Through Hole Cement Resistor

multicomp PRO

RoHS Compliant

Type	Power Rating	Resistance tolerance	Nominal Resistance
PRM0	5W	J	47Ω

Ratings:

Type	Rated Power at 70°C	Max. Working Voltage	Max. Overload Voltage	Resistance Range		Operating Temp. Range
				Wire-wound	Power Film	
PRM0	2W	500 V	1,000 V	0.1Ω ~ 39Ω	28Ω ~ 33KΩ	-55°C to +155°C
	3W			0.1Ω ~ 47Ω	40Ω ~ 56KΩ	
	5W			0.1Ω ~ 680Ω	48Ω ~ 100KΩ	
	7W			0.1Ω ~ 910Ω	681Ω ~ 200KΩ	
	10W			0.1Ω ~ 27Ω	911Ω ~ 200KΩ	

Power rating:
Resistors shall have a power rating based on continuous full load operation at an ambient temperature of 70°C.

Voltage rating:
Resistors shall have a rated direct-current (DC) continuous working voltage or an approximate sine-wave root-mean-square (RMS) alternating-current (AC) continuous working voltage at commercialline frequency and waveform corresponding to the power rating, as determined from the following formula :

RCWV = $\sqrt{P \times R}$

Note : Max. Working Voltage or $\sqrt{P \times R}$ whichever is lesser

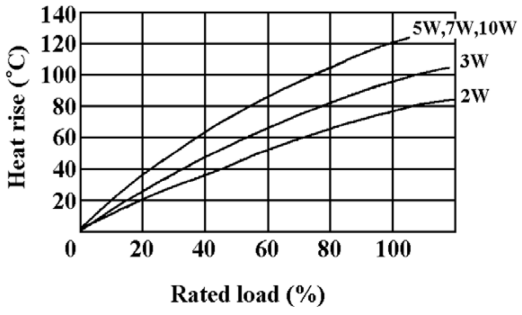
Max. Overload Voltage or 2.5 $\sqrt{P \times R}$ whichever is lesser

Where : RCWV = Rated DC or RMS AC continuous working voltage at commercial-line frequency and waveform (volt)

P = Power Rating (watt)

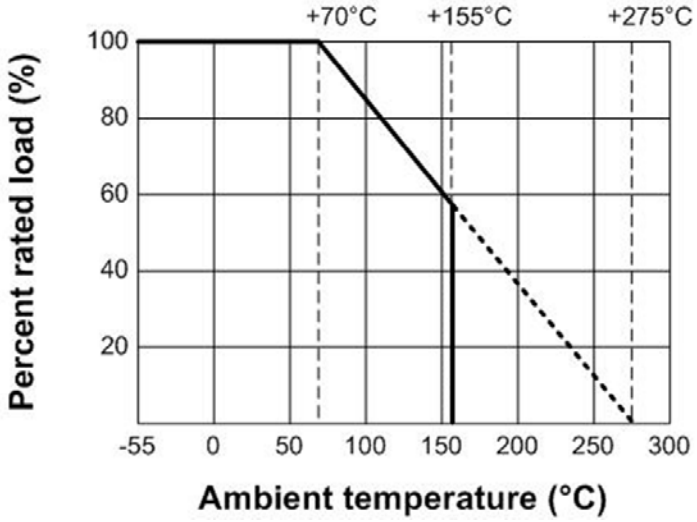
R = Nominal Resistance (ohm)

Heat Rise Chart

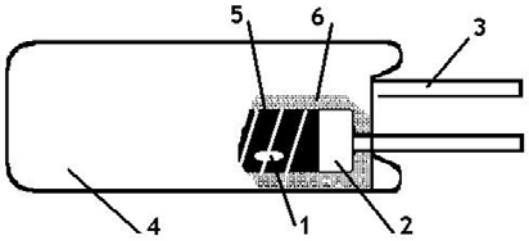


Derating Curve

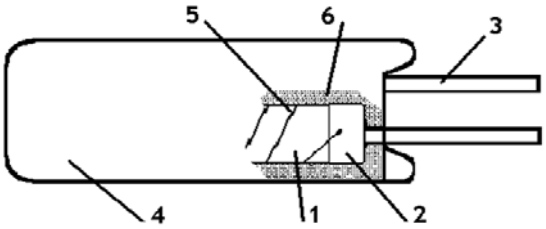
Figure 1.



