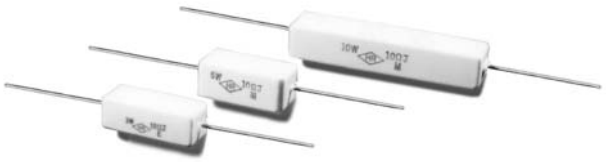
Cement Power Resistors (RoHS Compliant) PW-RC Series

FEATURES

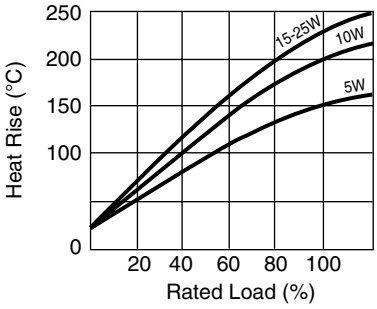
- Temperature Range: -55°C ~ +155°C
- 5% tolerance
- Exceptionally small, sturdy, and reliable
- Sealed with a special cement
- Excellent moisture resistance
- High temperature stability
- Ceramic flame retardant package
- Recommended wash method is alcohol

LEAD-FREE

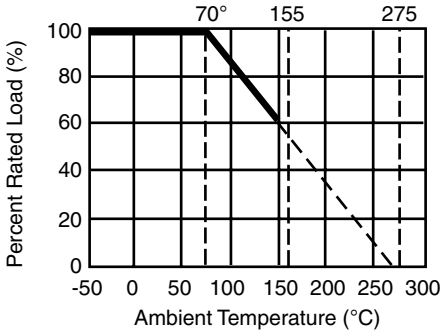
Environmental Commitment



HEAT RISE CHART



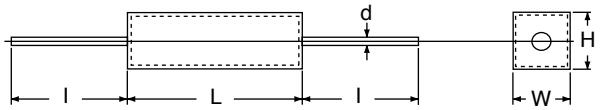
DERATING CURVE



PART NUMBERING SYSTEM

C	R	5	-	1	0	K	-	R	C
Series		Watts		Value				Suffix (RoHS Compliant)	

POWER RATING, RANGE OF VALUES, AND DIMENSIONS



Watts (W)	Range of Values		Dimensions (mm)				
	Wire Wound	Metal Oxide	L ±1	W ±1	H ±1	l ±5	d ±0.05
5	0.1 ~ 47	48 ~ 25K	22	10	9	35	0.75
10	0.1 ~ 910	911 ~ 25K	49	10	9	35	0.75
15	1 ~ 1K	- - N/A - -	49	12.5	11.5	35	0.75
25	2 ~ 1.0K	- - N/A - -	64	14.5	13.5	35	0.75

STANDARD STOCKED VALUES (Ω)

0.1	0.33	0.56	1.0	1.8	3.3	4.7	6.8	11	18	27	43	62	100	160	250	390	560	910	1.5K	2.4K	4.7K
0.15	0.39	0.62	1.1	2.0	3.6	5.0	7.5	12	20	30	47	68	110	180	270	430	620	1.0K	1.6K	2.7K	5.0K
0.2	0.43	0.68	1.2	2.2	3.9	5.1	8.2	13	22	33	50	75	120	200	300	470	680	1.1K	1.8K	3.0K	10K
0.22	0.47	0.75	1.3	2.4	4.0	5.6	9.1	15	24	36	51	82	130	220	330	500	750	1.2K	2.0K	3.3K	20K
0.27	0.5	0.82	1.5	2.7	4.3	6.2	10	16	25	39	56	91	150	240	360	510	820	1.3K	2.2K	3.9K	25K
0.3	0.51	0.91	1.6	3.0																	

*Other values available by special request

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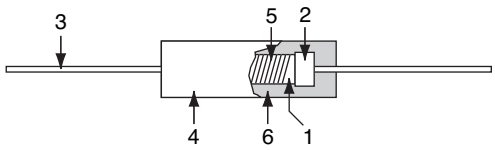
CONSTRUCTION

No.	Subpart Name	Material	Material Generic Name
1	Body	Rod Type Ceramics	Al_2O_3, SiO_2
2	End Cap	Tin plated iron surface	Tin : 5%, Iron : 95%
3	Lead	Annealed copper wire (Electrosolder plated surface) Pb Free	Tin-Coated Copper wire
4	Ceramic Case	Ceramic	Al_2O_3, SiO_2
5	Resistance wire	Ni-Cr Alloy	Ni-Cr Alloy
6	Filling Materials	Quartz mixed sand	SiO_2



Cement: Wire wound

CHARACTERISTICS

Characteristics	Limits	Test Methods (JIS C 5201-1)
Temperature coefficient	± 350 PPM / °C Max. <20Ω ± 400 PPM / °C	5.2 Natural resistance change per temp. degree centigrade. $\frac{R_2-R_1}{R_1(t_2-t_1)} \times 10^6$ (PPM / °C) R_1: Resistance value at room temperature (t_1) R_2: Resistance value at room temp. plus 100 °C (t_2)
Dielectric withstanding voltage	No evidence of flashover, mechanical damage, arcing or insulation break down	5.7 Resistors shall be clamped in the trough of a 90° metallic V-block and shall be tested at AC potential respectively for 60 +10/ -0 secs.
Temperature cycling	Resistance change rate is ± (2% + 0.05Ω) Max. with no evidence of mechanical damage	7.4 Resistance change after continuous 5 cycles for duty shown below: **Step** / **Temperature** / **Time** 1 / -55 °C ± 3 °C / 30 mins 2 / Room temp. / 10 ~ 15 mins 3 / +155 °C ± 2 °C / 30 mins 4 / Room temp. / 10 ~ 15 mins
Short time overload	Resistance change rate is ± (5% + 0.05Ω) Max. with no evidence of mechanical damage	5.5 Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds
Load life in humidity	**Resistance value** / **Δ R/R** Wire-wound / ± 5%	7.9 Resistance change after 1,000 hours operating at RCWV with duty cycle of (1.5 hours "on", 0.5 hour "off") in a humidity test chamber controlled at 40 °C ± 2 °C and 90 to 95 % relative humidity
Load life	**Resistance value** / **Δ R/R** Wire-wound / ± 5%	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 ±2 °C
Terminal strength	No evidence of mechanical damage	6.1 **Direct load :** Resistance to a 2.5 kgs direct load for 10 secs. in the direction of the longitudinal axis of the terminal leads **Twist test :** Terminal leads shall be bent through 90 ° at a point of about 6mm from the body of the resistor and shall be rotated through 360° about the original axis of the bent terminal in alternating direction for a total of 3 rotations
Resistance to soldering heat	Resistance change rate is ± (1% + 0.05ø) Max. with no evidence of mechanical damage	6.4 Permanent resistance change when leads immersed to 3.2 to 4.8 mm from the body in 350 °C ± 10 °C solder for 3 ± 0.5 secs.
Solderability	95 % coverage Min.	6.5 The area covered with a new , smooth clean , shiny and continuous surface free from concentrated pinholes. Test temp. of solder : 245 °C ± 3 °C Dwell time in solder : 2 ~ 3 seconds