

MP900 Series Kool-Pak® Power Film Resistors

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Low Cost Heat Sink Mountable Design with Non-Inductive Performance featuring an Exposed Ceramic Heat Dissipating Mounting Surface

Use your thermal design experience with power semiconductors in the TO-126 and TO-220 style power packages. This experience will help you get the most out of this unique family of power resistors. The thermal design issues are the same where the power handling capability is based on the case temperature which is maintained in your design.

Model MP 915

TO-126 Style Power Package

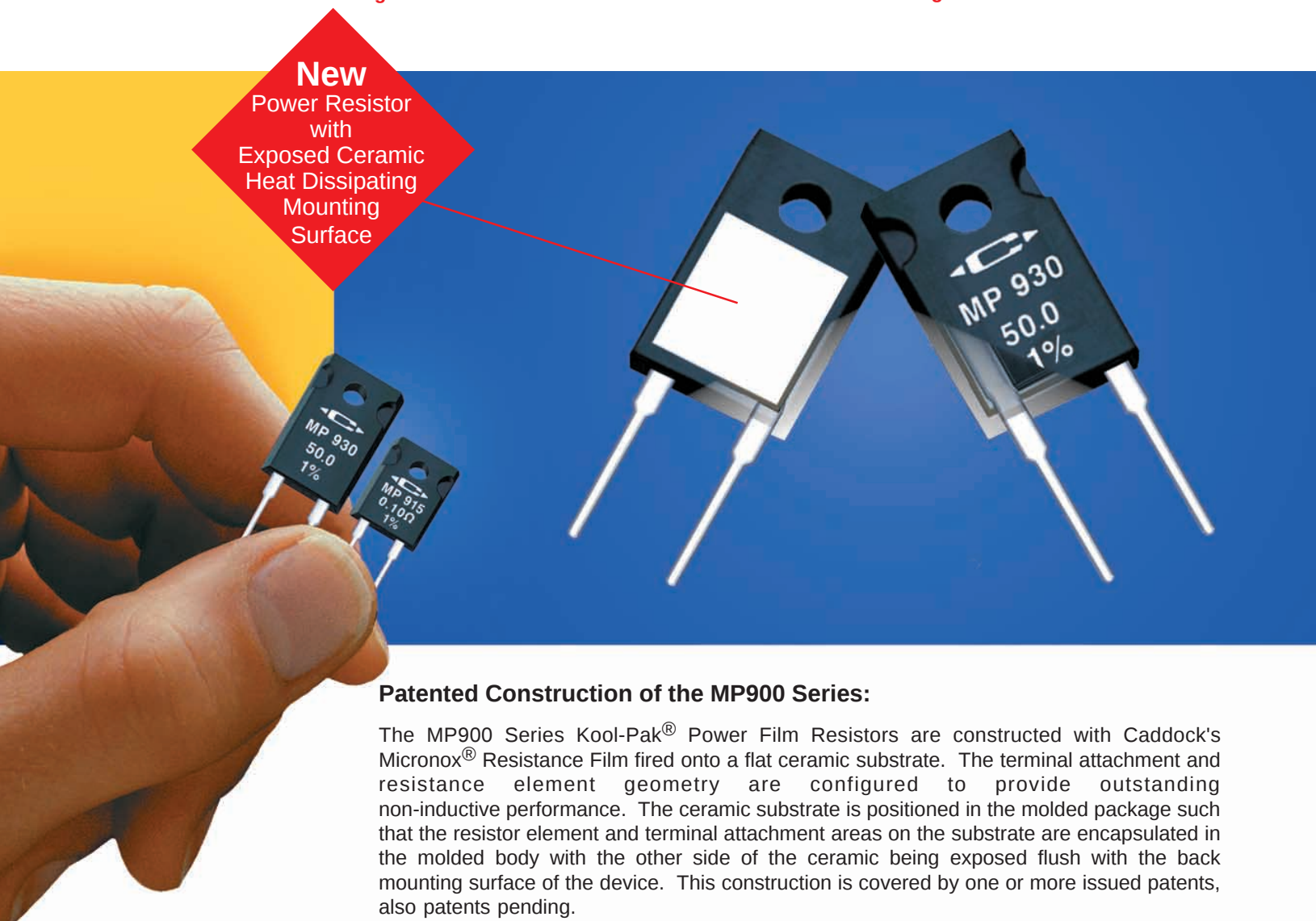
- 15 Watts at +25°C Case Temperature derated to zero at +150°C
- Exposed Ceramic Heat Dissipating Mounting Surface
- Resistance Range of 0.020 ohm to 1K
- Non-inductive Design

