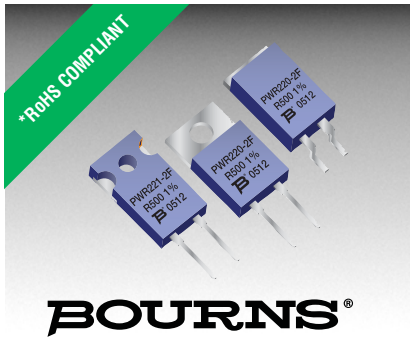




Features

- TO220 or TO221 housing
- Low inductance
- SMD and through hole versions
- High power rating



Models PWR220-2FB, PWR221-2FB, and PWR220-2FA are not available and not recommended for new designs.

Models **PWR220T-35**, **PWR221T-30**, and **PWR263S-35** are suggested alternatives.

PWR220/PWR221 F Series Power Resistors

Material Specifications

Resistor Thick film
 Substrate Alumina (AL2O₃)
 Housing Epoxy/PPS
 Lead Frame Tinned Copper (Sn/Cu)
 Maximum Torque 1.0 Nm
 Packaging
 Tubes 50 pcs./tube
 Tape & Reel** 500 pcs./reel

**Tape & Reel is only available for Versions A and D.

General Information

The Bourns® PWR220 F Series is a TO220 style Power Resistor; PWR221 F is a TO221 style Power Resistor. Manufactured using thick film on Alumina ceramic technology, it is used in applications such as power supplies, motor drives and measurements.

Electrical & Thermal Characteristics

Parameter	Symbol	Min.	Nom.	Max.	Unit
Resistance (Version A) (Version C & D)	R R	0.02 0.02		100K 15K	Ω Ω
Power Rating @ 70 °C in Free Air Power Rating with External Heat Sink (Version A) (Version C & D)				1.50 30 50	W W W
Tolerance 0.02 Ω < R < 1.0 Ω 1.0 Ω < R < 100K Ω		2.0 1.0		5.0 5.0	% %
TCR 0.1 Ω < R < 100.0K Ω 0.05 Ω < R < 0.099 Ω 0.02 Ω < R < 0.049 Ω				±100 ±300 ±600	PPM/°C PPM/°C PPM/°C
Thermal Resistance – R _{thj} (Version A) (Version C & D)			3.5 2.1		°C/W °C/W
Stability			0.5		%
Dielectric Withstanding Voltage				2	kV DC
Operating Temperature	T _J	-40		+155	°C

*RoHS Directive 2002/95/EC Jan 27, 2003 including Annex.
 Specifications are subject to change without notice.
 Customers should verify actual device performance in their specific applications.

Applications

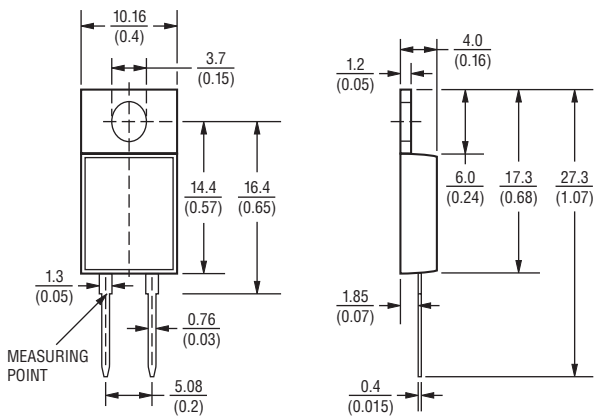
- Power supplies
- Motor drives
- Test and measurement
- Welding

PWR220/PWR221 F Series Power Resistors

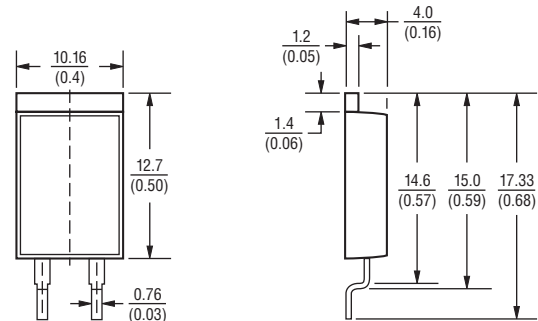
BOURNS®

Product Dimensions

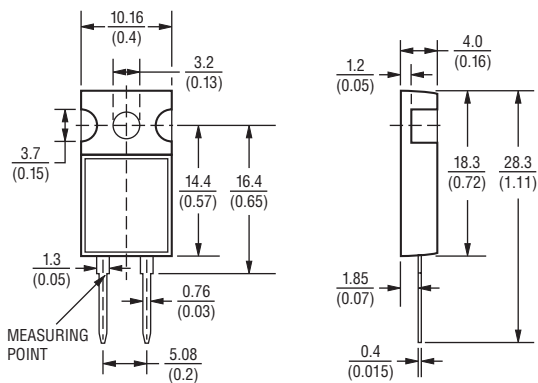
TO220 Housing: 2-Pin



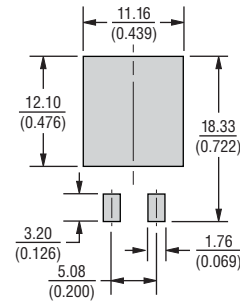
TO220 Casing: 2-Pin (Surface Mount)



