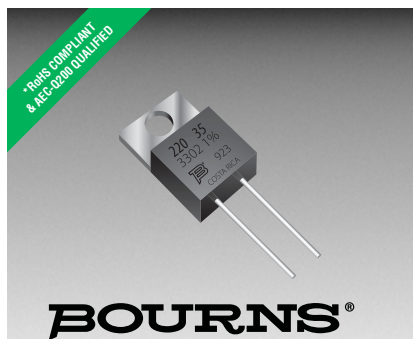




Features

- TO-220 housing
- Low inductance
- Resistor electrically isolated from the backplate
- High power rating
- AEC-Q200 qualified
- RoHS compliant*

Applications

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

PWR220T-35 Series Power Resistor

General Information

Bourns® PWR220T-35 Series is a TO-220 DPAK style power resistor. Manufactured using thick film on alumina ceramic technology, it is used in current measurement, snubber, bleeder and discharge circuits.

Electrical & Thermal Characteristics

Parameter	Value(s)
Resistance (See Popular Resistance Values table)	0.02 Ω to 130 K Ω
Power Rating @ 25 °C Case Temperature	35 W
Tolerance	$\pm 1\%$ **, $\pm 5\%$
TCR 0.02 Ω < R < 130.0K Ω	± 100 PPM/°C
Thermal Resistance - R _{thj}	3.7 °C/W
Inductance	0.1 μ H maximum
Operating Voltage	$\sqrt{P \cdot R}$ with a maximum of 250 V
Dielectric Strength	2 KV AC
Insulation Resistance	10 G Ω
Operating Temperature	-55 °C to 155 °C

** Available for most values. Check Popular Resistance Values table.

Reliability Characteristics

Parameter	Specification
Short Term Overload (2x Pr for R < 2 Ω , 1.6 x Pr for R $\geq$ 2 Ω , V < 1.5 x Operating Voltage)	ΔR $\pm 0.25\%$
Load Life (1000 hours at rated power)	ΔR $\pm 1.0\%$
Thermal Shock (-55 °C to 155 °C, 5 cycles)	ΔR $\pm 0.5\%$
Resistance to Soldering Heat (10 seconds at 270 °C)	ΔR $\pm 0.5\%$
Vibration (20 G 10-2000 Hz .06 " D.A.)	ΔR $\pm 0.25\%$
Terminal Strength (MIL-STD-202, Method 211 Test A1)	ΔR $\pm 0.2\%$
Shock (Saw Tooth: 100 g/6 ms)	ΔR $\pm 0.5\%$
Humidity (Steady State) 1000 hrs. 85 °C/85 % RH	ΔR $\pm 0.5\%$
High Temperature Exposure (100 hrs - 40 % Pr @ +125 °C)	ΔR $\pm 0.5\%$

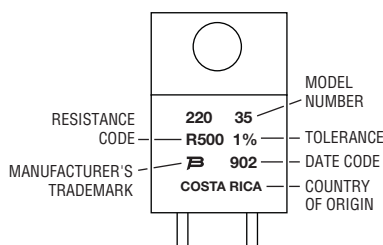
Material Characteristics

Resistor Thick film
Substrate Alumina (AL2O3)
Housing Epoxy
Pins Tinned Copper (Sn/Cu)
Flammability Conforms to UL-94V0

