

MULTILAYER CERAMIC DISC CAPACITORS

Epoxy Coated Radial Type

SPECIFICATION



Application

Dielectric Material	NPO/COG	X7R
Dielectric Type	Stable Class I Dielectric	Stable Class II Dielectric
電氣性能 Electrical Properties	電氣性能最穩定,基本上不隨溫度、電壓和時間的改變而改變。 With negligible dependence of electrical properties on temperature, voltage, frequency and time.	電氣性能較穩定,在溫度、電壓與時間改變時性能的變化不明顯,由於 X7R 是一種強電介質,因而能造出容量比 NPO 電介質更大的電容器。 With predictable change of properties with temperature, voltage, frequency and time, this dielectric is ferroelectric and offers higher capacitance ranges than class I .
應用 Application	適用於穩定性要求高的高頻電路,如溫度補償電路、震盪電路等。	適用於隔直、耦合、旁路與對電容穩定性要求不太高的鑒頻電路。
	Used in circuits requiring stable performance, such as temperature compensation circuits and smite circuits.	Used as blocking, coupling, By-passing and frequency discriminating elements.
使用溫度 Operating Temperature	-55℃ ~+125 ℃	-55 ℃ ~+125 ℃
溫度係數 Temperature Coefficient	0 ± 30 ppm/℃	± 15%

How to order

RD15	B	104	M	1H	A	5	R
<u>SIZE</u>	<u>T.C.</u>	<u>CAPACITANCE</u>	<u>TOLERANCE</u>	<u>VOLTAGE</u>	<u>LEAD SHAPE</u>	<u>LEAD SPACE</u>	<u>PACKAGE</u>
RD15	N=NPO	1PF = 1R0	J=±5%	1H=50V	L=STRAIGHT	2=2.54±0.8	R=TAPE/REEL
RD20	B=X7R	1.5PF = 1R5	K=±10%	2A=100V	A=SLOPE 45° LEAD	5=5.08±0.8	B=TAPE/BOX
RD30		2.2PF =2R2	M=±20%	2A=100V	Y=INSIDE CRIMP		K=BULK
		100PF=101		2H=500V	H=HIGHT SEATED 90°		L=25.4mm
		120PF=121		2J=630V	K=OUTWARD KINK		
		10nF=103		3A=1KV			
		100nF= 104		3D=2KV			
				3F=3KV			

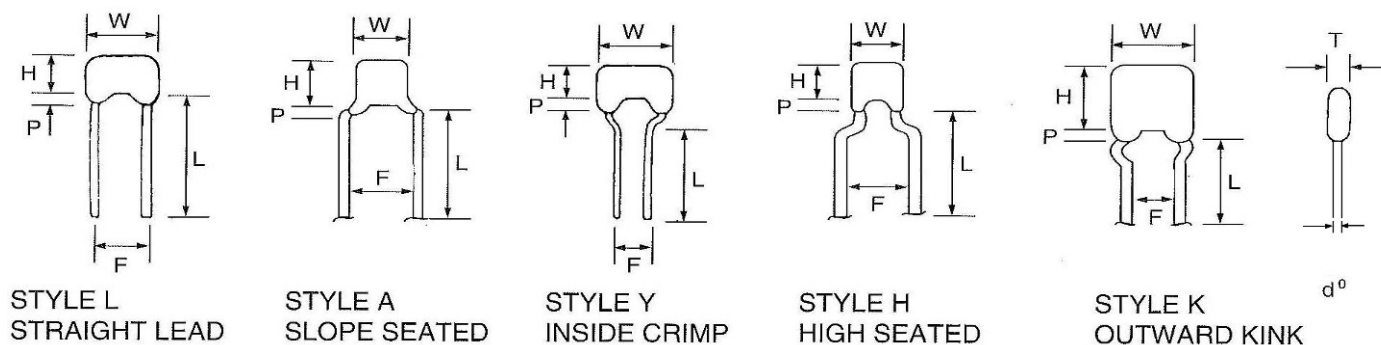
MULTILAYER CERAMIC DISC CAPACITORS

Epoxy Coated Radial Type

SPECIFICATION

CINETECH
SYMBOL OF QUALITY

Lead shape



Size Code and Dimensions

(mm)