TO221 Casing: 2-Pin

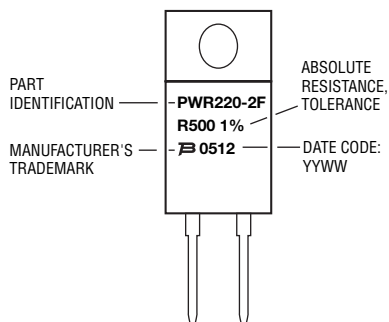


Recommended Pad Layout



DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$

Typical Part Marking



How to Order

PWR 220 - 2 F B R040 J E

Model _____
 PWR = Power Resistor

Package _____
 220 = TO220
 221 = TO221

Number of Pins _____
 2 = 2

Function _____
 F = Thick Film

Version _____
 A = TO221 Housing, Surface Mount, 30 W (w/Heat Sink)
 C = TO220 Housing/TO221 Housing, Through-Hole, 50 W (w/Heat Sink)
 D = TO220 Housing, Surface Mount, 50 W (w/Heat Sink)

Resistor Value for all Tolerances _____
 <100 ohms "R" represents decimal point
 (examples: 7R50 = 7.5 ohms; R040 = 0.040 ohms)
 ≥100 ohms First three digits are significant, fourth digit represents number of zeros to follow
 (examples: 2000 = 200 ohms; 2002 = 20K ohms)

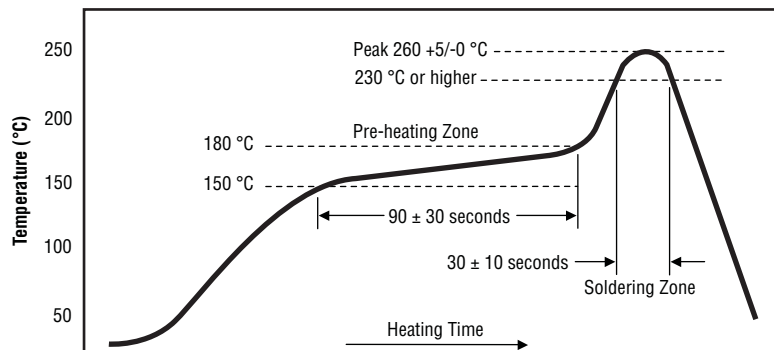
Absolute Tolerance _____
 J = 5 % G = 2 % F = 1 %

Packaging _____
 E = Tape & Reel (Available only for Versions A and D)
 _____ = Tubes

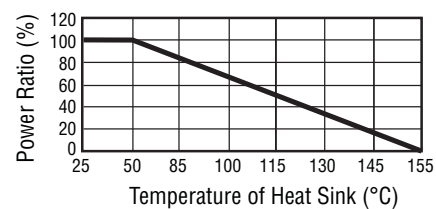
PWR220/PWR221 F Series Power Resistors

BOURNS®

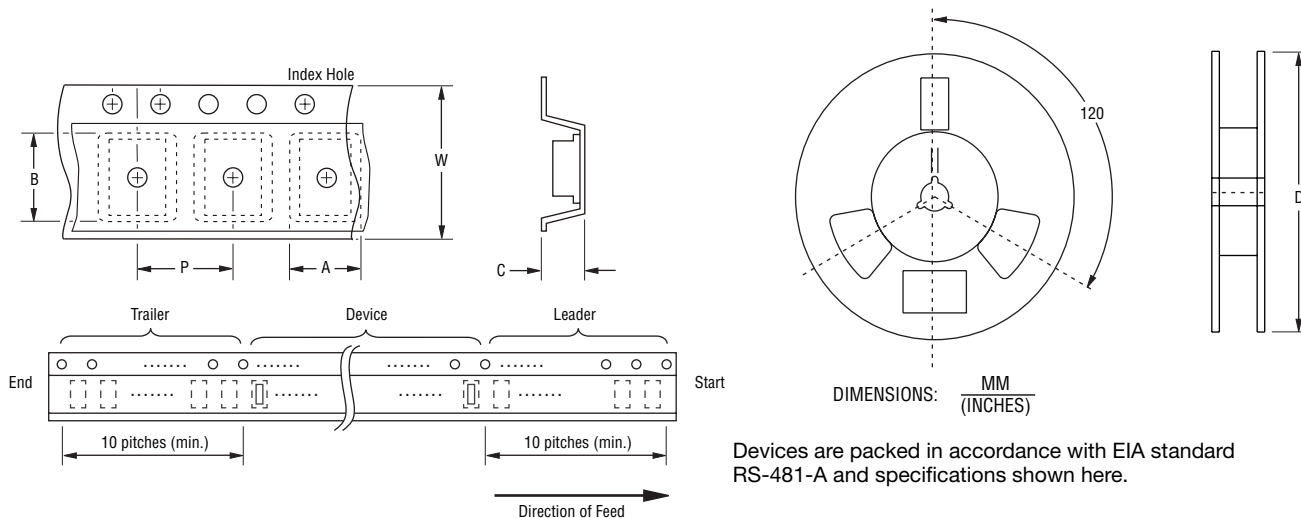
Soldering Profile (Surface Mount Version Only)



