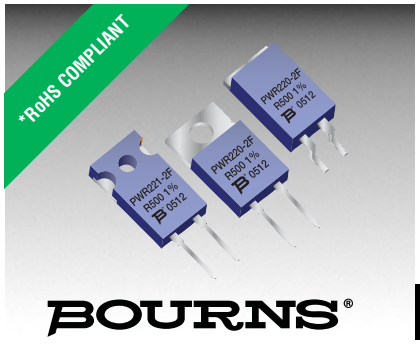


BOURNS®

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 (AL203)
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 – Rthj (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

WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.
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Applications

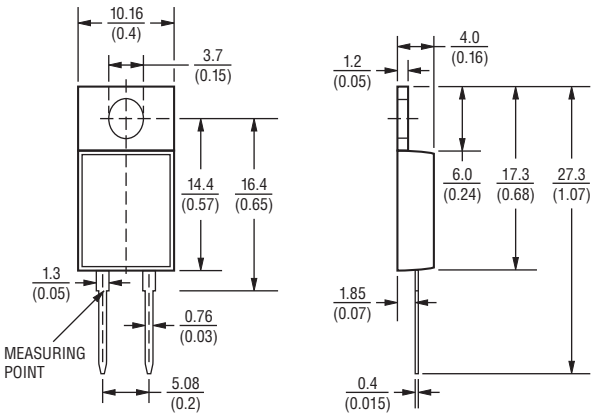
- Power supplies
- Motor drives
- Test and measurement
- Welding

PWR220/PWR221 F Series Power Resistors

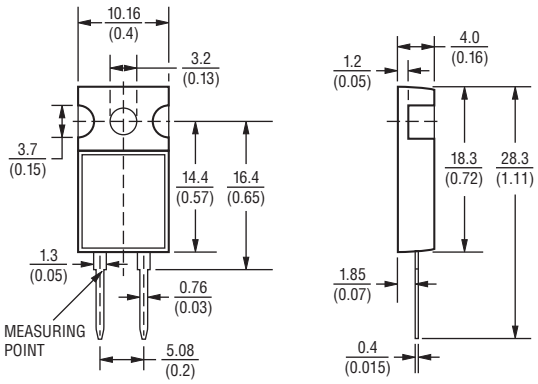
BOURNS®

Product Dimensions

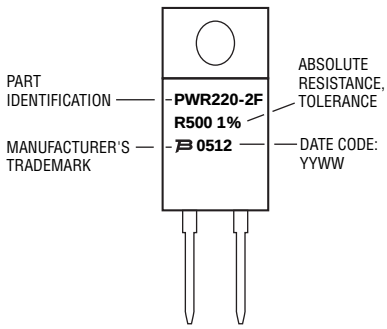
TO220 Housing: 2-Pin



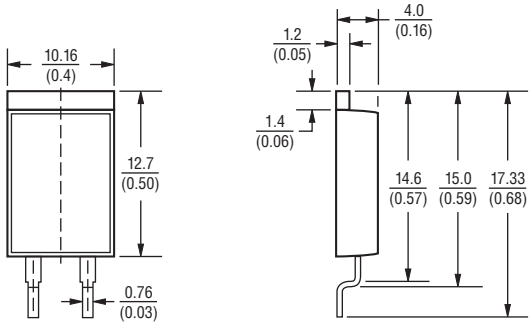
TO221 Casing: 2-Pin



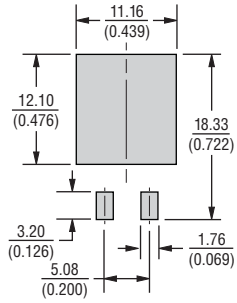
Typical Part Marking



TO220 Casing: 2-Pin (Surface Mount)



Recommended Pad Layout



DIMENSIONS: MM (INCHES)

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)

