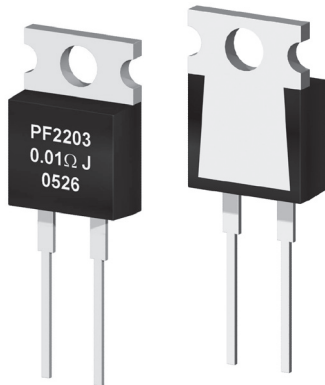


# PF2200 Series

TO-220 Power Film Resistors



- TO-220 Housing
- Rated Power to 50 Watts
- Resistances from 0.01 to 51K Ohms
- High Stability Film Resistance Elements
- Resistance Tolerance to  $\pm 0.05\%$
- Low Inductance ( <50nH )
- Isolated Mounting Tab

## SPECIFICATIONS

Type	Power Rating		Thermal Resistance	Resistance Range <sup>3</sup>		Tolerances	Temperature Coefficients
	Heatsink <sup>1</sup>	Free Air <sup>2</sup>		Min	Max		
PF2205	50W	1W	2.3°C/W	0.01Ω	220Ω	$\pm 1\%$ ( R 0.1Ω ) $\pm 5\%$	$\pm 50\text{ppm}/^\circ\text{C}$ ( R 10Ω ) $\pm 100\text{ppm}/^\circ\text{C}$ ( 0.1Ω R < 10Ω ) $\pm 250\text{ppm}/^\circ\text{C}$ ( R < 0.1Ω )
	30W	1W	2.3°C/W	220Ω	51KΩ	$\pm 1\%$ , $\pm 5\%$	$\pm 50\text{ppm}/^\circ\text{C}$
PF2203	35W	1W	3.3°C/W	0.01Ω	220Ω	$\pm 1\%$ ( R 0.1Ω ) $\pm 5\%$	$\pm 50\text{ppm}/^\circ\text{C}$ ( R 10Ω ) $\pm 100\text{ppm}/^\circ\text{C}$ ( 0.1Ω R < 10Ω ) $\pm 250\text{ppm}/^\circ\text{C}$ ( R < 0.1Ω )
	20W	1W	3.3°C/W	220Ω	51KΩ	$\pm 1\%$ , $\pm 5\%$	$\pm 50\text{ppm}/^\circ\text{C}$
PF2202	20W	1W	5.9°C/W	0.01Ω	220Ω	$\pm 1\%$ ( R 0.1Ω ) $\pm 5\%$	$\pm 50\text{ppm}/^\circ\text{C}$ ( R 10Ω ) $\pm 100\text{ppm}/^\circ\text{C}$ ( 0.1Ω R < 10Ω ) $\pm 250\text{ppm}/^\circ\text{C}$ ( R < 0.1Ω )
	10W	1W	5.9°C/W	220Ω	51KΩ	$\pm 1\%$ , $\pm 5\%$	$\pm 50\text{ppm}/^\circ\text{C}$
PF2201	10W	0.5W	3.3°C/W	0.1Ω	51KΩ	$\pm 0.1\%$ , $\pm 0.25\%$ ( R 5Ω ) $\pm 0.5\%$ ( R 1Ω ) $\pm 1\%$	$\pm 5$ ( R 1Ω ) $\pm 25\text{ppm}/^\circ\text{C}$ ( R < 1Ω )

<sup>1</sup> Power rating based on 25°C Flange Temperature  
<sup>2</sup> Power rating based on 25°C Ambient Temperature  
<sup>3</sup> Consult Factory for Higher or Lower Values

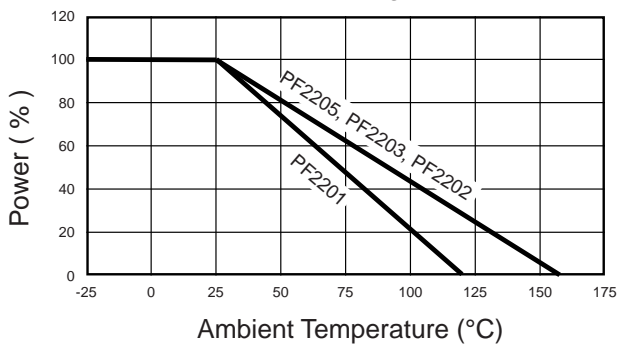
## Ordering Information

Part Number - Resistance - Tolerance - TCR  
Example: PF2203 0.5 Ohm 1% 100ppm

### SPECIFICATIONS (continued)

Specification	Value	
Maximum Current	25A	
Temperature Range	-55°C to +155°C : PF2202, PF2203, PF2205 -55°C to +120°C : PF2201	
Dielectric Strength	2000 VAC	
Max. Operating Voltage	500 V	
Insulation Resistance	>1000 Meg-Ohm	
Environmental Performance	ΔR	Test Conditions
Load Life	±1% + 0.05Ω	25°C, 90 min ON, 30 min OFF, 1000 hr
Humidity Resistance	±1% + 0.05Ω	40°C, 90-95% RH, DC 0.1W, 1000 hr
Temperature Cycle	±0.25% + 0.05Ω	-55°C for 30 min, +155°C for 30 min, 1000 hr
Solder Heat	±0.1% + 0.05Ω	+350°C, 3s
Vibration	±0.25% + 0.05Ω	IEC60068-2-6

Power Derating Curve



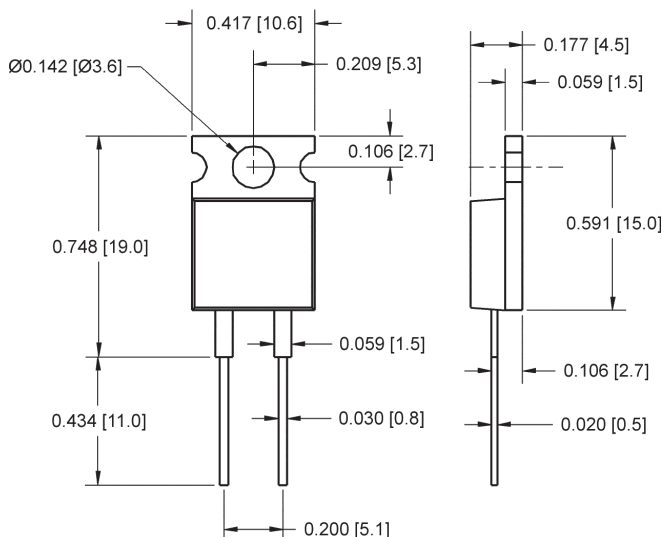
#### Power Rating Notes -

The PF2200 Series Foil Resistors must be attached to a suitable heatsink. The maximum internal resistor temperature is 155°C (120°C for the PF2201).

To specify an appropriate heatsink use the following formula :

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

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



#### Mounting Notes -

The PF2200 Series Film Resistors must be attached to a suitable heatsink. Mount resistor using thermal grease to a clean, fat surface. Use a compression washer to provide 150 to 300 pounds ( 665 to 1330N ) of mounting force. Torque mounting screw to 8 in-lbs ( 0.9 N-m ).

Mounting tab is isolated from both pins.