Models MP 916, MP925 and MP930

TO-220 Style Power Package

- Up to 30 Watts at +25°C Case Temperature derated to zero at +150°C
- Exposed Ceramic Heat Dissipating Mounting Surface
- Resistance Range of 0.010 ohm to 100K
- Non-inductive Design

New
Power Resistor
with
Exposed Ceramic
Heat Dissipating
Mounting
Surface



Patented Construction of the MP900 Series:

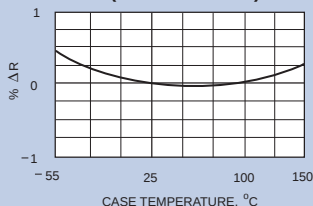
The MP900 Series Kool-Pak® Power Film Resistors are constructed with Caddock's Micronox® Resistance Film fired onto a flat ceramic substrate. The terminal attachment and resistance element geometry are configured to provide outstanding non-inductive performance. The ceramic substrate is positioned in the molded package such that the resistor element and terminal attachment areas on the substrate are encapsulated in the molded body with the other side of the ceramic being exposed flush with the back mounting surface of the device. This construction is covered by one or more issued patents, also patents pending.

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Model No.	Power Rating	Package	Dimensions	Dielect. Strength V_{RMS} AC	Max. Voltage	Resistance		Terminal Material
						Min.	Max.	
MP915	15 Watts*	TO-126 Style	Figure 1	1,500	200	0.020 Ω	1.00K	Solderable
MP916	16 Watts*	TO-220 Style	Figure 2	1,500	Power Limited	0.010 Ω	0.019 Ω	Solderable
MP925	25 Watts*	TO-220 Style	Figure 2	1,500	500	5.00K	100K	Solderable
MP930	30 Watts*	TO-220 Style	Figure 2	1,500	250	0.020 Ω	4.99K	Solderable

Typical Temperature Coefficient Curve
(10 Ω and above)

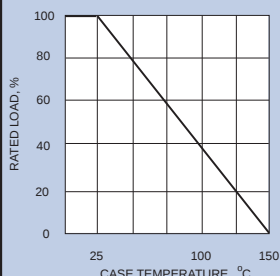


Temperature Coefficient:

TC referenced to +25°C, ΔR taken at +150°C

0.50 ohm and above, -20 to +80 ppm/°C
0.050 ohm to 0.49 ohm, 0 to +200 ppm/°C
0.020 ohm to 0.049 ohm, 0 to +300 ppm/°C
0.010 ohm to 0.019 ohm, 0 to +500 ppm/°C

DERATING CURVE



* The case temperature is to be used for purposes of establishing the maximum applied power. See Derating Curve. The case temperature measurement is made with the thermocouple contacting the bottom insulated mounting surface of the package (center of bottom surface), the device mounted on a heat sink, thermal grease applied at a mounting torque of up to 8 in-lbs (0.90 N-m) maximum. Without a heat sink, when in free air at +25°C, the MP915 is rated for 1.25 watts, the MP916, MP925 and MP930 are rated for 2.25 watts.

Derating (thermal resistance) for each model is as follows:

MP915: 0.12 W/°C (8.33°C/W)

MP916: 0.13 W/°C (7.81°C/W)

MP925: 0.20 W/°C (5.00°C/W)

MP930: 0.24 W/°C (4.17°C/W)

Mounting Note: The MP Kool-Pak® Resistors should be mounted using a screw and compression washer mounting technique. This will provide sufficient pressure on the package over time and through large temperature variations to maintain the maximum power dissipation capability. Mounting torque to avoid package damage is 8 in-lbs. (0.90 N-m).

