Radial Ceramic Capacitors

RND components

Features

- Radial leaded technology
- Excellent solderability
- Ideal for industrial and commercial applications

Part Number Description

RND 150 [M] [NPO] [010] [C] [2A] [R15DS7] [16] [A]

Series [1] [2] [3] [4] [5] [6] [7] [8]

[1] Type

Symbol	Type
M	Radial

[2] Temperature Characteristic

Temp. Charact.	Temperature Range	Capacitance Change
NPO	-55 ~ 125℃	0±30 ppm/℃

[3] Capacitance Value

Symbol	Capacitance Value
060	6pF
6R8	6.8pF
120	12pF
471	470pF
222	2200pF
104	100000pF

[4] Capacitance Tolerance

Symbol	Capacitance Tolerance
C	±0.25pF
J	±5%

[5] Rated Voltage

Symbol	Rated Voltage
2A	DC 100V
2H	DC 500V

[6] Style

Symbol	Dimension (unit:mm)				
	W(max)	L(max)	T(max)	F(±0.8)	Φd
R15AS2	4.5	4.8	3	2.5	0.52
R15DS7	4.5	4.8	3	5	±0.05

[7] Lead Length (L)

(mm)

Packing	Bulk				Taping(H)	
Symbol	04	06	10	25	16	20
Length	3.5	6	10	25	16	20
Tol.	±0.5	±1	±1	±3	$+1.5\ -1$	$+1.5\ -1$

[8] Packaging

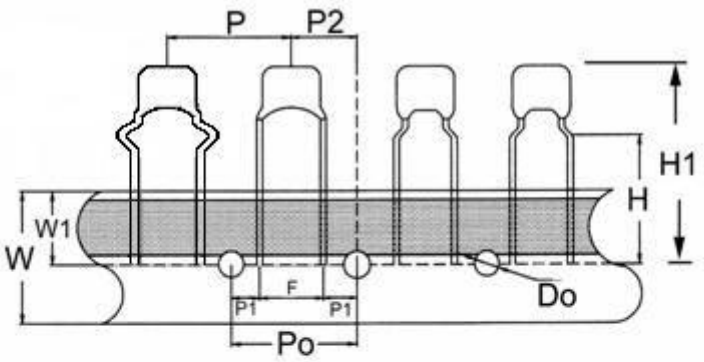
Symbol	Packing
Blank	Bulk
A	AMMO

Dipped Radial Lead Type

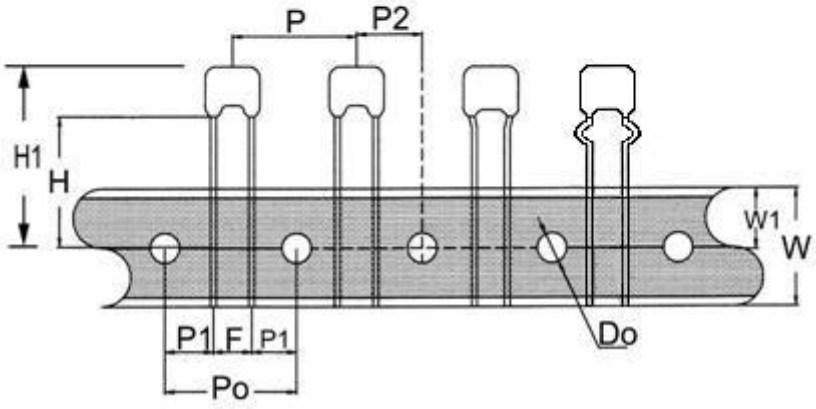
Taping

(Refer to [6] Style)

R□□DS□ Style



R□□AS□ Style



Unit:mm

Description		R□□AS□ Style	R□□DS□ Style	Remark
Carrier tape width	W	18±0.5		
Position of sprocket hole	W1	9±0.5		
Pitch of component	P	12.7 Ref.		
Pitch of sprocket hole	Po	12.7±0.3		
Length from hole center to Lead	P1	5.1±0.7	3.85±0.7	
Length from hole center to component center	P2	6.35 Ref.		
Diameter of sprocket hole	Do	4±0.3		
Lead crimp height	H	$18^{+1.5}_{-1}$	$16^{+1.5}_{-1}$	
Lead spacing	F	2.5±0.8	5±0.8	
Top of component height	H1	26.5Max		

