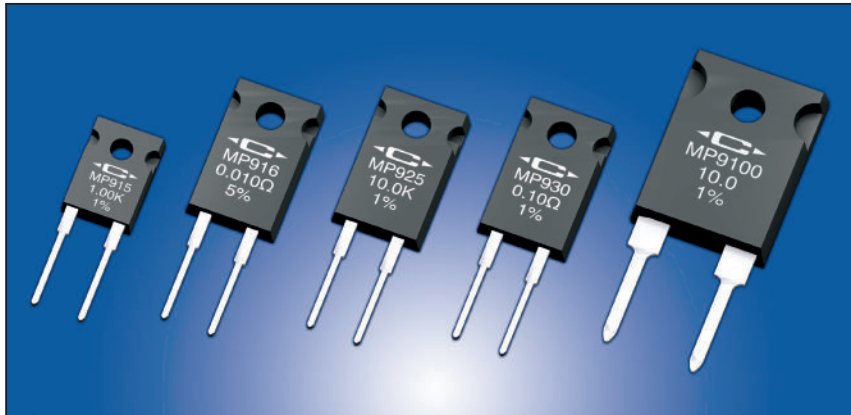


# MP900 and MP9000 Series Kool-Pak® Power Film Resistors TO-126, TO-220 and TO-247 Style



## Low Cost Heat Sink Mountable Design featuring an Exposed Ceramic Heat Dissipating Mounting Surface

Use your thermal design experience with power semiconductors in TO-126, TO-220, and TO-247 style power packages to help you get the most out of this unique family of power resistors. The thermal design issues are the same where power handling capability is based on the case temperature which is maintained in your design.

### MP915 TO-126 Style Power Package

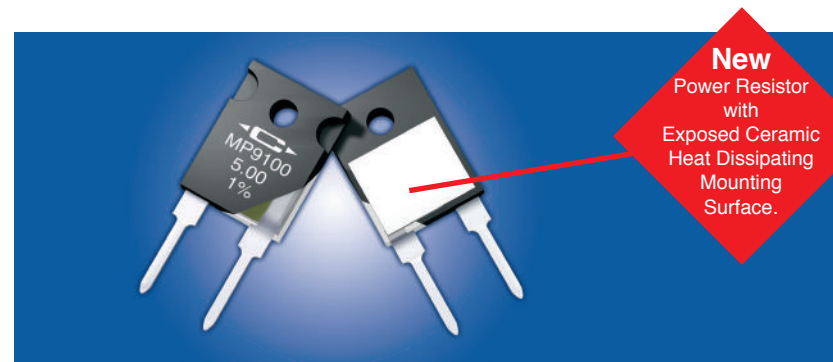
- **15 Watts at +25°C Case Temperature**, derated to zero at +150°C.
- **Exposed Ceramic Heat Dissipating Mounting Surface.**
- **Resistance Range of 0.020 ohm to 1 K.**
- **Non-Inductive Design.**

### MP916, 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 100 K.**
- **Non-Inductive Design.**

### MP9100 TO-247 Style Power Package

- **100 Watts at +25°C Case Temperature**, derated to zero at +175°C.
- **Exposed Ceramic Heat Dissipating Mounting Surface.**
- **Resistance Range of 0.050 ohm to 100 ohm.**
- **Non-Inductive Design.**



**New**  
Power Resistor  
with  
Exposed Ceramic  
Heat Dissipating  
Mounting  
Surface.

### MP916 Standard Resistance Values:

Tolerance MP916 ±5% Standard (20% is available).

0.010 Ω 5%  
0.015 Ω 5%

### MP915, MP925, and MP930 Standard Resistance Values:

Tolerance MP915, MP925, and MP930 ±1% Standard - except as noted. (5% and 20% are available for most resistance values).

0.020 Ω 5%	0.33 Ω	7.50 Ω	50.0 Ω	500 Ω	10.0 K
0.025 Ω 5%	0.40 Ω	8.00 Ω	56.0 Ω	560 Ω	15.0 K
0.030 Ω 5%	0.50 Ω	10.0 Ω	75.0 Ω	750 Ω	20.0 K
0.033 Ω 5%	0.75 Ω	12.0 Ω	100 Ω	1.00 K	25.0 K
0.040 Ω 5%	1.00 Ω	15.0 Ω	120 Ω	1.50 K	30.0 K
0.050 Ω	1.50 Ω	20.0 Ω	150 Ω	2.00 K	33.0 K
0.075 Ω	2.00 Ω	25.0 Ω	200 Ω	2.50 K	40.0 K
0.10 Ω	2.50 Ω	27.0 Ω	250 Ω	3.00 K	47.0 K
0.15 Ω	3.00 Ω	30.0 Ω	300 Ω	3.30 K	50.0 K
0.20 Ω	3.30 Ω	33.0 Ω	330 Ω	4.00 K	56.0 K
0.25 Ω	4.00 Ω	40.0 Ω	400 Ω	5.00 K	68.0 K
0.30 Ω	5.00 Ω	47.0 Ω	470 Ω	7.50 K	75.0 K
					82.0 K
					100 K

### MP9100 Standard Resistance Values:

Tolerance MP9100 ±1% Standard.

