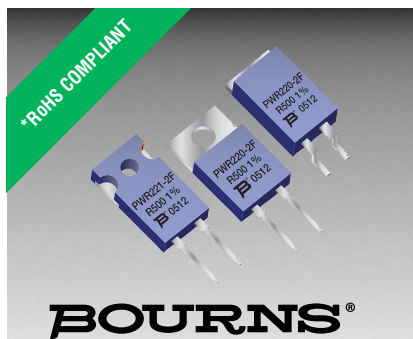




Features

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



This series is unavailable and not recommended for new designs.

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 and RoHS Recast 2011/65/EU June 8, 2011.

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

Applications

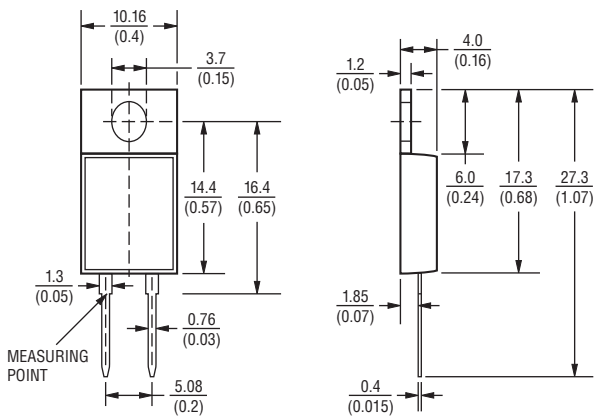
- Power supplies
- Motor drives
- Test and measurement
- Welding

PWR220/PWR221 F Series Power Resistors

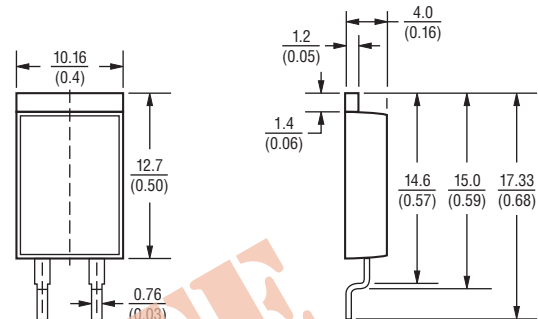
BOURNS®

Product Dimensions

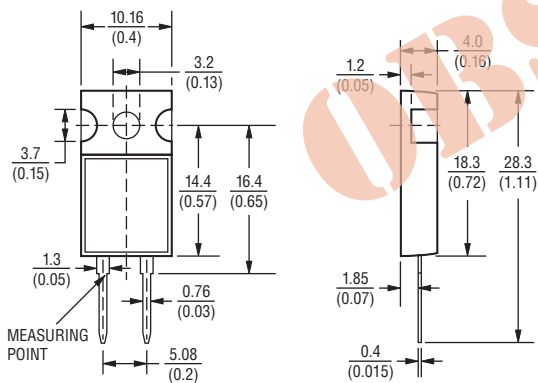
TO220 Housing: 2-Pin



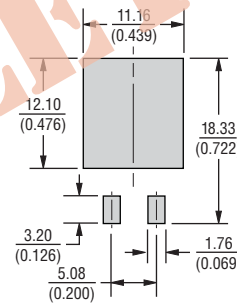
TO220 Casing: 2-Pin (Surface Mount)



