



Features

- Low TCR
- Low electrical noise
- Low inductance/capacitance
- High power rating
- Low ohmic values

Applications

- Power supplies
- Motor drives
- Test and measurement
- Electricity meters

PWR220/PWR221 S Series Shunt Resistor

Material Specifications

Resistor.....Metal Foil (CuNiMn)
 Substrate.....Alumina (AL203)
 Housing.....Epoxy/PPS
 Lead FrameTinned Copper (Sn/Cu)
 Maximum Torque.....1.0 Nm
 Packaging
 Tubes.....50 pcs./tube
 Tape & Reel**500 pcs./reel

**Tape & Reel is only available for Version A.

General Information

The Bourns® PWR220 S Series is a TO220 style Shunt Resistor; the PWR221 S Series is a TO221 style Shunt Resistor. Manufactured using foil on alumina ceramic, it is used in applications such as power supplies, motor drives and measurements.

Electrical & Thermal Characteristics

Parameter	Symbol	Min.	Nom.	Max.	Unit
Resistance	R	0.002		50	Ω
Power Rating @ 70 °C without additional heat sink @ 70 °C with adequate heat sink*		10		1.50 15	W
Tolerance 0.002 Ω < R < 0.01 Ω 0.01 Ω < R < 0.10 Ω 0.10 Ω < R < 50.0 Ω		2.0** 1.0*** 0.5***		5.0 5.0 5.0	%
TCR 20 °C < T < 60 °C -40 °C < T < +130 °C				±15.0 ±50.0	PPM/°C
Thermal Resistance – Rthj (Max @ R < 50 Ω)				4.8	°C/W
Stability		0.1		0.5	%
Thermal EMF				1.0	μV/°C
Dielectric Withstanding Voltage				300	VDC
Operating Temperature	T _J	-40		+130	°C

* Thermal junction 130 °C max.

** 1 % also available with 4-pin version.

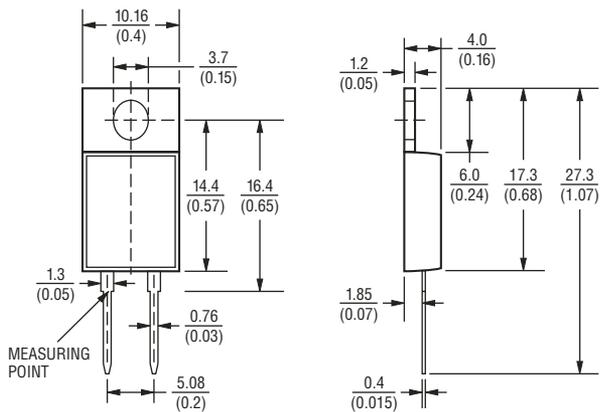
*** 0.1 % and 0.24 % also available with 4-pin version.

