



Features

- Low thermal resistant ceramic core
- E24 resistance values
- RoHS compliant*
- Wide power range (1~10 W)
- Coating material meets UL 94V-0 requirements

Applications

- Smart meters
- Renewable energy
- Industrial
- Power supplies/chargers
- Lighting
- Instruments/gauges
- White goods

W Series Wirewound Power Resistor

Electrical Characteristics

Resistance Range See Popular Resistance Values Table
 Tolerance 5 %
 Operating Temperature -55 °C to +200 °C
 Temperature Coefficient ± 300 ppm/°C
 Maximum Voltage $\sqrt{P \cdot R}$

Non-inductive version is available upon request.

Popular Resistance Values

Code	R Value
15R0	15 Ω
22R0	22 Ω
33R0	33 Ω
39R0	39 Ω
47R0	47 Ω

Code	R Value
56R0	56 Ω
82R0	82 Ω
1000	100 Ω
1200	120 Ω
1500	150 Ω

Other E24 resistance values available upon request.

Physical Characteristics

Resistor Low thermal resistant ceramic core
 Lead Wire Tin-plated copper wire
 Coating Material Meets UL 94V-0 requirements

Environmental Characteristics

Test	Conditions	Specification
Short Time Overload	2.5 times rated voltage for 5 seconds.	$\Delta R/R \leq \pm(2\% \pm 0.05 \Omega)$
Solderability	245 ± 3 °C for 2.5 ± 0.5 seconds.	Over 95 % coverage
Resistance to Solder Heat	260 ± 5 °C for 10 ± 1 seconds.	$\Delta R/R \leq \pm(1\% + 0.05 \Omega)$
Dielectric Strength	Test voltage >500 Vrms for >1 minute.	Pass
Insulation Resistance	Test voltage >500 Vrms for 1 minute.	$>10^9 \Omega$
Load Life Humidity	40 ± 2 °C, 90 to 95 %. 1.5 hours ON, 0.5 hours OFF for 1000 hours at rated power.	$\Delta R/R \leq \pm(5\% + 0.05 \Omega)$
Load Life	70 ± 2 °C. 1.5 hours ON, 0.5 hours OFF for 1000 hours at rated power.	$\Delta R/R \leq \pm(5\% + 0.05 \Omega)$

How to Order

Product Series **W 3 M 22R0 J**
 W = Wirewound
 Power Rating
 1 = 1 Watt
 2 = 2 Watts
 3 = 3 Watts
 5 = 5 Watts
 7 = 7 Watts
 9 = 9 Watts
 10 = 10 Watts
 Pin Style
 M = Axial Miniaturized Version
 Resistance Code
 • $R < 100$ ohms:
 "R" represents decimal point
 (examples: 56R0 = 56 ohms)
 • $R \geq 100$ ohms:
 First three digits are significant,
 fourth digit represents number of
 zeros to follow
 (example: 1500 = 150 ohms)
 Resistance Tolerance
 J = $\pm 5\%$

Packaging Specifications

Model	Style	Qty. per Box (Pcs.)	Min. Order Quantity (Pcs.)
W1M	Ammo Pack	1,000	5,000
W2M			
W3M			
W5M	Ammo Pack	500	2,000
W7M			
W9M	Bulk in Box	25 / 200	2,000
W10M			



WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

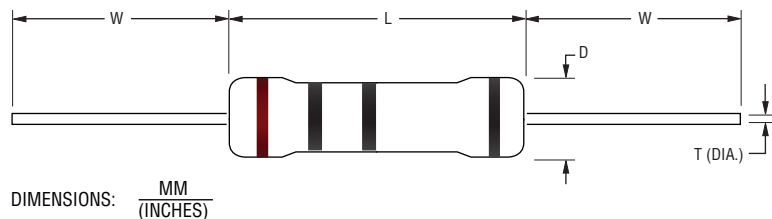
Users should verify actual device performance in their specific applications.