TO221 Casing: 2-Pin

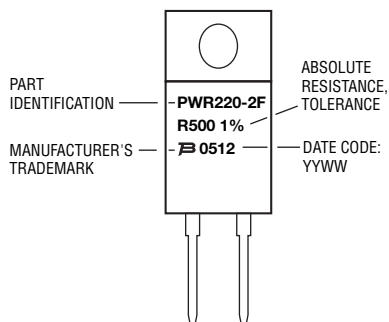


Recommended Pad Layout



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

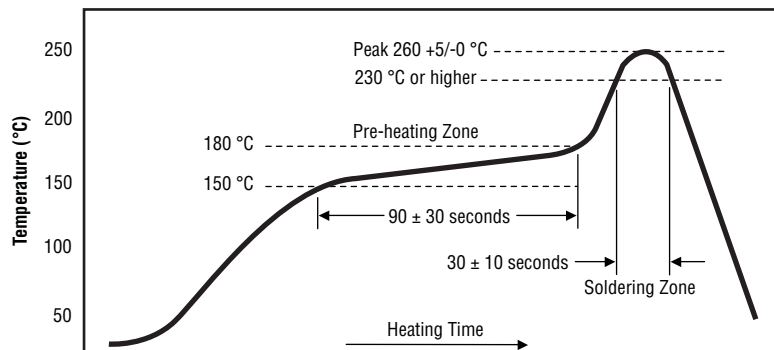
Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

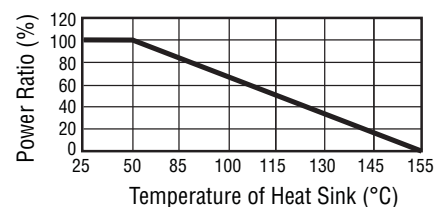
PWR220/PWR221 F Series Power Resistors

BOURNS®

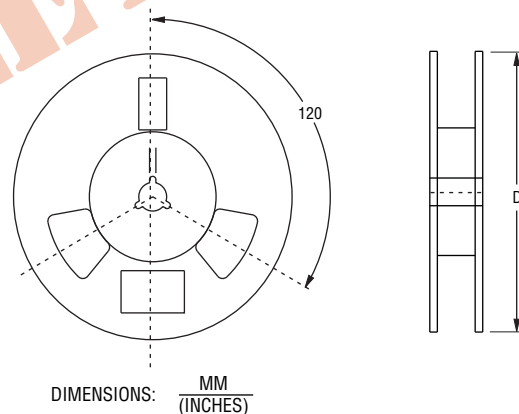
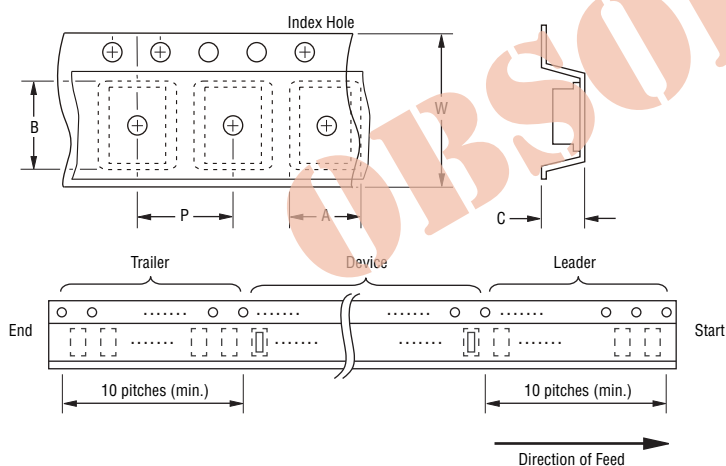
Soldering Profile (Surface Mount Version Only)



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. 10/15

Specifications are subject to change without notice.

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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	PWR220-2FC200R0J	PWR220-2FC5R000F
PWR220-2FC5R000J	PWR220-2FCR0240F	PWR220-2FCR0400F	PWR221-2FB10000F	PWR221-2FB10R00F
PWR221-2FB20001F	PWR221-2FB200R0J	PWR221-2FB7R500F	PWR221-2FB7R500J	PWR221-2FBR0400F
PWR221-2FBR0400J	PWR221-2FC10000J	PWR221-2FC10002J	PWR221-2FC10R00J	PWR221-2FC200R0J
PWR221-2FC5R000J	PWR221-2FC7R500J	PWR221-2FCR0100J	PWR221-2FCR0400F	PWR221-2FCR0400J
PWR221-2FCR0500J	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