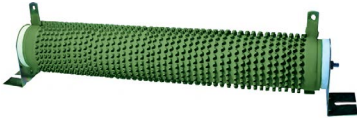


Wire-Wound Resistors

Power (Ribbon) Type

multicomp PRO

RoHS
Compliant



Scope: This specification for approval relates to Power Ribbon Type Wire-Wound Resistors

Type designation: The type designation shall be in the following form:

Type	Power Rating	Resistance tolerance	Nominal Resistance
MPQRZG	200W	J	1Ω

Ratings:

Type	Rated Power at 70°C	Resistance Range	Resistance Tolerance	Operating Temp. Range
MPQRZG 200W	200W	1Ω ~ 9.1Ω	± 5% ± 10%	-55°C~ +155°C
MPQRZG 300W	300W			
MPQRZG 500W	500W	1Ω ~ 20Ω		
MPQRZG 750W	750W	1Ω ~ 75Ω		
MPQRZG 1,000W	1,000W	1Ω ~ 100Ω		
MPQRZG 1,500W	1,500W	1Ω ~ 120Ω		
MPQRZG 2,000W	2,000W			
MPQRZG 2,500W	2,500W			

Power rating:

Resistors shall have a power rating based on continuous full load operation at an ambient temperature of 70°C. For temperature in excess of 70°C, the load shall be derated as shown in the figure 1.

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 commercial line 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)

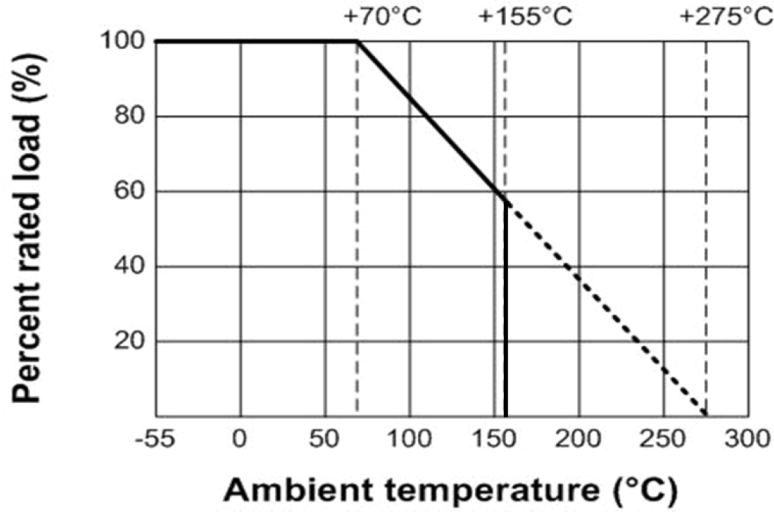
P = Power Rating (watt)

R = Nominal Resistance (ohm)

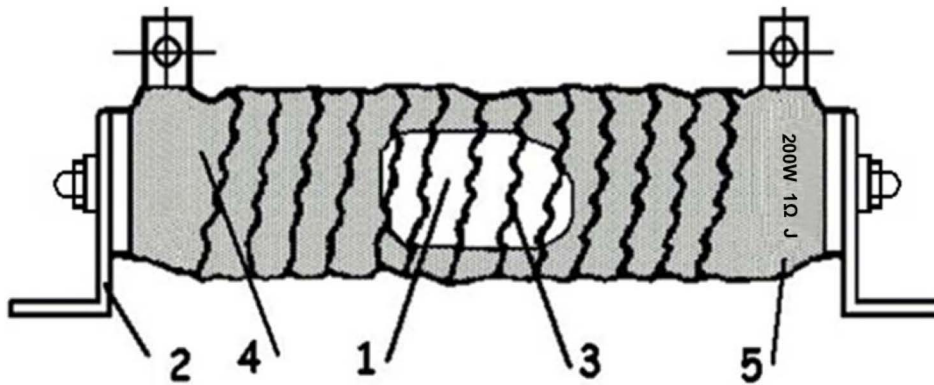
Wire-Wound Resistors

Power (Ribbon) Type

Derating Curve



Construction



No.	Name	Material	Material Generic Name
1	Basic Body	Rod Type Ceramics	Al ₂ O ₃ , SiO ₂
2	Terminal lead	Terminal cap plated with Tin	Fe : 73%, Mn : 21%, C : 5%
3	Resistance Wire	Ni-Cr Alloy, Cu-Ni Alloy	Ni-Cr Alloy, Cu-Ni Alloy
4	Coating	Insulated & Non-Flame paint (Colour : Green)	Non-Flame paint
5	Marking	Marking Ink	---

Wire-Wound Resistors

Power (Ribbon) Type

multicomp PRO

Performance specification

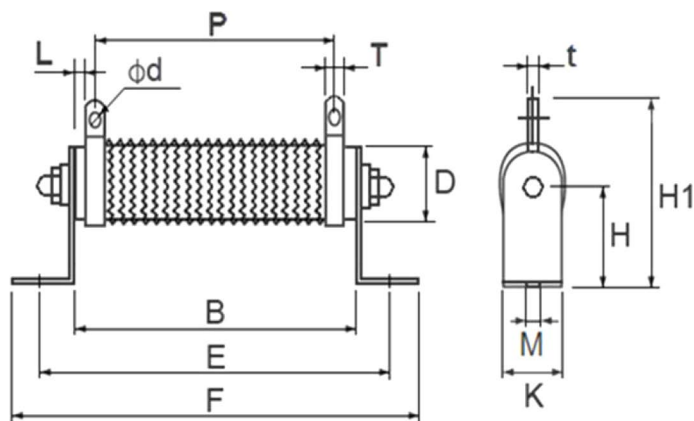
Characteristics	Limits	Test Methods (JIS C 5201-1)
DC. resistance	Must be within the specified tolerance.	The limit of error of measuring apparatus shall not exceed allowable range or 5% of resistance tolerance (Sub-clause 4.5)
Temperature coefficient	<20Ω : ± 400 PPM/°C Max. ≥20Ω : ± 300 PPM/°C Max.	Natural resistance change per temp. degree centigrade. $\frac{R2-R1}{R1(t2-t1)} \times 10^6 \text{ (PPM/°C)}$ 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 ± (2% + 0.05Ω) Max. with no evidence of mechanical damage	Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds (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 ± 3°C Dwell time in solder : 2 ~ 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)

