



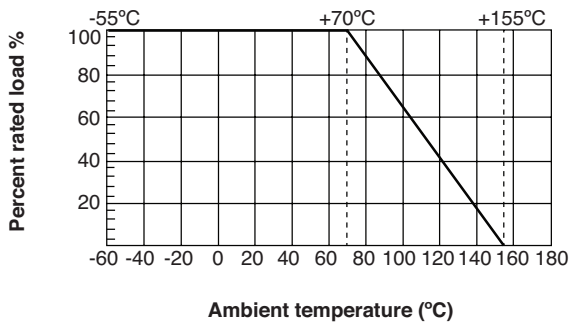
5% Anti-Surge Thick Film Chip Resistors (RoHS Compliant)

AS-RC SERIES

FEATURES

- Temperature Range:-55°C ~ +155°C (derated over 70°C)
- ±5% tolerance
- Wave or Flow solderable
- Other values may be available on request

DERATING CURVE



LEAD-FREE

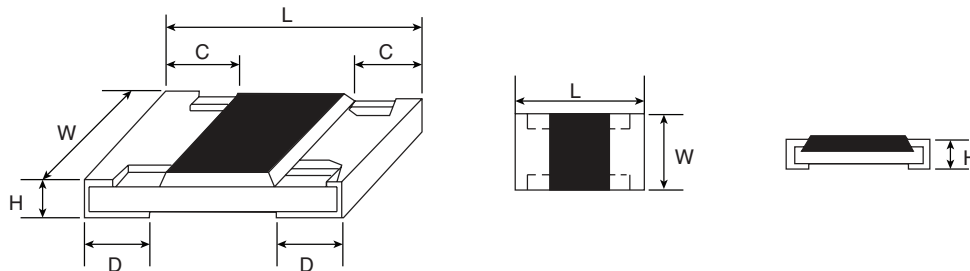


RoHS Compliant

PART NUMBERING SYSTEM

3	0	3	-	1	0	K	/	R	E	E	L	-	R	C
Series				Value				Package					Suffix (RoHS Compliant)	

SERIES, SIZE, WATTAGE, VOLTAGE, AND DIMENSIONS



Series	Case Size	Watts (W)	Voltage (Max.) @ 70°C		Dimension (mm)				
			W.V.	O.V.	L	W	H	C	D
303	0603	1/4	50	100	1.60 ± .10	.80 ± .10	.45 ± .10	.30 ± .20	.30 ± .20
305	0805	1/2	150	300	2.00 ± .15	1.25 ± .15	.55 ± .10	.40 ± .20	.40 ± .20
306	1206	3/5	200	400	3.10 ± .15	1.25 ± .15	.55 ± .10	.40 ± .20	.40 ± .20
307	1206	3/4	200	500	3.10 ± .10	2.60 ± .20	.55 ± .10	.50 ± .25	.50 ± .20
310	2010	3/4	200	500	5.00 ± .10	2.50 ± .15	.55 ± .10	.60 ± .25	.50 ± .20
312	2512	1.5	250	500	6.35 ± .10	3.20 ± .15	.55 ± .10	.60 ± .25	.50 ± .20

STANDARD VALUES (Ω)

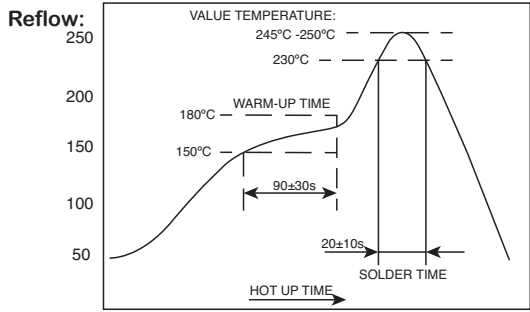
1.0	4.7	30	270	1K	5.6K	30K	470K	200M
2.0	5.6	47	390	2K	6.8K	33K	20M	470M
2.2	10	56	430	2.0K	10K	100K	47M	
2.4	15	100	470	3.0K	22K	220K	50M	
3.0	22	220	560	4.7K	27K	330K	100M	



5% Anti-Surge Thick Film Chip Resistors

(RoHS Compliant)

AS-RC SERIES

Characteristics	Limits	Test Methods (JIS C 5201-1)															
Dielectric withstanding voltage	No evidence of flashover mechanical damage, arcing or insulation break down	Clamped in the trough of a 90°C metallic v-block and shall be tested at ac potential respectively specified in the type for 60-70 seconds															
Temperature Coefficient	1Ω-10Ω : $\leq \pm 400 \text{ PPM}/^\circ\text{C}$ 11Ω-10MΩ : $\leq \pm 100 \text{ PPM}/^\circ\text{C}$ (2010, 2512) 1Ω-10Ω : $\leq \pm 200 \text{ PPM}/^\circ\text{C}$	Natural resistance change per temp. degree centigrade. $\frac{R2-R1}{R1(t2-t1)} \times 10 \quad (\text{PPM}/^\circ\text{C})$ R1: Resistance value at room temperature (T1) R2: Resistance value at room temp. plus 100 °C(T2) Test Pattern: room temp. (T1), room temp. +100°C(T2)															
Short Time Overload	Resistance change rate is $\pm (1.0\% + 0.1\Omega)$ Max.	Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds															
Solderability	95% coverage Min.	Wave Solder: Test temperature of solder: 245°C $\pm$ 3°C dipping time in solder: 2-3 seconds Reflow: 															
Soldering Heat	Resistance change rate is: $\pm (1\% + 0.05\Omega)$ Max.	Dip the resistor into a solder bath having a temperature of 260°C $\pm$ 3°C and hold it for 10 $\pm$ 1 seconds.															
Temperature cycling	Resistance change rate is $\pm (0.5\% + 0.05\Omega)$ Max.	Resistance change after continuous 5 cycles for duty cycle specified below: <table border="1" data-bbox="954 1306 1433 1488"> <thead> <tr> <th>Step</th><th>Temperature</th><th>Time</th></tr> </thead> <tbody> <tr> <td>1</td><td>-55°C $\pm$ 3°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°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°C	30 mins	2	Room temp.	10~15 mins	3	+155°C $\pm$ 2°C	30 mins	4	Room temp.	10~15 mins
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1	-55°C $\pm$ 3°C	30 mins															
2	Room temp.	10~15 mins															
3	+155°C $\pm$ 2°C	30 mins															
4	Room temp.	10~15 mins															
Humidity	Resistance change rate is $\pm (3.0\% + 0.1\Omega)$ Max.	Temporary resistance change after 240 hours exposure in a humidity test chamber controlled at 40 $\pm$ 2°C and 90-95% relative humidity															
Load life in humidity	Resistance change rate is $\pm (3.0\% + 0.1\Omega)$ Max.	Resistance change after 1000 hours (1.5 hours "on", 0.5 hour "off") at RCWV in a humidity controlled at 40°C $\pm$ 2°C and 90 to 95% relative humidity															
Load Life	Resistance change rate is $\pm (3.0\% + 0.1\Omega)$ Max.	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 + 2°C ambient															
Terminal bending	Resistance change rate is $\pm (1.0\% + 0.05\Omega)$ Max.	Twist of Test Board: Y/X = 3/90 mm for 60 seconds															

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