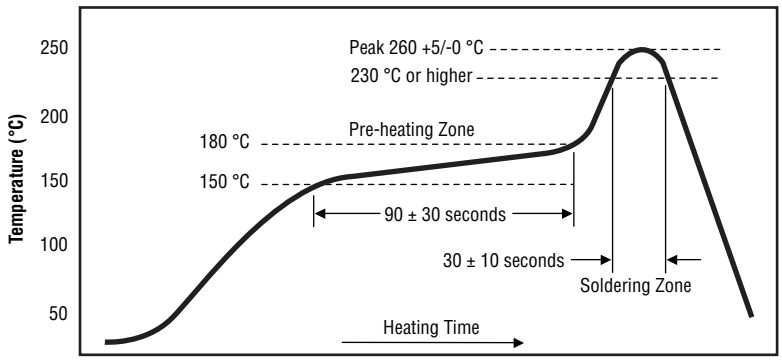
Resistor Value for all Tolerances
<100 ohms ..... "R" represents decimal point (examples: 7R50 = 7.5 ohms; R040 = 0.040 ohms)
≥100 ohms ..... First three digits are significant, fourth digit represents number of zeros to follow (examples: 2000 = 200 ohms; 2002 = 20K ohms)

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

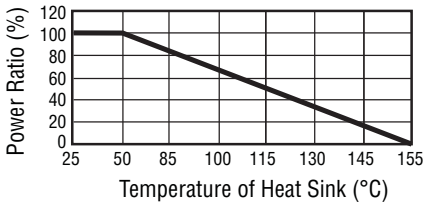
Packaging
E = Tape & Reel (Available only for Versions A and D)
___ = Tubes

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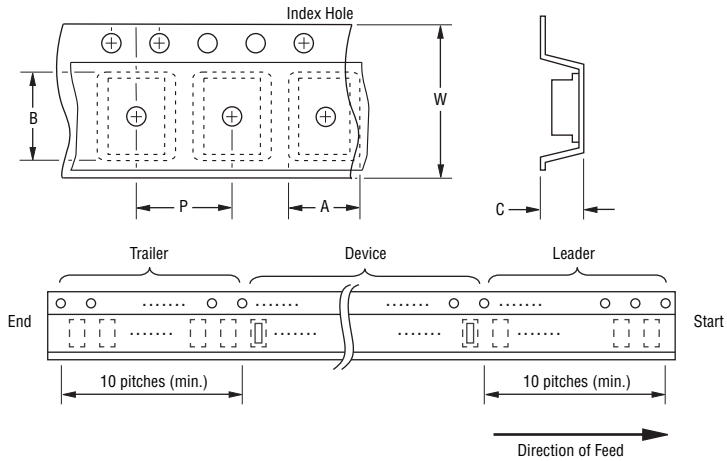
Soldering Profile (Surface Mount Version Only)

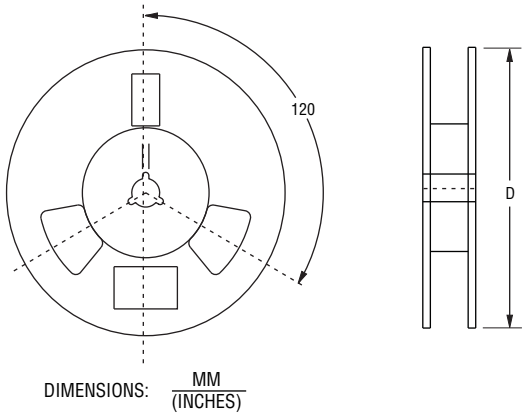


Derating Curve



Packaging Dimensions





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

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

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CAY10-390J4LF HCTSM110103HAL-E BN-LG20Y2R0MYB CR0805-JW-470ELF CR0805-JW-561ELF SF-1206HV30M-2 CR0805-JW-102ELF EM14A1D-C24-L032S SDR1806-330ML SF-1206HI050M-2 3386W-1-503LF SF-1206F400-2 3310Y-001-103L CAY10-270J4LF CM453232-100KL CR0805-JW-221ELF MH1005-471Y SF-1206SA050M-2 SF-1206SP050-2 1140-222K-RC CAT10-102J4LF 2200LL-102-H-RC 3223W-1-201E 3296P-1-203LF CAY10-510J4LF SF-3812FG2000T-2 SRR0735A-101M SRR4818A-4R7Y BN-LG20Y6R0MYB CRT0805-FZ-1002ELF