PWR220/PWR221 S Series Shunt Resistor

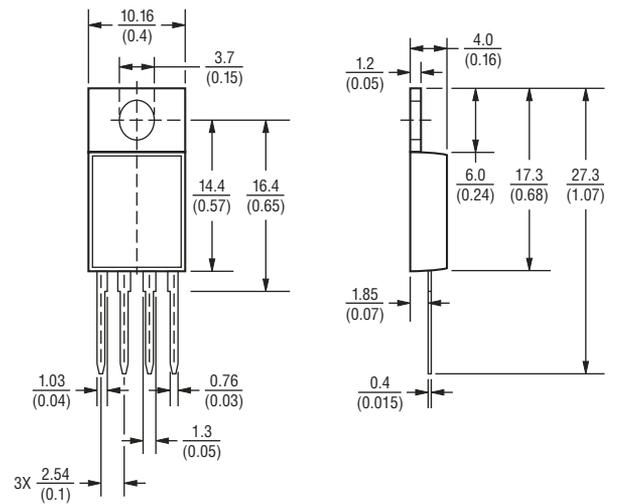
BOURNS®

Product Dimensions

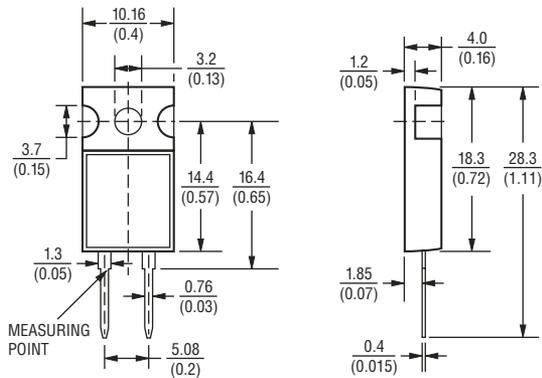
T0220 Housing: 2-Pin



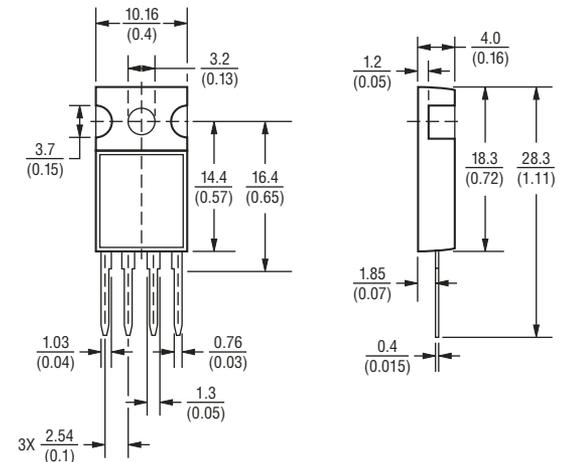
T0220 Housing: 4-Pin



T0221 Casing: 2-Pin



T0221 Casing: 4-Pin



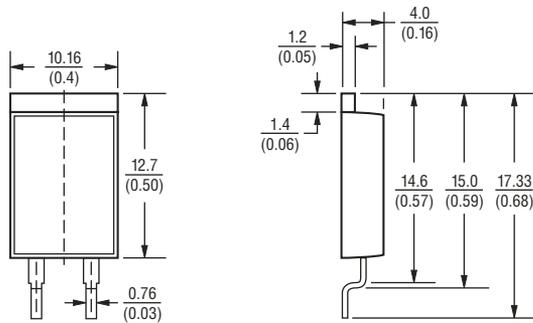
DIMENSIONS = MILLIMETERS
(INCHES)

PWR220/PWR221 S Series Shunt Resistor

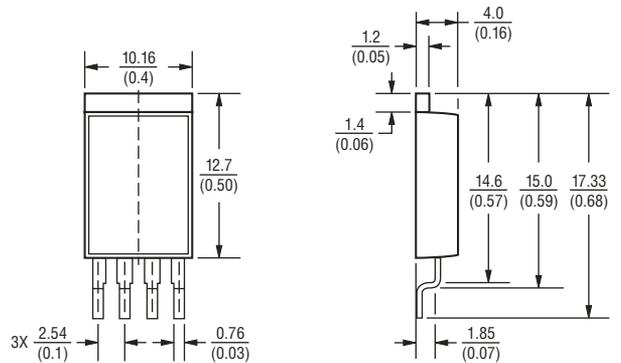


Product Dimensions

T0220 Casing: 2-Pin (Surface Mount)



T0220 Casing: 4-Pin (Surface Mount)



DIMENSIONS = $\frac{\text{MILLIMETERS}}{\text{(INCHES)}}$

How to Order

PWR 220 - 2 S A R040 J E

Model _____
 PWR = Power Resistor

Package _____
 220 = T0220
 221 = T0221

Number of Pins _____
 2 = 2 4 = 4

Function _____
 S = Shunt

Version _____
 A = Surface Mount
 B = Through Hole

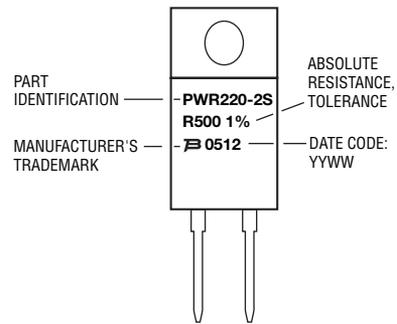
Resistor Value for all Tolerances _____
 "R" represents decimal point
 (examples: R040 = .040 ohms; 50R0 = 50.0 ohms)

Absolute Tolerance _____
 J = 5 % G = 2 % F = 1 %
 D = 0.5 % *C = 0.25 % *B = 0.1 %

Packaging _____
 E = Tape & Reel (Available only for Version A)
 _____ = Tubes

*Available only with 4-pin versions.

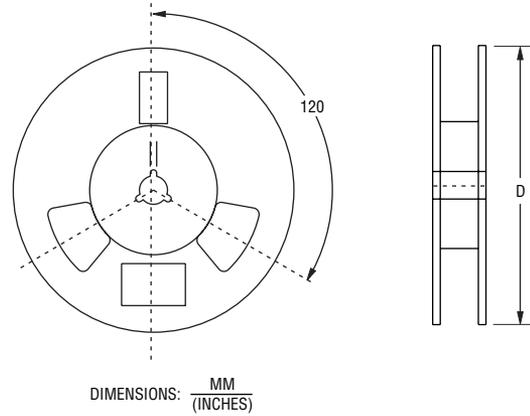
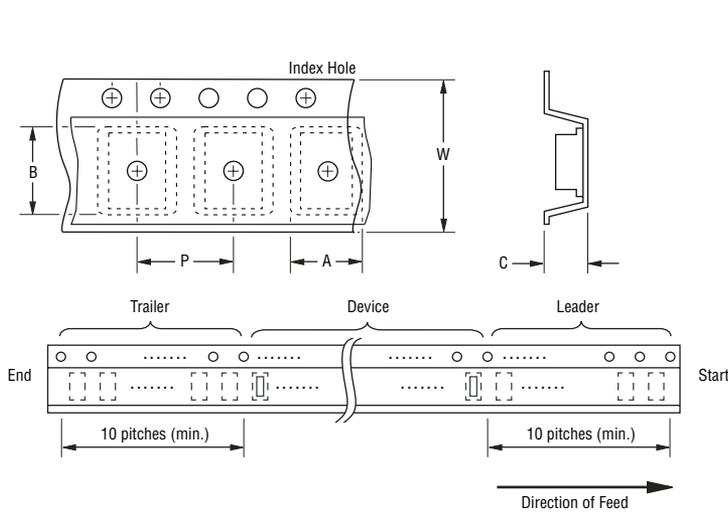
Typical Part Marking



PWR220/PWR221 S Series Shunt Resistor

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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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