Construction



Cement: Power Film Type



Cement : Wire-wound Type

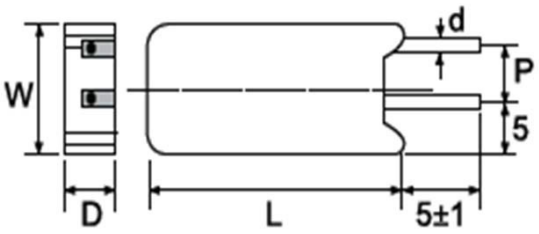
No.	Name	Material	Material Generic Name
1	Body	Rod Type Ceramics	$Al2O_3$, SiO_2
2	End Cap	Tin plated iron surface	Tin : 5%, Iron : 95%
3	Lead	Annealed copper wire	Tin-Plated Copper wire
4	Ceramic Case	Ceramic	Al_2O_3, SiO_2
5	Resistance wire	Cu-Ni Alloy / Ni-Cr Alloy Metal Oxide Film	Cu-Ni Alloy / Ni-Cr Alloy Metal Oxide Film
6	Resistance Film	Quartz mixed sand	SiO_2

Specifications

Characteristics	Limits	Test Methods (JIS C 5201-1)
Dielectric withstanding voltage	No evidence of flashover, mechanical damage, arcing or insulation break down	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. (Sub-clause 4.7)
Temperature coefficient	<20Ω : ± 400 PPM/°C ≥20Ω : ± 350 PPM/°C	Natural resistance change per temp. degree centigrade. $\frac{R2-R1}{R1(t2-t1)} \times 10^6$ (PPM/°C) R1: Resistance value at room temperature (t1) R2: Resistance value at room temp. plus 100°C (t2) (Sub-clause 4.8)
Short time overload	Resistance change rate is ± (5% + 0.05Ω) Max. with no evidence of mechanical damage	Permanent resistance change after the application of a potential of 2.5 times RCWV or Max Overload Voltage whichever is lesser for 5 sec. (Sub-clause 4.13)
Terminal strength	No evidence of mechanical damage	**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 (Sub-clause 4.16)
Solderability	95 % coverage Min.	The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes. Test temp. of solder : 245°C ± 5°C Dwell time in solder : 2 to 3 seconds (Sub-clause 4.17)
Soldering temp. reference	Electrical characteristics shall be satisfied. Without distinct deformation in appearance. (95 % coverage Min.)	The leads immersed into solder bath to 3.2 to 4.8 mm. from the body. Permanent resistance change shall be checked. Wave soldering condition: (2 cycles Max.) Pre-heat : 100 ~ 120°C, 30 ± 5 sec. Suggestion solder temp.: 235 ~ 255°C, 10 sec. (Max.) Peak temp.: 260°C Hand soldering condition: Hand Soldering bit temp. : 380 ± 10°C Dwell time in solder : 3 +1/-0 sec.
Resistance to soldering heat	Resistance change rate is ± (1% + 0.05Ω) Max. with no evidence of mechanical damage.	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 seconds. (Sub-clause 4.18)