Size Code	H (Max.)	W (Max.)	T (Max.)	$d \pm 0.05$	F	Lead Length	Lead Shape
RD15	3.81	3.81	4	0.5	2.54 ± 0.25	$6 \pm 1 \sim 25 \text{mm}$	L
	3.81	3.81	4		5.08 ± 0.5		A, H
RD20	5.8	5.8	4		2.54 ± 0.25		L, Y
	5.8	5.8	4		5.08 ± 0.5		H
RD30	6.8	6.8	5.5		5.08 ± 0.5		L

MULTILAYER CERAMIC DISC CAPACITORS

Epoxy Coated Radial Type

SPECIFICATION



Capacitance Range

T.C.	NPO																			
Size	RD15					RD20							RD30							
Cap (pF)	50V	100V	250V	500V	630V	50V	100V	250V	500V	630V	1KV	2KV	50V	100V	250V	500V	630V	1KV	2KV	3KV
0.5																				
0.6	0R6																			
0.7	0R7																			
0.8	0R8																			
0.9	0R9																			
1.0	1R0																			
1.2	1R2																			
1.5	1R5																			
1.8	1R8																			
2.2	2R2																			
2.7	2R7																			
3.3	3R3																			
3.9	3R9																			
4.7	4R7																			
5.6	5R6																			
6.8	6R8																			
8.2	8R2																			
10	100																			
12	120																			
15	150																			
18	180																			
22	220																			
27	270																			
33	330																			
39	390																			
47	470																			
56	560																			
68	680																			
82	820																			
100	101																			
120	121																			
150	151																			
180	181																			
220	221																			
270	271																			
330	331																			
390	391																			
470	471																			
560	561																			
680	681																			
820	821																			
1000	102																			
1200	122																			
1500	152																			
1800	182																			
2200	222																			
2700	272																			
3300	332																			
3900	392																			
4700	472																			
5600	562																			
6800	682																			
8200	822																			
10000	103																			
12000	123																			
15000	153																			
18000	183																			
22000	223																			
27000	273																			
33000	333																			
39000	393																			
47000	473																			
56000	563																			
68000	683																			
82000	823																			
[uF] 0.1	104																			

MULTILAYER CERAMIC DISC CAPACITORS

Epoxy Coated Radial Type

SPECIFICATION



T.C.		X7R																					
Size		RD15					RD20							RD30									
Cap (pF)		50V	100V	250V	500V	630V	50V	100V	250V	500V	630V	1KV	2KV	250V	500V	630V	1KV	2KV	3KV				
100	101																						
120	121																						
150	151																						
180	181																						
220	221																						
270	271																						
330	331																						
390	391																						
470	471																						
560	561																						
680	681																						
820	821																						
1000	102																						
1200	122																						
1500	152																						
1800	182																						
2200	222																						
2700	272																						
3300	332																						
3900	392																						
4700	472																						
5600	562																						
6800	682																						
8200	822																						
10000	103																						
12000	123																						
15000	153																						
18000	183																						
22000	223																						
27000	273																						
33000	333																						
39000	393																						
47000	473																						
56000	563																						
68000	683																						
82000	823																						
(uF) 0.1	104																						
0.12	124																						
0.15	154																						
0.18	184																						
0.22	224																						
0.27	274																						
0.33	334																						
0.39	394																						
0.47	474																						
0.56	564																						
0.68	684																						
0.82	824																						
1	105																						
1.5	155																						
2.2	225																						
3.3	335																						
4.7	475																						