Wire-Wound Resistors

Power (Ribbon) Type

Characteristics	Limits	Test Methods (JIS C 5201-1)
Load life in humidity	Resistance change rate is $\pm(5\% + 0.05\Omega)$ Max. with no evidence of mechanical damage	Resistance change after 1,000 hours (1.5 hours "on", 0.5 hour "off") at RCWV in a humidity test chamber controlled at $40^\circ\text{C} \pm 2^\circ\text{C}$ and 90 to 95 % relative humidity (Sub-clause 4.24.2.1)
Load life	Resistance change rate is $\pm(5\% + 0.05\Omega)$ Max. with no evidence of mechanical damage	Permanent resistance change after 1,000 hours operating at RCWV with duty cycle of (1.5 hours "on", 0.5 hour "off") at $70^\circ\text{C} \pm 2^\circ\text{C}$ ambient (Sub-clause 4.25.1)

Dimension

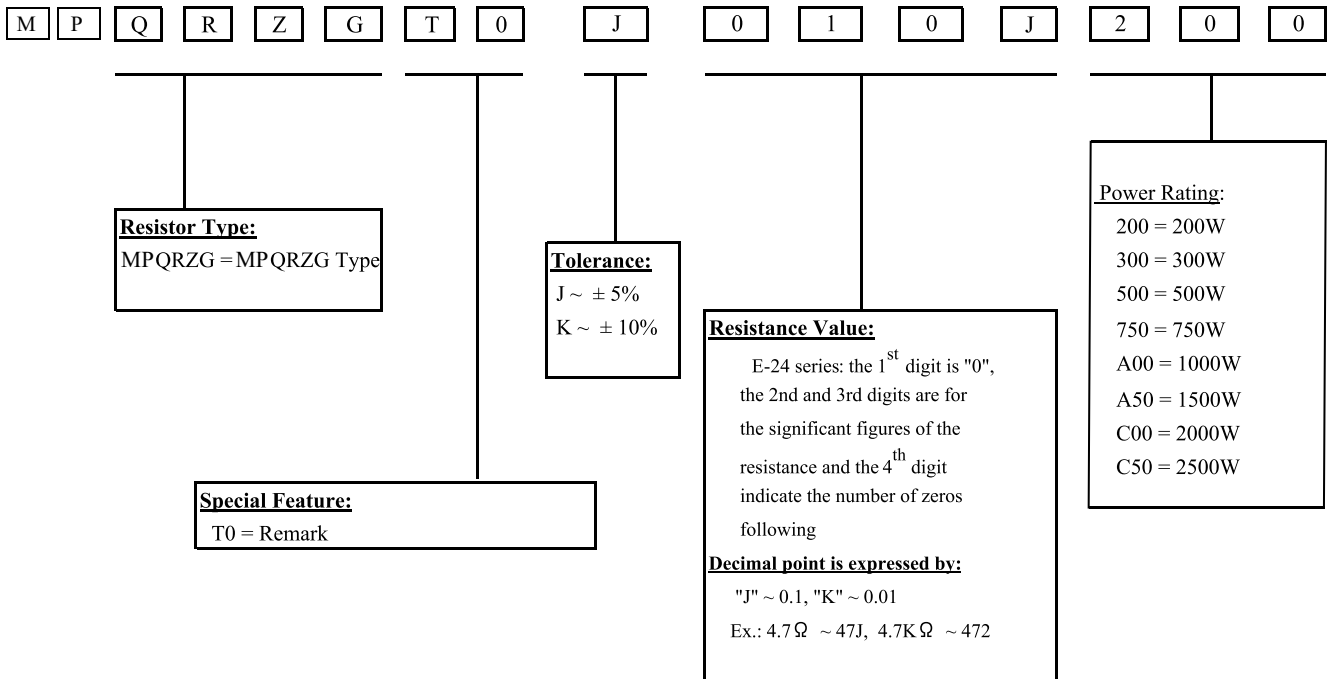


Type	Dimension													
	B	E \pm 5	F \pm 3	D \pm 2	H \pm 1	H1 \pm 3	M \pm 0.5	K \pm 1	L \pm 1	P \pm 3	T \pm 0.5	t \pm 0.5	$\phi d \pm 0.5$	
MPQRZG 200W	195 \pm 2	217	239	40	41	81	8	40	3	179	10	1.8	5.5	
MPQRZG 300W	282 \pm 2	304	326							266	10			
MPQRZG 500W	316 \pm 3	338	360	50	45	101				50	294			16
MPQRZG 750W	316 \pm 3	338		60	60	119				8.5	60			279
MPQRZG 1,000W	300 \pm 3	325	350	60	60	119	8.5	60		394	15	2		6.5
MPQRZG 1,500W	415 \pm 3	440	465							489				
MPQRZG 2,000W	510 \pm 3	535	560							577				
MPQRZG 2,500W	600 \pm 3	625	650											

Wire-Wound Resistors

Power (Ribbon) Type

Explanation of Part Number System (Power (Ribbon) Wire-Wound Resistors)



Sample: MPQRZG 200W +/- 5% 1Ω B/B → MPQRZGT0J010J200

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