

# PFC Series

Thick Film Power SMD Resistors



- D-PAK Foot Pattern
- Very Low Profile
- Resistances from 0.1 to 51k ohms
- Suitable for Current Sensing
- Power Rating to 25 Watts
- Resistance Tolerances to  $\pm 1\%$
- TCR to  $\pm 100\text{ppm}/^\circ\text{C}$
- Isolated Back Plate

## SPECIFICATIONS

Type	PFC10	
Power Rating with heatsink <sup>1</sup>	25 Watts	
Short Time Overload <sup>2</sup>	35 Watts	
Thermal Resistance Rthj-c	3.6° K/W	
Resistance Range	0.1 - 51K Ohms E24+ (includes 2.5, 4.0, 5.0, 8.0, and 16)	
Tolerances (others upon request)	1% / 5%	
Temperature Coefficient	100 ppm/°K	
Operating Temperature	-55°C to 155°C	
Max Operating Voltage	$\sqrt{P * R}$	
Capacitance	2.65 pF	
Inductance	15 nH	
Withstanding Voltage	1500 VAC	
Insulation Resistance	Over 1,000 MΩ	
Resistor Material	Thick Film	
Moisture Sensitivity Level	MSL-1	
Mass	0.324 grams	
Standard Packaging	500 pieces per 254 mm diameter reel within paper box.	
Test Conditions	Results	
Load Life	$\pm 1\%$	90 min ON, 30 min OFF, 1000 hrs @ 25°C
Humidity	$\pm 1\%$	90-95% RH, 0.1W, 1000 hrs @ 40°C
Temperature Cycle	$\pm 0.25\%$	-55°C for 30 min, +155°C for 30 min, 5 cycles
Solder Heat	$\pm 0.1\%$	350°C $\pm 5^\circ\text{C}$ for 3 seconds
Lead Solderability	Over 95% of surface	230° $\pm 5^\circ\text{C}$ for 3 seconds
Vibration	$\pm 0.25\%$	IEC60068-2-6

<sup>1</sup> Power rating is 2.5 watt using a simple footprint and without heatsink

<sup>2</sup> Overload rating is permissible for continuous duty with back solder pad temperature not exceeding 25°C

## Ordering Information

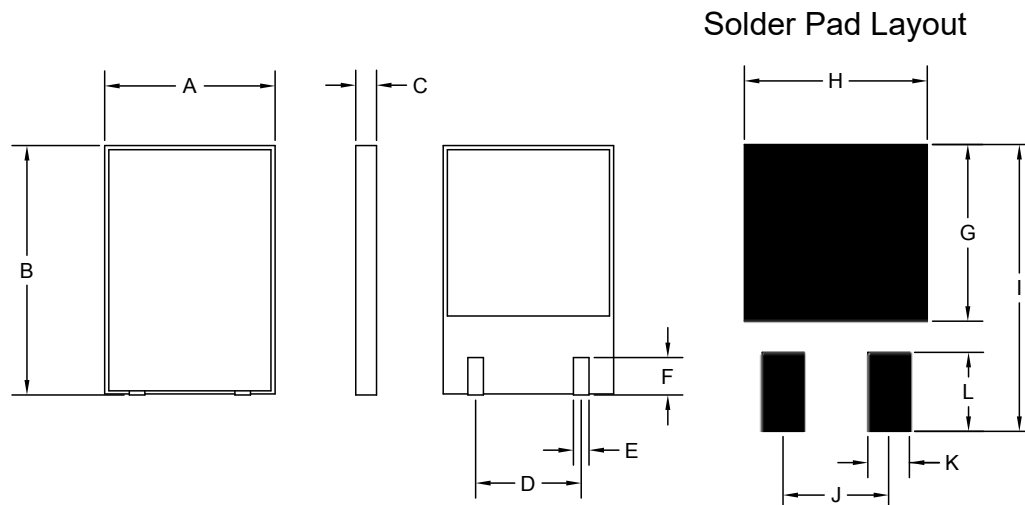
Part Description: Part Type - Resistance - Tolerance  
PFC10 10 Ohms 1%