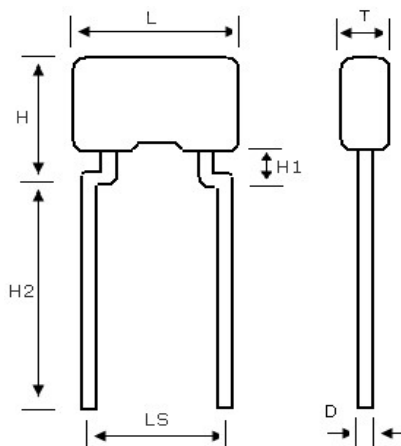
MULTILAYER CERAMIC DISC CAPACITORS

Epoxy Coated Radial Type

SPECIFICATION

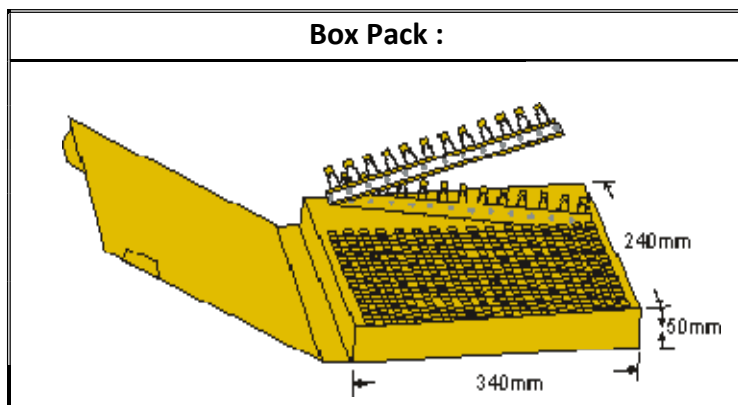
Marking

Color	Black	
Capacitance	Tolerance	Marking
100	J	10
220	J	22
470	J	47
101	J	101
471	J/K	471
102	J/K	102
103	J/K/M	103
104	K/M/Z	104
105	K/M/Z	105



Packing specification

Bulk	Tape
STYLE H HIGH SEATED	



Item	Radial Leaded Type
Tape & Reel	4,000 pcs/Reel
Tape & Box	1,500 pcs/Box, 2,000 pcs/Box
Bulk Pack	1,000 pcs/Bag(STD)

MULTILAYER CERAMIC DISC CAPACITORS

Epoxy Coated Radial Type

SPECIFICATION



Inspection

Item	Inspection	
	NPO/COG	X7R
Capacitance	Test Frequency : $\leq 1000\text{PF}=1\text{Mhz}$ $> 1000\text{PF}=1\text{Khz}$	Test Frequency : 1Khz
	Test Voltage: $1 \pm 0.2 \text{ Vrms}$	Test Voltage: $1 \pm 0.2 \text{ Vrms}$
	In the tolerance : $C=\pm 0.25\text{pf}$ $D=\pm 0.50\text{pf}$ $J=\pm 5\%$	In the tolerance : $J=\pm 5\%\text{pF}$ $K=\pm 10\%$ $M=\pm 20\%$
(DF) Dissipation Factor	Test Frequency : $\leq 1000\text{PF}=1\text{Mhz}$ $> 1000\text{PF}=1\text{Khz}$ Test Voltage: $1 \pm 0.2 \text{ Vrms}$ $< 0.1 \%$	Test Frequency : 1Khz Test Voltage: $1 \pm 0.2 \text{ Vrms}$ $< 2.5\%-100/50\text{V}$ $< 3.5\%-25/16\text{V}$
(IR) Insulation Resistance $500\Omega=C \cdot R$, $500\Omega=0.47\text{UF}$ $1064\text{M}\Omega$	Test Voltage : Rated Voltage Whichever is less $\geq 10 \text{ Gohmas}$ or $\geq 1000 \text{ M}\Omega$	Test Voltage : Rated Voltage Whichever is less $\geq 10 \text{ Gohmas}$ or $\geq 1000 \text{ M}\Omega$
50V	2 x rated Voltage	2 x rated Voltage

