



1% Thick Film Chip Resistors (RoHS Compliant) CR1-RC Series

FEATURES

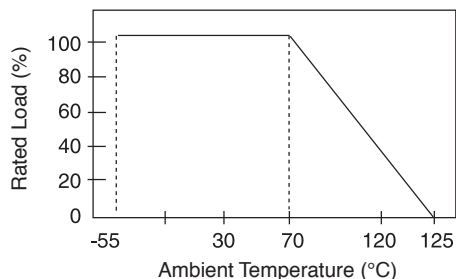
- Temperature Range: -55°C ~ +125°C
- High purity alumina substrate
- Wave or flow solderable
- Excellent high frequency characteristics
- Wrap around termination
- Inner electrode protection



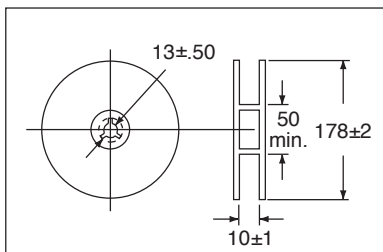
RoHS Compliant



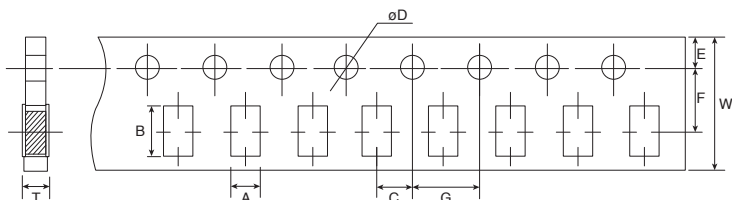
DERATING CURVE



REEL DIMENSIONS (mm)

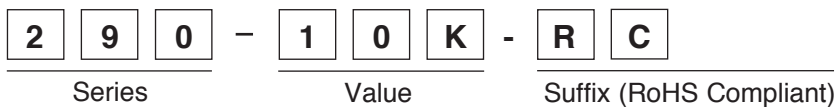


TAPING DIMENSIONS (mm)

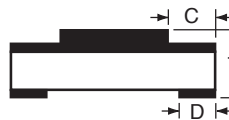
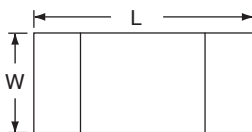


A ± 0.2	B ± 0.2	C ± 0.05	øD ± 0.1	E ± 0.1	F ± 0.05	G ± 0.1	W ± 0.2	T ± 0.1
2.00	3.60	2.0	1.5	1.75	3.5	4.0	8.0	0.81

PART NUMBERING SYSTEM



SERIES, SIZE, WATTAGE, VOLTAGE, AND DIMENSIONS



Series	Case Size	Watts (W)	Voltage (V) (max.)		Dimensions (mm)				
			W.V.	O.V.	L	W	C	D	T
290	1206	1/8	200	400	3.1 ± .15	1.55 ± .15	.45 ± .20	.45 ± .20	.55 ± .10
292	0805	1/10	150	300	2.0 ± .15	1.25 ± .15	.40 ± .20	.40 ± .20	.55 ± .10
302	0603	1/10	50	100	1.6 ± .10	.80 ± .15	.30 ± .20	.30 ± .20	.45 ± .10
304	0402	1/16	25	50	1.0 ± .10	.50 ± .05	.20 ± .10	.25 ± .10	.35 ± .05





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■ CHARACTERISTICS (Cont.)

Characteristics	Limits	Test Methods (JIS C 5201-1)															
Temperature cycling	$\pm (1.0\% + 0.05\Omega)$ Max.	7.4 Resistance change after continuous 5 cycles for duty shown below:															
		<table border="1"> <thead> <tr> <th>Step</th> <th>Temperature</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-55°C $\pm 3^\circ\text{C}$</td> <td>30 mins</td> </tr> <tr> <td>2</td> <td>Room temp.</td> <td>10~15 mins</td> </tr> <tr> <td>3</td> <td>+155°C $\pm 2^\circ\text{C}$</td> <td>30 mins</td> </tr> <tr> <td>4</td> <td>Room temp.</td> <td>10~15 mins</td> </tr> </tbody> </table>	Step	Temperature	Time	1	-55°C $\pm 3^\circ\text{C}$	30 mins	2	Room temp.	10~15 mins	3	+155°C $\pm 2^\circ\text{C}$	30 mins	4	Room temp.	10~15 mins
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		2	Room temp.	10~15 mins													
3	+155°C $\pm 2^\circ\text{C}$	30 mins															
4	Room temp.	10~15 mins															
Load life in humidity	Resistance change rate is $\pm (3.0\% + 0.1\Omega)$ Max.	7.9 Resistance change after 1,000 hours (1.5 hours "on", 0.5 hour "off") at RCWV in a humidity chamber controlled at 40°C $\pm 2^\circ\text{C}$ and 90 to 95 % relative humidity															
Load life	Resistance change rate is $\pm (3.0\% + 0.1\Omega)$ Max.	7.10 Permanent resistance change after 1,000 hours operating at RCWV, with duty cycle of (1.5 hours "on", 0.5 hour "off") at 70°C $\pm 2^\circ\text{C}$ ambient															
Soldering Heat	Electrical characteristics shall be satisfied. Without distinct deformation in appearance.	<u>Solder bath method</u> Pre-Heat: 100 to 105°C, 30 ± 5 sec. Temperature: 265 $\pm 3^\circ\text{C}$, 5 +1/-0 sec <u>Reflow soldering method</u> Peak: 250 +5/-0°C 230°C or higher, 30 ± 10 Sec. <u>Solder iron method</u> Bit temperature: 350° $\pm 10^\circ\text{C}$ Application time of soldering iron: 3 +1/-0 seconds															
Solderability	95% Coverage min.	6.5 Test temperature of solder: 245° $\pm 3^\circ\text{C}$ Dipping them solder: 2~3 seconds															



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