40	3,000	1,500
A15		5,000