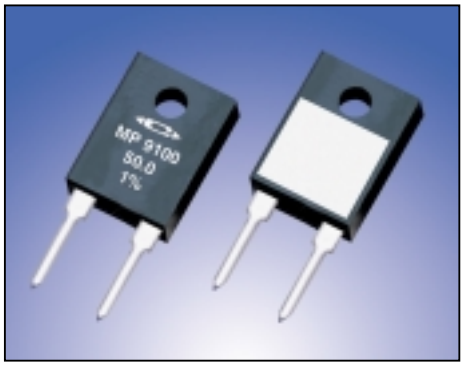
MP9100 TO-247 Kool-Pak® Power Film Resistor

TO-247 Style Power Package 100 Watt Non-Inductive Design

- 100 watt continuous power at +25°C case temperature
- TO-247 package utilizes proven power semiconductor thermal solutions
- Equivalent to UL94 V-O flammability rating
- Excellent pulse/surge performance
- Non-inductive design for high speed switching, snubbers and rf applications
- Safe and reliable operation up to +175°C case temperature
- Electrically isolated case



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

Maximum Ratings

Rating	Symbol	Value	Unit
Power Dissipation: With heat sink T_C=25°C	P_D	100	Watts
Free Air at 25°C without heat sink	P_D	3.5	Watts
Thermal Resistance: Resistance film (J) to Case (C)	$R_{\theta JC}$	1.5	°C/W
Operating and Storage Temperature Range	T_C,T_J, T_{STG}	-55 to +175	°C

Single Pulse/Surge Ratings: (1)
T_C = 25°C with no continuous power applied, derate per Fig. 1

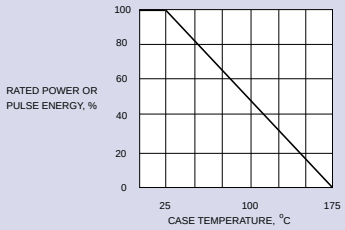
Duration	Energy	Units
10 µsec	0.07	Joules
100 µsec	0.25	Joules
1 msec	0.9	Joules
10 msec	3.5	Joules
100 msec	15	Joules
250 msec	38	Joules
V maximum	600	volts peak

(1) For multiple pulses/surge ratings please contact applications engineering for assistance

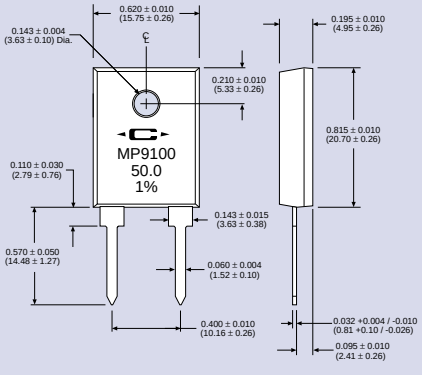
Derating Using Case Temperature (T_C):

All power and overload ratings are derated based upon case temperature using the derating curve. The case temperature is measured at the center of the ceramic mounting surface, with the part properly mounted and under electrical load

Derating Curve (Fig. 1)



Mounting Note: Mount on a smooth, clean and flat heat sink surface with a thermal interface material, such as thermal grease. The entire exposed ceramic portion must be in contact with the heat sink. When screw mounting, use a Belleville washer which provides a mounting force of 150 to 300 pounds (665 to 1330 N). Mounting torque to avoid package damage is 8 in-lbs. (0.90 N-m). If a spring clip is used, a clip force of 4.5 to 35 pounds (20 to 155 N) is recommended



DIMENSIONS IN INCHES AND (MILLIMETERS)

Standard Resistance Values:

Tolerance: 1% Standard

0.050 Ω	0.50 Ω	3.90 Ω	25.0 Ω
0.10 Ω	0.75 Ω	5.00 Ω	27.0 Ω
0.12 Ω	1.00 Ω	8.00 Ω	33.0 Ω
0.15 Ω	1.50 Ω	10.0 Ω	39.0 Ω
0.20 Ω	2.00 Ω	12.0 Ω	47.0 Ω
0.25 Ω	2.20 Ω	15.0 Ω	50.0 Ω
0.30 Ω	2.50 Ω	18.0 Ω	56.0 Ω
0.33 Ω	3.00 Ω	20.0 Ω	75.0 Ω
0.39 Ω	3.30 Ω	22.0 Ω	100 Ω

For custom values and tolerances contact applications engineering

Ordering Information:
Parts shipped 25 per anti static plastic tube

MP9100 - 0.050 - 1%
Model Number:
Resistor Value: (see table)
Tolerance (1% Std)

Electrical Specifications:

Temperature Coefficient:
TC referenced to +25°C, ΔR taken at +175°C
0.50 ohm and above, -20 to +80 ppm/°C
0.050 ohm to 0.49 ohm, 0 to +150 ppm/°C

Inductance: 10 nH typical in series when measured at the shoulder of the lead

Capacitance: <1 pf typical without heat sink

DWV: 1500 V_{RMS} AC isolation to the mounting surface or a clip in contact with the top surface

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

Momentary Overload: 1.5 times rated power for 5 seconds, ΔR ±(0.5 percent + 0.0005 ohm) max., based on a case temperature of +175°C max.

Environmental Specifications:

Load Stability: 2000 hours at rated power
ΔR less than ±(1% +0.0005Ω)

Moisture Resistance: Mil-Std-202, Method 106, ΔR ±(0.5 percent + 0.0005 ohm) max.

Thermal Shock: Mil-Std-202, Method 107, Cond. F, ΔR ±(0.5 percent + 0.00005 ohm) max.

Shock: 100G, Mil-Std-202, Method 213, Cond. I, ΔR ±(0.4 percent + 0.0005 ohm) max.

Vibration, High Frequency: Mil-Std 202, Method 204, Condition D, ΔR±(0.4% +0.0005Ω) max.

Terminal Strength: Mil-Std-202, Method 211, Cond. A (Pull Test) 5 lbs.,
ΔR ±(0.2 percent + 0.0005 ohm) max.

Measurement Note: Resistance measurements shall be made at 0.2 inch (5.08 mm) from the resistor body

For more information please see our website:
Application Note: CAD-9100-1

CADDOCK ELECTRONICS, INCORPORATED
1717 CHICAGO AVENUE
RIVERSIDE, CALIFORNIA 92507-2364
PHONE: (909) 788-1700 • FAX: (909) 369-1151
e-mail: caddock@caddock.com

CADDOCK
www.caddock.com

CADDOCK ELECTRONICS EUROPE BV
JUPITERSTRAAT 2, POSTBUS 3018
6460 HA KERKRADE, THE NETHERLANDS
PHONE: (31) 45 546 3650 • FAX: (31) 45 546 2860
e-mail: europe@caddock.com