MULTILAYER CERAMIC DISC CAPACITORS

Epoxy Coated Radial Type

SPECIFICATION



Reliability

(Item)	(Test Methods)	(Test Specifications)																																				
Solder ability	The lead wire of a capacitor shall be dipped into a rosin and then into molten solder of 235±5 ℃ for 5 seconds , in both cases the depth of dipping is up to about 2.5 to 3.0 mm from the root of lead wires.	Lead wire shall be soldered with uniformly coated on the Axial or Radial direction over 75% of the circumferential direction.																																				
Resistance to Soldering heat	The lead wire shall be immersed into the melted solder of 265±5 ℃, up to about 2.5 to 3.0 mm from the main body and the specified items shall be measured after leaving for 24±2 hours.	1.外觀：無損傷 Appearance：No marked defect 2.電容值變化(ΔC/C)： Capacitance change： <table><tr><td></td><td>COG</td><td>X7R</td><td>Y5V</td></tr><tr><td>ΔC/C</td><td>≤±0.5%, or ±0.5pf</td><td>≤±7.5%</td><td>≤±20%</td></tr></table>		COG	X7R	Y5V	ΔC/C	≤±0.5%, or ±0.5pf	≤±7.5%	≤±20%																												
	COG	X7R	Y5V																																			
ΔC/C	≤±0.5%, or ±0.5pf	≤±7.5%	≤±20%																																			
Life Test	<table><tr><td>條件 Condition</td><td>NPO</td><td>X7R</td><td>Y5V</td></tr><tr><td>溫度 Temperature</td><td colspan="2">+125 ℃</td><td>+85 ℃</td></tr><tr><td>時間 Time</td><td colspan="3">1000 小時(hours)</td></tr><tr><td>電壓 Voltage</td><td colspan="3">1.5×額定電壓 (rated voltage applied)</td></tr><tr><td>恢復時間 Recovery time</td><td colspan="3">24±2 小時(hours)</td></tr></table>	條件 Condition	NPO	X7R	Y5V	溫度 Temperature	+125 ℃		+85 ℃	時間 Time	1000 小時(hours)			電壓 Voltage	1.5×額定電壓 (rated voltage applied)			恢復時間 Recovery time	24±2 小時(hours)			1.外觀：無損傷 Appearance：No marked defect 2.變化值 (Change value)： <table><tr><td></td><td>COG</td><td>X7R</td><td>Y5V</td></tr><tr><td>ΔC/C</td><td>≤±2%, or ±2pf</td><td>≤±10%</td><td>≤±30%</td></tr><tr><td>DF</td><td colspan="3">≤1.5 × initial requirement</td></tr><tr><td>IR</td><td colspan="3">≥0.25 × initial requirement</td></tr></table>		COG	X7R	Y5V	ΔC/C	≤±2%, or ±2pf	≤±10%	≤±30%	DF	≤1.5 × initial requirement			IR	≥0.25 × initial requirement		
條件 Condition	NPO	X7R	Y5V																																			
溫度 Temperature	+125 ℃		+85 ℃																																			
時間 Time	1000 小時(hours)																																					
電壓 Voltage	1.5×額定電壓 (rated voltage applied)																																					
恢復時間 Recovery time	24±2 小時(hours)																																					
	COG	X7R	Y5V																																			
ΔC/C	≤±2%, or ±2pf	≤±10%	≤±30%																																			
DF	≤1.5 × initial requirement																																					
IR	≥0.25 × initial requirement																																					
Strength of lead	Fix the body of capacitor, apply a tensile weight gradually to each lead.	Pull：Axial：>4 kg Radial：>1 kg																																				

MULTILAYER CERAMIC DISC CAPACITORS

Epoxy Coated Radial Type

SPECIFICATION

CINETECH
SYMBOL OF QUALITY

Temperature Characteristics