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W Series Wirewound Power Resistor

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Product Dimensions



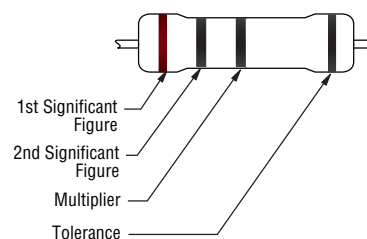
DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$

Model	Dimensions			
	L*	D	W	T
W1M	$\frac{9.5 \pm 1.0}{(.374 \pm .004)}$	$\frac{4.0 \pm 1.0}{(.157 \pm .004)}$	$\frac{28.0 \pm 3.0}{(1.102 \pm .118)}$	$\frac{0.60 \pm 0.05}{(.024 \pm .002)}$
W2M	$\frac{11.5 \pm 1.0}{(.453 \pm .004)}$	$\frac{4.5 \pm 1.0}{(.177 \pm .004)}$	$\frac{28.0 \pm 3.0}{(1.102 \pm .118)}$	$\frac{0.65 \pm 0.05}{(.026 \pm .002)}$
W3M	$\frac{15.5 \pm 1.0}{(.610 \pm .004)}$	$\frac{5.5 \pm 1.0}{(.217 \pm .004)}$	$\frac{28.0 \pm 3.0}{(1.102 \pm .118)}$	$\frac{0.70 \pm 0.05}{(.028 \pm .002)}$
W5M	$\frac{17.5 \pm 1.0}{(.689 \pm .004)}$	$\frac{6.5 \pm 1.0}{(.256 \pm .004)}$	$\frac{28.0 \pm 3.0}{(1.102 \pm .118)}$	$\frac{0.75 \pm 0.05}{(.030 \pm .002)}$
W7M	$\frac{24.5 \pm 1.0}{(.965 \pm .004)}$	$\frac{8.5 \pm 1.0}{(.335 \pm .004)}$	$\frac{38.0 \pm 3.0}{(1.496 \pm .118)}$	$\frac{0.75 \pm 0.05}{(.030 \pm .002)}$
W9M	$\frac{39.5 \pm 1.0}{(1.555 \pm .004)}$	$\frac{8.5 \pm 1.0}{(.335 \pm .004)}$	$\frac{38.0 \pm 3.0}{(1.496 \pm .118)}$	$\frac{0.75 \pm 0.05}{(.030 \pm .002)}$
W10M	$\frac{52.5 \pm 1.0}{(2.067 \pm .004)}$	$\frac{8.5 \pm 1.0}{(.335 \pm .004)}$	$\frac{38.0 \pm 3.0}{(1.496 \pm .118)}$	$\frac{0.75 \pm 0.05}{(.030 \pm .002)}$

* Larger body size available upon request.

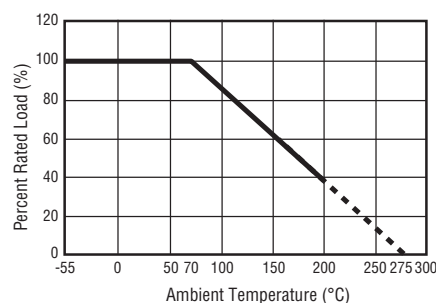
Typical Part Marking

Resistors shall be marked with color coding. Colors shall be in accordance with JIS C 0802.



Color	1st Band	2nd Band	Multi-plier	Tol.
Black	0	0	1 Ω	
Brown	1	1	10 Ω	$\pm 1\%$
Red	2	2	100 Ω	$\pm 2\%$
Orange	3	3	1K Ω	
Yellow	4	4	10K Ω	
Green	5	5	100K Ω	$\pm 0.5\%$
Blue	6	6	1M Ω	$\pm 0.25\%$
Violet	7	7	10M Ω	$\pm 0.10\%$
Grey	8	8		$\pm 0.05\%$
White	9	9		
Gold			0.1 Ω	$\pm 5\%$
Silver			0.01 Ω	$\pm 10\%$

