

## Features

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

## Applications

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

## 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

### 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

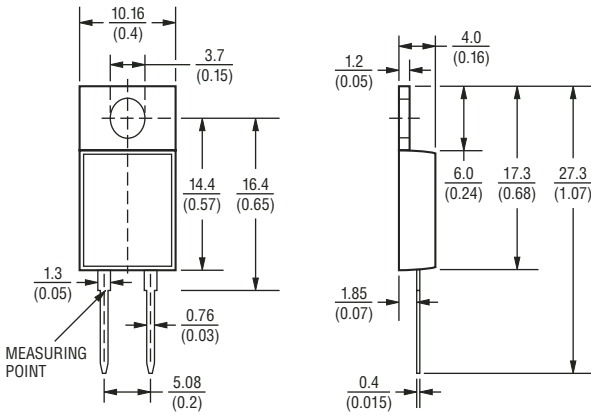
Parameter	Symbol	Min.	Nom.	Max.	Unit
Resistance (Version A & B) (Version C)	R R	0.02 0.02		100K 15K	$\Omega$ $\Omega$
Power Rating @ 70 °C without heat sink Power Rating @ 70 °C with heat sink (Version A & B) (Version C)				1.50 30 50	W W W
Tolerance 0.02 $\Omega$ < R < 1.0 $\Omega$ 1.0 $\Omega$ < R < 100K $\Omega$		2.0 1.0		5.0 5.0	% %
TCR 0.1 $\Omega$ < R < 100.0K $\Omega$ 0.05 $\Omega$ < R < 0.099 $\Omega$ 0.02 $\Omega$ < R < 0.049 $\Omega$				$\pm$ 100 $\pm$ 300 $\pm$ 600	PPM/°C PPM/°C PPM/°C
Thermal Resistance – Rthj (Version A & B) (Version C)			3.5 2.1		°C/W °C/W
Stability		0.1		0.5	%
Thermal EMF				1.0	$\mu$ V/°C
Dielectric Withstanding Voltage				2	kV DC
Operating Temperature	T <sub>J</sub>	-40		+130	°C

# PWR220/PWR221 F Series Power Resistors

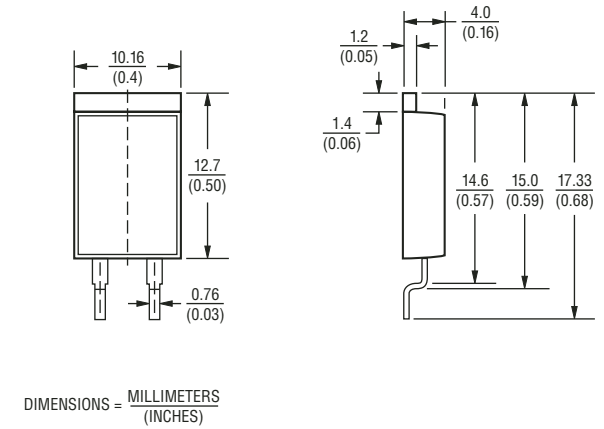


## Product Dimensions

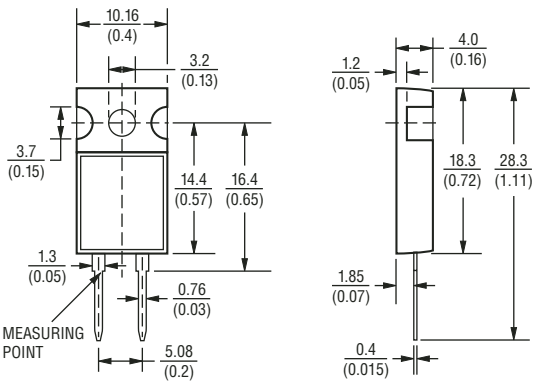
### TO220 Housing: 2-Pin



### TO220 Casing: 2-Pin (Surface Mount)



### TO221 Casing: 2-Pin



## 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 = Surface Mount 30 W (with Heat Sink)  
B = Through-Hole 30 W (with Heat Sink)  
C = Through-Hole 50 W (with Heat Sink)

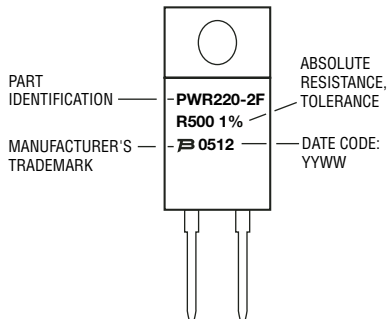
Resistor Value for all Tolerances \_\_\_\_\_  
<100 ohms .... "R" represents decimal point  
(examples: 7R50 = 7.5 ohms; R040 = 0.040 ohms)

≥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  
\_\_\_ = Tubes

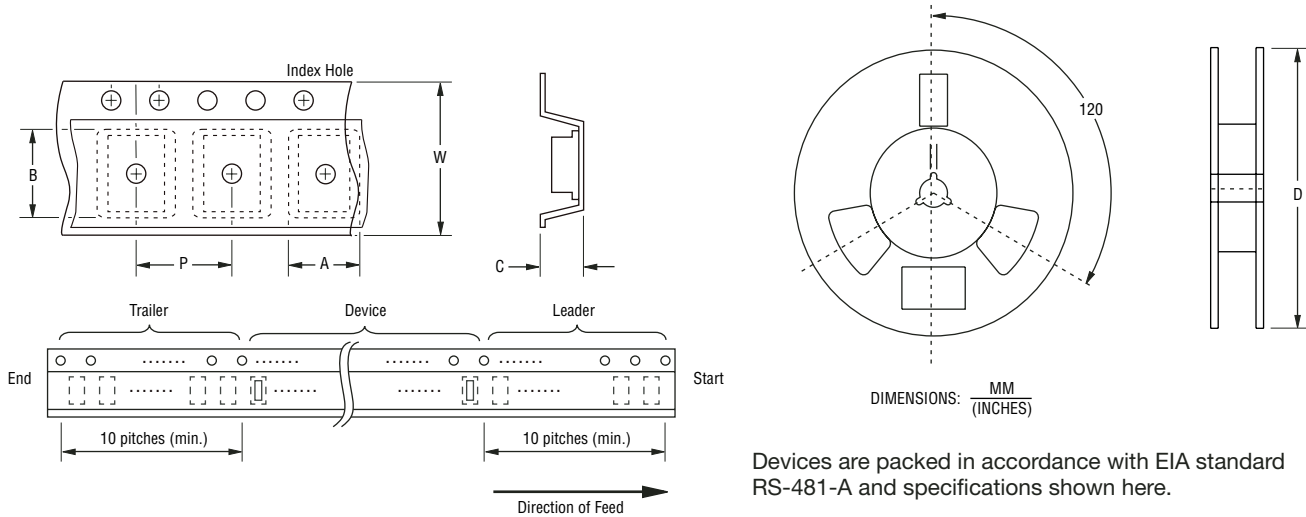
## Typical Part Marking



# PWR220/PWR221 F Series Power Resistors

**BOURNS®**

## 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



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