Ceramic Disk Capacitors

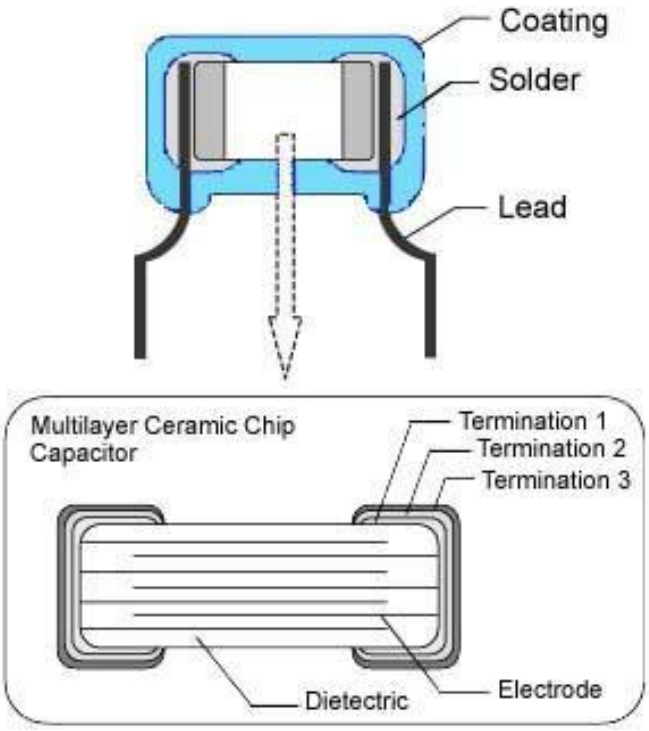
Electrical Characteristics

NPO

Item	Temperature Compensating	Measuring Condition
Operating Temperature Range	-55 ~ +125℃	
Temperature Characteristics	0 ± 30 ppm/℃	
Capacitance	Within the specified tolerance	Shall be measured at 25℃± 2℃ at the frequency and voltage
Q	C≧30pF：Q≧1000 C < 30pF：Q≧400 + 20 × C (C is nominal capacitance)	C≦1000pF@1MHz ± 20%, 1± 0.2Vrms C > 1000pF@1KHz ±10%, 1± 0.2Vrms
Withstanding Voltage	No defects	Applied voltage： Rated voltage ×2.5 100V～999V Rated voltage × 1.5 1000～3000V Rated voltage × 1.2 Duration：1 to 5 sec. The charge/discharge current is less than 50mA
Insulation Resistance	More than 10GΩ or 500MΩ·μF , whichever is less 16Vdc product： More than 10GΩ or 100MΩ·μF , whichever is less	Apply rated voltage for 1 minute at 25℃± 2℃and 70%R.H. max. 16Vdc product： Measurement voltage is 25Vdc

Ceramic Disk Capacitors

Material List



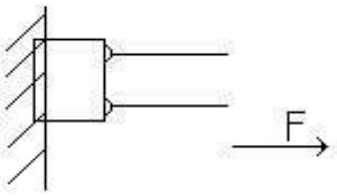
Storage

1. The storage conditions should be:

   Temperature = Lower than 40℃
   Humidity = Lower than 70% R.H.

2. After opening the package, please store in desiccators.

Environmental and Test Characteristics

Item	Temperature Compensating	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℃ Dipping：2 ± 0.5 sec. (Flux shall be used)

Environmental and Test Characteristics

NPO

<table>
<tr><th>Item</th><th>Temperature Compensating</th><th>Measuring Condition</th></tr>
<tr><td colspan="3">Resistance to Soldering heat</td></tr>
<tr><td>ΔC</td><td>± 2.5% or ± 0.25pF
(Whichever is greater)</td><td rowspan="5">The lead wire is immersed in the melted solder 1.5mm to 2mm from the main body at 260 ± 5 ℃ for 10 ± 0.5sec.
Let sit at room temperature for 24 ± 2 hrs. then measure.