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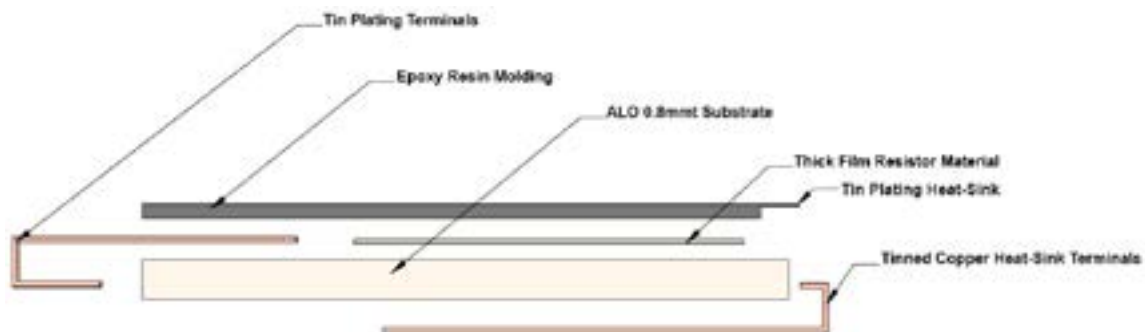
## DIMENSIONS



**Note:** Back solder pad is isolated from both pins.

Dimension	mm	tol. ( $\pm$ mm)	inches	tol. ( $\pm$ inches)
A	8.20	0.20	0.323	0.008
B	12.0	0.20	0.472	0.008
C	0.90	0.10	0.039	0.002
D	5.08	0.10	0.200	0.004
E	0.75	0.1	0.030	0.002
F	1.85	0.05	0.070	0.002
G	8.50	-	0.335	-
H	8.80	-	0.346	-
I	14.1	-	0.555	-
J	5.08	-	0.200	-
K	2.00	-	0.079	-
L	3.80	-	0.150	-

## CHIP CONSTRUCTION



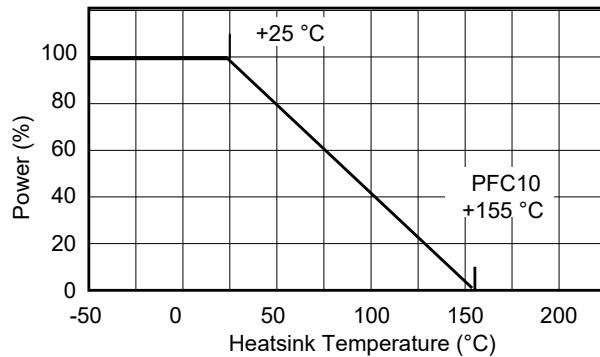
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## MOUNTING / DERATING

Power Derating Curve



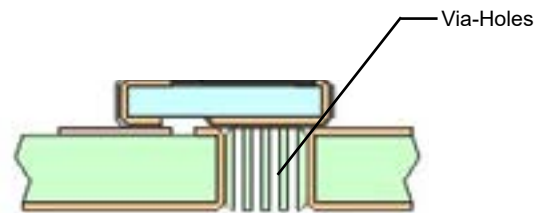
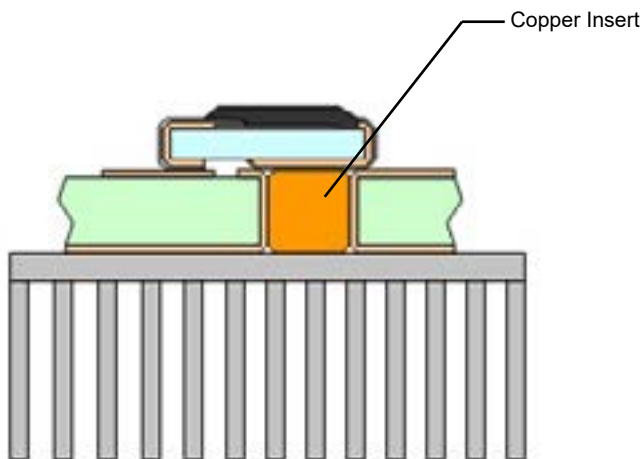
### Power Rating Notes -

The PFC Series Resistors must be attached to a suitable heat-sink. The maximum internal resistor temperature is 155°C.

To specify an appropriate heatsink use the following formula :

$$R_{\theta H} = \frac{T_{MAX} - (P * R_{\theta R}) - T_A}{P}$$

Where:  $R_{\theta H}$  = Thermal Resistance of Heatsink ( K/W )  
 $R_{\theta R}$  = Thermal Resistance of Resistor ( K/W )  
 $T_{MAX}$  = Maximum Temperature of Resistor  
 $T_A$  = Ambient Temperature of Heatsink ( °C )  
 $P$  = Power Through Resistor ( W )



Copper insert improves thermal conductivity to heatsink. Power ratings of 35 watts can be achieved through active cooling of the heatsink. For more general information on heatsinking please see our training module on heatsinking by clicking here:

<https://riedon.com/media/pdf-tech/PowerandHeatsink.pdf>