Power Derating Curve



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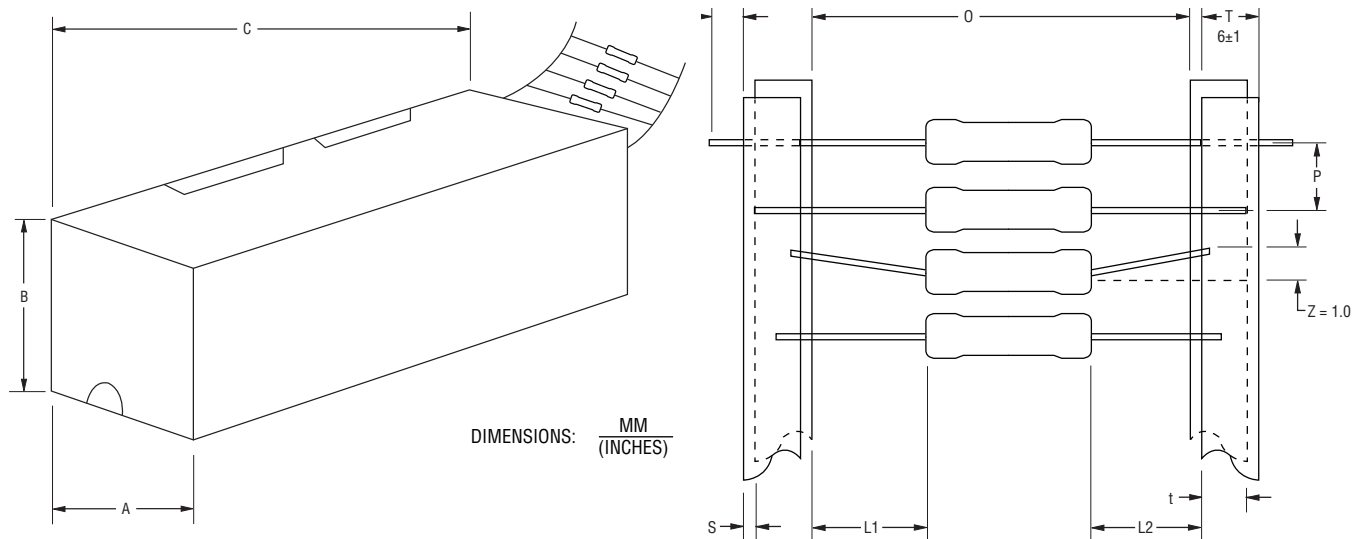
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W Series Wirewound Power Resistor

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Packaging Specifications



Model	O	P	A	B	C	Qty./Box
W1M	$\frac{58 \pm 1}{(2.283 \pm .039)}$	$\frac{5 \pm 0.3}{(.197 \pm .012)}$	$\frac{75 \pm 5}{(2.953 \pm .197)}$	$\frac{70 \pm 5}{(2.756 \pm .197)}$	$\frac{255 \pm 5}{(10.039 \pm .197)}$	1,000 pcs.
W2M	$\frac{58 \pm 1}{(2.283 \pm .039)}$	$\frac{10 \pm 0.5}{(.394 \pm .020)}$	$\frac{80 \pm 5}{(3.150 \pm .197)}$	$\frac{82 \pm 5}{(3.228 \pm .197)}$	$\frac{255 \pm 5}{(10.039 \pm .197)}$	1,000 pcs.
W3M	$\frac{65 \pm 5}{(2.559 \pm .197)}$	$\frac{10 \pm 0.5}{(.394 \pm .020)}$	$\frac{90 \pm 5}{(3.543 \pm .197)}$	$\frac{119 \pm 5}{(4.685 \pm .197)}$	$\frac{255 \pm 5}{(10.039 \pm .197)}$	1,000 pcs.
W5M	$\frac{65 \pm 5}{(2.559 \pm .197)}$	$\frac{10 \pm 0.5}{(.394 \pm .020)}$	$\frac{90 \pm 5}{(3.543 \pm .197)}$	$\frac{88 \pm 5}{(3.465 \pm .197)}$	$\frac{255 \pm 5}{(10.039 \pm .197)}$	500 pcs.
W7M	$\frac{90 \pm 5}{(3.543 \pm .197)}$	$\frac{10 \pm 0.5}{(.394 \pm .020)}$	$\frac{115 \pm 5}{(4.528 \pm .197)}$	$\frac{124 \pm 5}{(4.882 \pm .197)}$	$\frac{500 \pm 5}{(19.685 \pm .197)}$	500 pcs.

For W9M and W10M packaging specifications, please contact factory.

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