<table>
<tr><th>Characteristics</th><th>Limits</th><th>Test Methods
(JIS C 5201-1)</th></tr>
<tr><td>Temperature cycling</td><td>Resistance change rate is
± (2% + 0.05Ω) Max. with no
evidence of mechanical damage</td><td>Resistance change after continuous
5 cycles for duty shown below:
<table><tr><td>Step</td><td>Temperature</td><td>Time</td></tr><tr><td>1</td><td>-55°C ± 3°C</td><td>30 mins</td></tr><tr><td>2</td><td>Room temp.</td><td>10 to 15 mins</td></tr><tr><td>3</td><td>+155°C ± 2°C</td><td>30 mins</td></tr><tr><td>4</td><td>Room temp.</td><td>10 to 15 mins</td></tr></table>(Sub-clause 4.19)</td></tr>
<tr><td>Load life in humidity</td><td><table><tr><th colspan="2">Resistance value</th><th>ΔR/R</th></tr><tr><td colspan="2">Wire-wound</td><td>±5%</td></tr><tr><td rowspan="2">Power film:</td><td><100KΩ</td><td>±5%</td></tr><tr><td>≥100KΩ</td><td>±10%</td></tr></table></td><td>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
(Sub-clause 4.24.2.1)</td></tr>
<tr><td>Load life</td><td><table><tr><th colspan="2">Resistance value</th><th>ΔR/R</th></tr><tr><td colspan="2">Wire-wound</td><td>±5%</td></tr><tr><td rowspan="2">Power film:</td><td><100KΩ</td><td>±5%</td></tr><tr><td>≥100KΩ</td><td>±10%</td></tr></table></td><td>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
(Sub-clause 4.25.1)</td></tr>
</table>

Dimension



PRM 7W, 10W : Lead not centered

PRM 2W, 3W, 5W : Lead centered

Type	Rating Wattage	W ± 1	D ± 1	L ± 1	d ± 0.05	P ± 1
PRM0	3W	12.5	8.5	25	0.75	5
	5 W	13	9	25		
	10W	13	9	50		

Dimensions : Millimetres

Part Number Table

Description	Part Number
Cement Resistor, Wire Wound Type, 5W, 5%, 10R	MPPRM05WJW100B00
Cement Resistor, Wire Wound Type, 5W, 5%, 47R	MPPRM05WJW470B00
Cement Resistor, Wire Wound Type, 10W, 5%, 150R	MPPRM0AWJW151B00
Cement Resistor, Wire Wound Type, 5W, 5%, 8.2R	MPPRM05WJW82JB00
Cement Resistor, Wire Wound Type, 5W, 5%, 0.47R	MPPRM05WJW47KB00
Cement Resistor, Wire Wound Type, 5W, 5%, 4.7R	MPPRM05WJW47JB00
Cement Resistor, Wire Wound Type, 10W, 5%, 15R	MPPRM0AWJW150B00
Cement Resistor, Wire Wound Type, 5W, 5%, 15R	MPPRM05WJW150B00
Cement Resistor, Wire Wound Type, 5W, 5%, 43R	MPPRM05WJW430B00
Cement Resistor, Wire Wound Type, 10W, 5%, 33R	MPPRM0AWJW330B00
Cement Resistor, Wire Wound Type, 5W, 5%, 20R	MPPRM05WJW200B00
Cement Resistor, Wire Wound Type, 5W, 5%, 1.5R	MPPRM05WJW15JB00
Cement Resistor, Wire Wound Type, 5W, 5%, 1R	MPPRM05WJW10JB00
Cement Resistor, Power Film Type, 10W, 5%, 10K	MPPRM0AWJP103B00
Cement Resistor, Power Film Type, 5W, 5%, 10K	MPPRM05WJP103B00
Cement Resistor, Power Film Type, 5W, 5%, 150R	MPPRM05WJP151B00
Cement Resistor, Power Film Type, 5W, 5%, 1K	MPPRM05WJP102B00
Cement Resistor, Power Film Type, 5W, 5%, 4.7K	MPPRM05WJP472B00
Cement Resistor, Power Film Type, 5W, 5%, 330R	MPPRM05WJP331B00
Cement Resistor, Power Film Type, 5W, 5%, 560R	MPPRM05WJP561B00
Cement Resistor, Power Film Type, 5W, 5%, 68R	MPPRM05WJP680B00
Cement Resistor, Wire Wound Type, 5W, 5%, 3.9R	MPPRM05WJW39JB00
Cement Resistor, Power Film Type, 5W, 5%, 470R	MPPRM05WJP471B00
Cement Resistor, Wire Wound Type, 5W, 5%, 0.1R	MPPRM05WJW10KB00
Cement Resistor, Wire Wound Type, 5W, 5%, 0.2R	MPPRM05WJW20KB00
Cement Resistor, Wire Wound Type, 5W, 5%, 0.05R	MPPRM05WJW50LB00
Cement Resistor, Wire Wound Type, 5W, 5%, 0.33R	MPPRM05WJW33KB00
Cement Resistor, Wire Wound Type, 10W, 5%, 10R	MPPRM0AWJW100B00
Cement Resistor, Power Film Type, 5W, 5%, 270R	MPPRM05WJP271B00
Cement Resistor, Wire Wound Type, 5W, 5%, 3.3R	MPPRM05WJW33JB00
Cement Resistor, Wire Wound Type, 10W, 5%, 200R	MPPRM0AWJW201B00
Cement Resistor, Wire Wound Type, 10W, 5%, 3R	MPPRM0AWJW30JB00
Cement Resistor, Power Film Type, 10W, 5%, 1K	MPPRM0AWJP102B00
Cement Resistor, Wire Wound Type, 10W, 5%, 20R	MPPRM0AWJW200B00
Cement Resistor, Wire Wound Type, 5W, 5%, 2R	MPPRM05WJW20JB00
Cement Resistor, Wire Wound Type, 5W, 5%, 0.3R	MPPRM05WJW30KB00
Cement Resistor, Wire Wound Type, 5W, 5%, 3R	MPPRM05WJW30JB00
Cement Resistor, Power Film Type, 5W, 5%, 300R	MPPRM05WJP301B00