0.050 Ω	0.40 Ω	3.30 Ω	20.0 Ω	56.0 Ω
0.075 Ω	0.50 Ω	4.00 Ω	25.0 Ω	75.0 Ω
0.10 Ω	0.75 Ω	5.00 Ω	27.0 Ω	100 Ω
0.15 Ω	1.00 Ω	7.50 Ω	30.0 Ω	
0.20 Ω	1.50 Ω	8.00 Ω	33.0 Ω	
0.25 Ω	2.00 Ω	10.0 Ω	40.0 Ω	
0.30 Ω	2.50 Ω	12.0 Ω	47.0 Ω	
0.33 Ω	3.00 Ω	15.0 Ω	50.0 Ω	

For custom resistance values and tolerances contact applications engineering.

### Ordering Information:

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

**Packaging:** MP915, MP916, MP925, MP930 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.). The MP9100 resistors are packaged in plastic shipping tubes, 25 pieces per tube.

### Construction of MP900 and MP9000 Series:

The MP900 and MP9000 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.

**CADDOCK ELECTRONICS, INC.**

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For Caddock Distributors listed by country see [caddock.com/contact/dist.html](http://caddock.com/contact/dist.html)

**Sales and Applications Engineering**

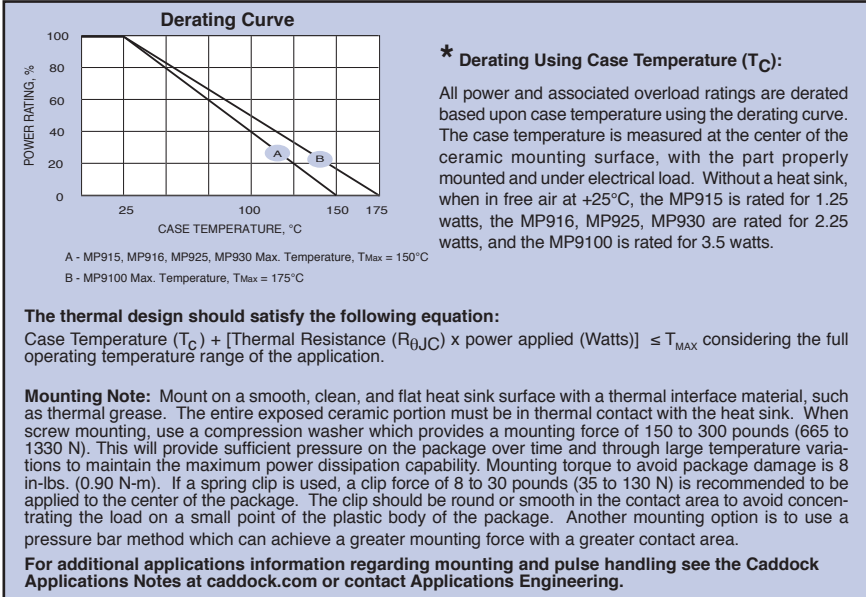
17271 North Umpqua Hwy.

Roseburg, Oregon 97470-9422

Phone: (541) 496-0700

Fax: (541) 496-0408

Model No.	Package	Resistance		Power Rating	Max. Voltage	Thermal Resistance $R_{\theta JC}$ Film (J) to Case (C)	Max. Temp. $T_{MAX}$	Dimensions	Comments
		Min.	Max.						
MP915	TO-126 Style	0.020 $\Omega$	1.00 K	15 Watts*	200	8.33°C/Watt	150°C	Figure 1	Ceramic mounting surface
MP916	TO-220 Style	0.010 $\Omega$	0.019 $\Omega$	16 Watts*	Power Limited	7.81°C/Watt	150°C	Figure 2	Ceramic mounting surface
MP925	TO-220 Style	5.00K	100 K	25 Watts*		5.00°C/Watt	150°C	Figure 2	Ceramic mounting surface
MP930	TO-220 Style	0.020 $\Omega$	4.99 K	30 Watts*		4.17°C/Watt	150°C	Figure 2	Ceramic mounting surface
MP9100	TO-247 Style	0.050 $\Omega$	100 $\Omega$	100 Watts*	Power Limited	1.50°C/Watt	175°C	Figure 3	Ceramic mounting surface



**Specifications:**

**Temperature Coefficient for MP915, MP916, MP925, and MP930:**

TC referenced to +25°C,  $\Delta R$  taken at +150°C

0.50 ohms and above, -20 to +80 ppm/°C  
 0.050 ohm to 0.49 ohms, 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

**Temperature Coefficient for MP9100:**

TC referenced to +25°C,  $\Delta R$  taken at +175°C

0.50 ohms and above, -20 to +80 ppm/°C  
 0.050 ohm to 0.49 ohms, 0 to +150 ppm/°C

**Operating Temperature:** -55°C to  $T_{MAX}$

**Inductance:** MP915, MP916, MP925, and MP930 10nH typical; MP9100, 20nH typical, in series when measured at a point 0.2 inches from the resistor body.

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

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

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

**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.

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

**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.

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

**Terminal Material:** Solderable

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