Perform the initial measurement.</td></tr>
<tr><td>Q</td><td>C≧30pF：Q≧1000
C＜30pF：Q≧400 + 20 × C
(C is nominal capacitance)</td></tr>
<tr><td>I.R.</td><td>More than 10GΩ or 500MΩ ・μF ,
whichever is less.
16Vdc product：
More than 10GΩ or 100MΩ ・μF ,
whichever is less.</td></tr>
<tr><td>Withstanding voltage</td><td>No defects</td></tr>
<tr><td>Exterior</td><td>No abnormalities</td></tr>
<tr><td colspan="3">Thermal shock</td></tr>
<tr><td>ΔC</td><td>± 2.5% or ± 0.25pF
(Whichever is greater)</td><td rowspan="5">Fix the capacitor to the supporting jig in the same manner and under the same conditions as (Resistance to Soldering heat).
Perform the five cycles according to the four heat treatments listed in the following table.
Remove and let sit at room temperature for 24 ± 2 hrs., then measure.

<table><tr><td>Step</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Temp. (℃)</td><td>Min. Operating Temp.</td><td>Room Temp.</td><td>Max. Operating Temp.</td><td>Room Temp.</td></tr><tr><td>Time</td><td>3±30</td><td>15</td><td>3±30</td><td>15</td></tr></table>
Perform the initial measurement.</td></tr>
<tr><td>Q</td><td>C≧30pF：Q≧1000
C＜30pF：Q≧400 + 20 × C
(C is nominal capacitance)</td></tr>
<tr><td>I.R.</td><td>More than 10GΩ or 500MΩ ・μF ,
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16Vdc product：
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whichever is less.</td></tr>
<tr><td>Withstanding voltage</td><td>No defects</td></tr>
<tr><td>Exterior</td><td>No abnormalities</td></tr>
</table>

Ceramic Disk Capacitors

Environmental and Test Characteristics

NPO

Item	Temperature Compensating	Measuring Condition
Moisture resistance (Steady state)		
ΔC	± 5% or ± 0.5pF (Whichever is greater)	Apply the rated DC voltage at 40 ± 2℃ and 90 to 95% R.H. for 500 $^{+24}_{-0}$ hrs. Remove and let sit at room temperature for 24 ± 2 hrs., then measure. Perform the initial measurement.
Q	C≧30pF：Q≧350 10pF>C<30pF：Q≧275 + $\frac{5}{2}$ × C C≦10pF：Q≧200 +10 × C (C is nominal capacitance)	
I.R.	More than 1000MΩ or 50MΩ ・μF, whichever is less. 16Vdc product： More than 1000MΩ or 10MΩ ・μF, whichever is less.	
Withstanding voltage	No defects	
Exterior	No abnormalities	
High temperature loading		
ΔC	± 3% or ± 0.3pF (Whichever is greater)	Apply 200% of the rated DC voltage for 1000 $^{+48}_{-0}$ hrs. at the maximum operating temperature ± 2℃. Remove and let sit at room temperature for 24 ± 2 hrs., then measure. The charge/discharge current is less than 50mA. Perform initial measurement. ● 100V≦V＜1000V: 150% of rated voltage. ● V≦1000V: 120% of rated voltage (max.3600V)
Q	C≧30pF：Q≧350 10pF>C<30pF：Q≧275 + $\frac{5}{2}$ × C C≦10pF：Q≧200 +10 × C	
I.R.	More than 1000MΩ or 50MΩ ・μF, whichever is less. 16Vdc product： More than 1000MΩ or 10MΩ ・μF, whichever is less.	
Withstanding voltage	No defects	
Exterior	No abnormalities	