Derating Curve



Packaging Dimensions



Devices are packed in accordance with EIA standard RS-481-A and specifications shown here.

Item	Symbol	Dimensions
Carrier Width	A	$\frac{10.4}{(0.409)}$
Carrier Length	B	$\frac{18.4}{(0.724)}$
Carrier Depth	C	$\frac{4.4}{(0.173)}$
Reel Outside Diameter	D	$\frac{330}{(12.992)}$
Punch Hole Pitch	P	$\frac{16.00}{(0.630)}$
Tape Width	W	$\frac{32}{(1.260)}$
Quantity per Reel	—	500

REV. 06/11

Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Bourns:

PWR220-2FAR0400F	PWR220-2FB100R0J	PWR220-2FB10R00J	PWR220-2FB200R0J	PWR220-2FB50R00J
PWR220-2FB7R500J	PWR220-2FBR0400F	PWR220-2FBR1000F	PWR221-2FB10000F	PWR221-2FB10R00F
PWR221-2FB20001F	PWR221-2FB200R0J	PWR221-2FB7R500F	PWR221-2FB7R500J	PWR221-2FBR0400F
PWR221-2FBR0400J	PWR221-2FCR0400F	PWR220-2FAR0200F	PWR220-2FAR0300F	PWR220-2FAR0330F
PWR220-2FAR0500F	PWR220-2FAR1000F	PWR220-2FAR1500F	PWR220-2FAR2000F	PWR220-2FAR2500F
PWR220-2FAR3000F	PWR220-2FAR3300F	PWR220-2FAR4000F	PWR220-2FAR5000F	PWR220-2FAR7500F
PWR220-2FA1R000F	PWR220-2FA1R500F	PWR220-2FA10R00F	PWR220-2FA100R0F	PWR220-2FA10000F
PWR220-2FA12R00F	PWR220-2FA120R0F	PWR220-2FA15R00F	PWR220-2FA2R000F	PWR220-2FA2R500F
PWR220-2FA20R00F	PWR220-2FA200R0F	PWR220-2FA25R00F	PWR220-2FA250R0F	PWR220-2FA27R00F
PWR220-2FA3R000F	PWR220-2FA3R300F	PWR220-2FA30R00F	PWR220-2FA300R0F	PWR220-2FA33R00F
PWR220-2FA330R0F	PWR220-2FA4R000F	PWR220-2FA40R00F	PWR220-2FA400R0F	PWR220-2FA47R00F
PWR220-2FA470R0F	PWR220-2FA5R000F	PWR220-2FA50R00F	PWR220-2FA500R0F	PWR220-2FA56R00F
PWR220-2FA560R0F	PWR220-2FA7R500F	PWR220-2FA75R00F	PWR220-2FA750R0F	PWR220-2FA8R000F
PWR220-2FBR0200F	PWR220-2FBR0300F	PWR220-2FBR0330F	PWR220-2FBR0500F	PWR220-2FBR1500F
PWR220-2FBR2000F	PWR220-2FBR2500F	PWR220-2FBR3000F	PWR220-2FBR3300F	PWR220-2FBR4000F
PWR220-2FBR5000F	PWR220-2FBR7500F	PWR220-2FB1R000F	PWR220-2FB1R500F	PWR220-2FB10R00F
PWR220-2FB100R0F	PWR220-2FB100000F	PWR220-2FB100010F	PWR220-2FB12R00F	PWR220-2FB120R0F
PWR220-2FB15R00F	PWR220-2FB150000F	PWR220-2FB150010F	PWR220-2FB2R000F	PWR220-2FB2R500F
PWR220-2FB20R00F	PWR220-2FB200R0F	PWR220-2FB200000F	PWR220-2FB200010F	PWR220-2FB25R00F
PWR220-2FB250R0F	PWR220-2FB250000F	PWR220-2FB250010F	PWR220-2FB27R00F	PWR220-2FB3R000F