Description	Part Number
Cement Resistor, Power Film Type, 5W, 5%, 7.5K	MPPRM05WJP752B00
Cement Resistor, Wire Wound Type, 5W, 5%, 0.27R	MPPRM05WJW27KB00
Cement Resistor, Wire Wound Type, 5W, 5%, 33R	MPPRM05WJW330B00
Cement Resistor, Power Film Type, 5W, 5%, 200R	MPPRM05WJP201B00
Cement Resistor, Power Film Type, 5W, 5%, 1.5K	MPPRM05WJP152B00
Cement Resistor, Wire Wound Type, 10W, 5%, 0.68R	MPPRM0AWJW68KB00
Cement Resistor, Power Film Type, 5W, 5%, 82R	MPPRM05WJP820B00
Cement Resistor, Wire Wound Type, 10W, 5%, 6.8R	MPPRM0AWJW68JB00
Cement Resistor, Wire Wound Type, 10W, 5%, 30R	MPPRM0AWJW300B00
Cement Resistor, Wire Wound Type, 10W, 5%, 100R	MPPRM0AWJW101B00
Cement Resistor, Wire Wound Type, 10W, 5%, 0.1R	MPPRM0AWJW10KB00
Cement Resistor, Wire Wound Type, 10W, 5%, 4.7R	MPPRM0AWJW47JB00
Cement Resistor, Wire Wound Type, 5W, 5%, 39R	MPPRM05WJW390B00
Cement Resistor, Wire Wound Type, 5W, 5%, 2.7R	MPPRM05WJW27JB00
Cement Resistor, Wire Wound Type, 5W, 5%, 0.68R	MPPRM05WJW68KB00
Cement Resistor, Wire Wound Type, 3W, 5%, 2R	MPPRM03WJW20JB00
Cement Resistor, Power Film Type, 5W, 5%, 3.3K	MPPRM05WJP332B00
Cement Resistor, Power Film Type, 5W, 5%, 56R	MPPRM05WJP560B00
Cement Resistor, Wire Wound Type, 5W, 5%, 7.5R	MPPRM05WJW75JB00
Cement Resistor, Power Film Type, 5W, 5%, 75R	MPPRM05WJP750B00
Cement Resistor, Power Film Type, 5W, 5%, 3K	MPPRM05WJP302B00
Cement Resistor, Wire Wound Type, 3W, 5%, 0.2R	MPPRM03WJW20KB00

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