Packaging

..... 50 pcs./tube

Typical Part Marking



Popular Resistance Values

Code	Resistance Value	Code	Resistance Value
R020	0.02 Ω ***	1000	100 Ω
R025	0.025 Ω ***	1200	120 Ω
R030	0.03 Ω ***	1500	150 Ω
R033	0.033 Ω ***	2000	200 Ω
R040	0.04 Ω ***	2500	250 Ω
R050	0.05 Ω ***	3000	300 Ω
R075	0.075 Ω ***	3300	330 Ω
R100	0.1 Ω	4000	400 Ω
R150	0.15 Ω	4700	470 Ω
R200	0.2 Ω	5000	500 Ω
R250	0.25 Ω	5600	560 Ω
R300	0.3 Ω	7500	750 Ω
R330	0.33 Ω	1001	1.0 K Ω
R400	0.4 Ω	1501	1.5 K Ω
R500	0.5 Ω	2001	2.0 K Ω
R750	0.75 Ω	2501	2.5 K Ω
1R00	1 Ω	3001	3.0 K Ω
1R50	1.5 Ω	3301	3.3 K Ω
2R00	2 Ω	4001	4.0 K Ω
2R50	2.5 Ω	5001	5.0 K Ω
3R00	3 Ω	7501	7.5 K Ω
3R30	3.3 Ω	1002	10 K Ω
4R00	4 Ω	1502	15 K Ω
5R00	5 Ω	2002	20 K Ω
7R50	7.5 Ω	2502	25 K Ω
8R00	8 Ω	3002	30 K Ω
10R0	10 Ω	3302	33 K Ω
12R0	12 Ω	4002	40 K Ω
15R0	15 Ω	4702	47 K Ω
20R0	20 Ω	5002	50 K Ω
25R0	25 Ω	5602	56 K Ω
27R0	27 Ω	6802	68 K Ω
30R0	30 Ω	7502	75 K Ω
33R0	33 Ω	8202	82 K Ω
40R0	40 Ω	1003	100 K Ω
47R0	47 Ω	1153	115 K Ω
50R0	50 Ω	1203	120 K Ω
56R0	56 Ω	1253	125 K Ω
75R0	75 Ω	1303	130 K Ω

*** 5 % Tolerance

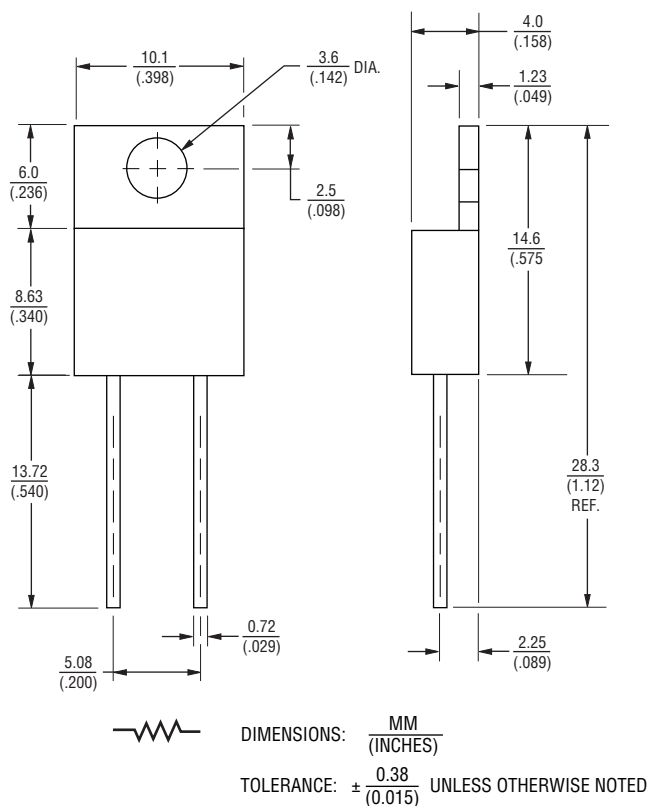
*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011. Specifications are subject to change without notice.

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.

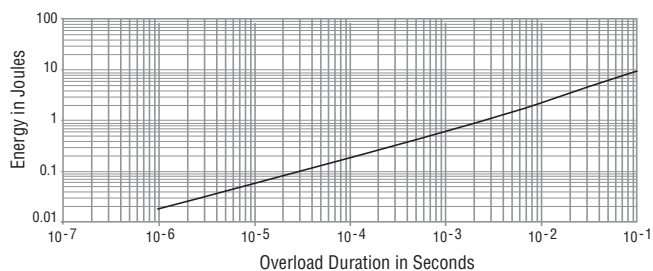
PWR220T-35 Series Power Resistor

BOURNS®

Product Dimensions



Pulse Power Rating



The energy absorbed by the resistor expressed in Joules can be calculated by multiplying the peak power of the pulse in watts times the length of the pulse in seconds.