Figure 1
TO-126 Style
MP915

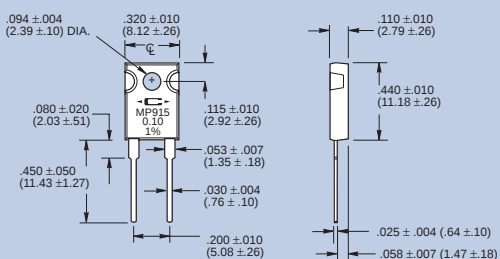
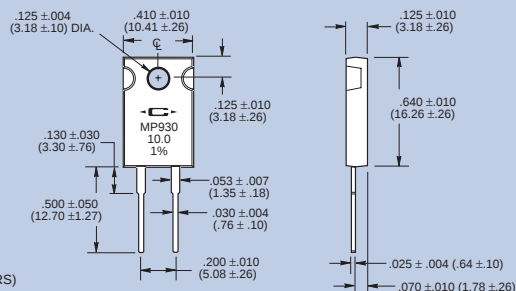


Figure 2
TO-220 Style
MP916, MP925
and MP930



DIMENSIONS IN INCHES AND (MILLIMETERS)

Ordering Information: MP900 series resistors are packaged in plastic shipping tubes, 50 pieces per tube. These resistors are available in a 50 piece minimum quantity and in full tube quantity increments (i.e. 50, 100, 150, etc.).

These products are covered by one or more patents, also patents pending.

Standard Resistance Values:

0.010 Ω	0.40 Ω	20.0 Ω	330 Ω	10.0K
0.015 Ω	0.50 Ω	25.0 Ω	400 Ω	15.0K
0.020 Ω	0.75 Ω	27.0 Ω	470 Ω	20.0K
0.025 Ω	1.00 Ω	30.0 Ω	500 Ω	25.0K
0.030 Ω	1.50 Ω	33.0 Ω	560 Ω	30.0K
0.033 Ω	2.00 Ω	40.0 Ω	750 Ω	33.0K
0.040 Ω	2.50 Ω	47.0 Ω	1.00K	40.0K
0.050 Ω	3.00 Ω	50.0 Ω	1.50K	47.0K
0.075 Ω	3.30 Ω	56.0 Ω	2.00K	50.0K
0.10 Ω	4.00 Ω	75.0 Ω	2.50K	56.0K
0.15 Ω	5.00 Ω	100 Ω	3.00K	68.0K
0.20 Ω	7.50 Ω	150 Ω	3.30K	75.0K
0.25 Ω	8.00 Ω	200 Ω	4.00K	82.0K
0.30 Ω	10.0 Ω	250 Ω	5.00K	100K
0.33 Ω	15.0 Ω	300 Ω	7.50K	

Custom resistance values can be manufactured for high quantity applications. Please contact Caddock Applications Engineering. Custom resistance values for low quantity applications should use Caddock MP 800 Series Power Film Resistors.

Specifications:

Resistance Tolerance: $\pm 1\%$ for 0.050 Ω up to 100k Ω , $\pm 5\%$ for 0.010 Ω up to 0.049 Ω (5% and 20% are available for most resistance values).

Insulation Resistance: 10,000 Megohms, min. The resistor is electrically isolated from the mounting surface.

Terminal Strength: Mil-Std-202, Method 211, Cond. A (Pull Test) 5 lbs., $\Delta R \pm (0.2$ percent + 0.0005 ohm) max.

Thermal Shock: Mil-Std-202, Method 107, Cond. F, $\Delta R \pm (0.5$ percent + 0.0005 ohm) max.

Momentary Overload: 1.5 times rated power with applied voltage not to exceed 1.5 times maximum continuous operating voltage for 5 seconds, $\Delta R \pm (0.5$ percent + 0.0005 ohm) max.

Moisture Resistance: Mil-Std-202, Method 106, $\Delta R \pm (0.5$ percent + 0.0005 ohm) max.

Load Life: 2,000 hours at rated power, $\Delta R \pm (1.0$ percent + 0.0005 ohm). Power rating dependent upon case temperature. See derating curve.

Shock: 100G, Mil-Std-202, Method 213, Cond. I, $\Delta R \pm (0.4$ percent + 0.0005 ohm) max.

Vibration, High Frequency: Mil-Std-202, Method 204, Cond. D, $\Delta R \pm (0.4$ percent + 0.0005 ohm) max.

DWV: The dielectric strength rating of 1500 V_{RMS} AC is based upon connections made between terminals shorted and either the metal surface the part is mounted to or a metal clip in contact with the top surface of the part.

Measurement Note: For these specifications, resistance measurement shall be made at a point 0.2 inch (5.08 mm) from the resistor body.

MP915 - 50.0 - 1%
Model Number: _____ Tolerance
Resistor Value: _____