



## 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 <sup>9</sup> Ω
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≥100 ohms:  
 First three digits are significant, fourth digit represents number of zeros to follow (example: 1500 = 150 ohms)  
 Resistance Tolerance \_\_\_\_\_  
 J = ±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](http://www.P65Warnings.ca.gov)**

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

Specifications are subject to change without notice.

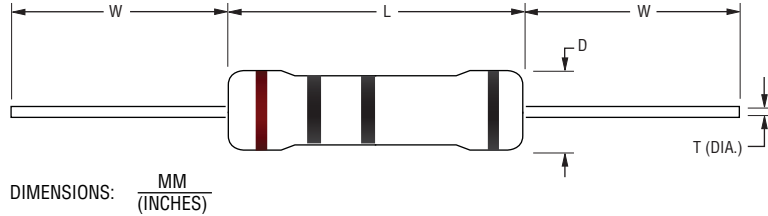
Users should verify actual device performance in their specific applications.

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# W Series Wirewound Power Resistor

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## Product Dimensions



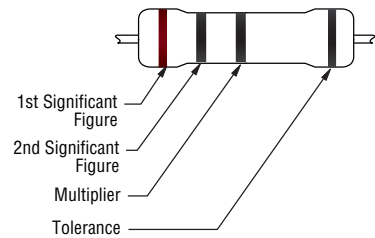
DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

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.

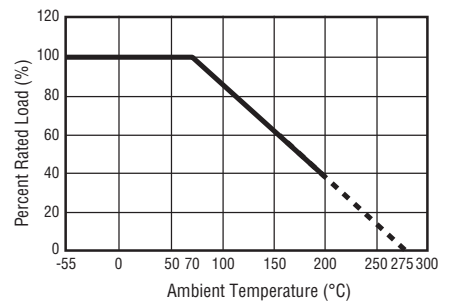
## Typical Part Marking

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



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

## Power Derating Curve



Specifications are subject to change without notice.

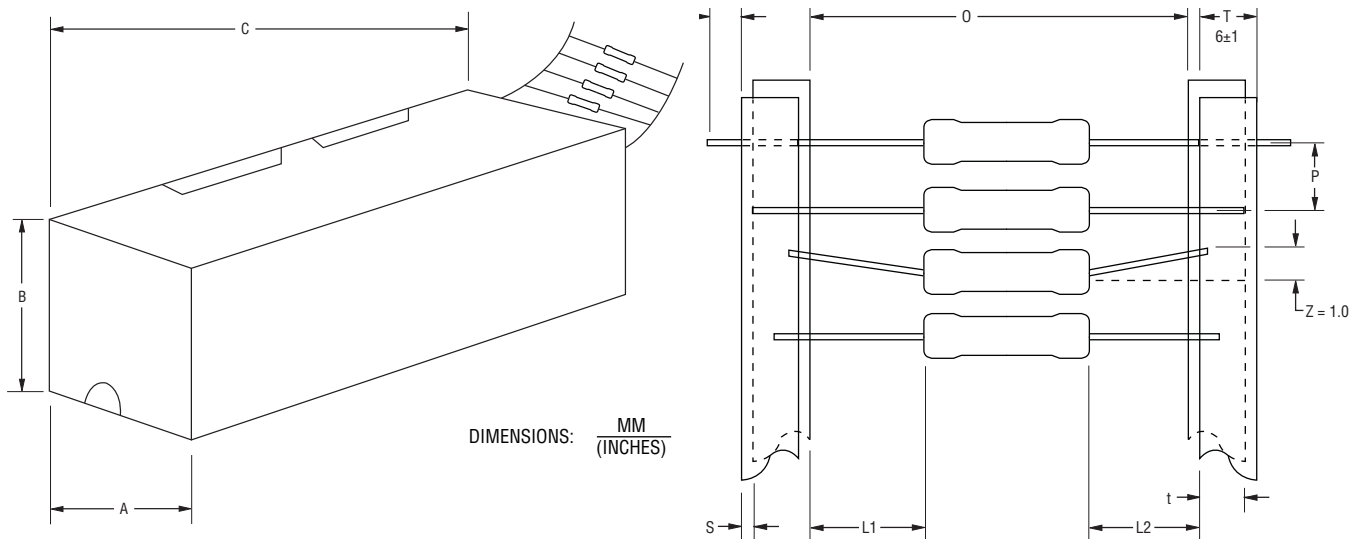
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## Packaging Specifications



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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