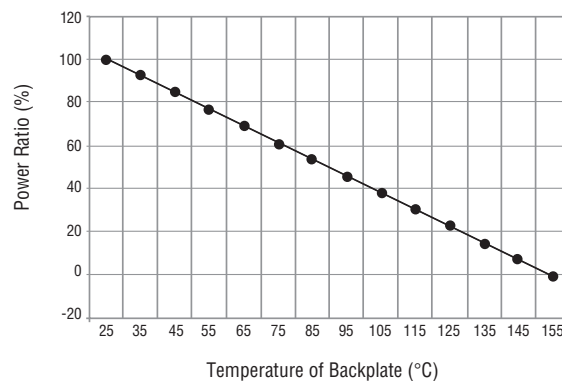
The energy should not exceed the limits shown in the graph. The overload voltage should not exceed 1.5 times the maximum operating voltage.

How to Order

PWR 220 T - 35 - 10R0 F

Model _____
PWR = Power Resistor
Package _____
220 = TO-220 Style
Pin Style _____
T = Through-hole
Power _____
35 = 35 W
Resistance Value _____
<100 ohms ... "R" represents decimal point
(examples: 7R50 = 7.5 Ω ; R500 = 0.5 Ω)
 $\geq$ 100 ohms.... First three digits are significant, fourth digit represents number of zeros to follow
(examples: 2000 = 200 ohms; 3002 = 30K ohms)
Absolute Tolerance _____
J = 5 %
F = 1 %

Derating Curve



REV. 05/15

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.

Mouser Electronics

Authorized Distributor

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

Bourns:

PWR220T-35-R270F	PWR220T-35-2000F	PWR220T-35-2500J	PWR220T-35-4R00F	PWR220T-35-5R00F
PWR220T-35-8R00F	PWR220T-35-R100F	PWR220T-35-7R50F	PWR220T-35-4000F	PWR220T-35-R030J
PWR220T-35-4000J	PWR220T-35-1501F	PWR220T-35-5600F	PWR220T-35-5R10F	PWR220T-35-3002F
PWR220T-35-50R0F	PWR220T-35-33R0F	PWR220T-35-1200F	PWR220T-35-2500F	PWR220T-35-56R0J
PWR220T-35-3300F	PWR220T-35-R750F	PWR220T-35-40R0F	PWR220T-35-R500F	PWR220T-35-R200F
PWR220T-35-R050J	PWR220T-35-2R50F	PWR220T-35-R040J	PWR220T-35-2R00F	PWR220T-35-56R0F
PWR220T-35-1R50F	PWR220T-35-3000J	PWR220T-35-5101F	PWR220T-35-15R0F	PWR220T-35-R400F
PWR220T-35-7500F	PWR220T-35-4700F	PWR220T-35-3R00F	PWR220T-35-30R0F	PWR220T-35-75R0J
PWR220T-35-6201F	PWR220T-35-R150F	PWR220T-35-1R00J	PWR220T-35-20R0F	PWR220T-35-10R0J
PWR220T-35-10R0F	PWR220T-35-1R00F	PWR220T-35-47R0F	PWR220T-35-3300J	PWR220T-35-50R0J
PWR220T-35-3R30F	PWR220T-35-4700J	PWR220T-35-1000J	PWR220T-35-7R50J	PWR220T-35-R033J
PWR220T-35-R330F	PWR220T-35-75R0F	PWR220T-35-27R0F	PWR220T-35-R020J	PWR220T-35-R300F
PWR220T-35-12R0J	PWR220T-35-2000J	PWR220T-35-5000F	PWR220T-35-12R0F	PWR220T-35-25R0F
PWR220T-35-R250F	PWR220T-35-1000F	PWR220T-35-1100J	PWR220T-35-4R70J	PWR220T-35-25R0J
PWR220T-35-2501J	PWR220T-35-1002J	PWR220T-35-15R0J	PWR220T-35-1502J	PWR220T-35-30R0J
PWR220T-35-4R70F	PWR220T-35-27R0J	PWR220T-35-1500F	PWR220T-35-2002J	PWR220T-35-3R30J
PWR220T-35-2R20J	PWR220T-35-1002F	PWR220T-35-2001J	PWR220T-35-33R0J	PWR220T-35-5R00J
PWR220T-35-3001J	PWR220T-35-1001J	PWR220T-35-47R0J	PWR220T-35-1501J	PWR220T-35-2501F
PWR220T-35-8500J	PWR220T-35-R025J	PWR220T-35-1251J	PWR220T-35-4R50F	