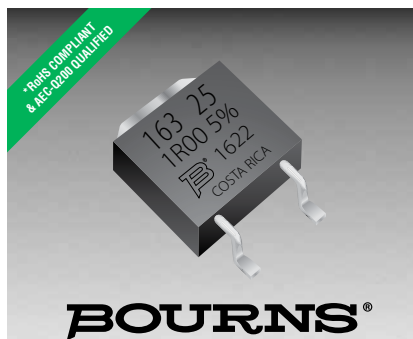




Features

- Smaller than a D²PAK package
- Low inductance
- Resistor electrically isolated from the backplate
- High power rating
- Compatible with lead free solder reflow temperatures
- RoHS compliant*

- AEC-Q200 qualified

Applications

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

PWR163 Series Power Resistor

General Information

The PWR163 Series is a DPAK style surface mount power resistor. It has a very low inductance making it ideal for high frequency applications such as amplifiers for audio or wireless base stations. It has excellent pulse characteristics as well, allowing it to be used in current limiting or capacitor discharge circuits.

Electrical & Thermal Characteristics

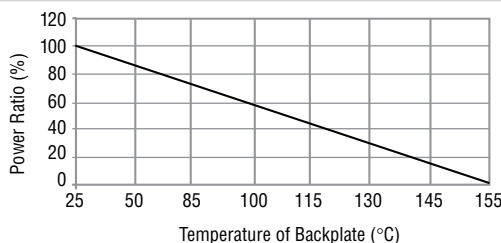
Parameter	Value(s)
Resistance (See Popular Resistance Values table)	0.02 Ω to 130 K Ω
Power Rating @ 25 °C Case Temperature	25 W
Tolerance	$\pm 1\%$ **, $\pm 5\%$
TCR	± 100 PPM/°C
Thermal Resistance - R _{thj}	5.2 °C/W
Inductance	0.1 μ H maximum
Operating Voltage	$\sqrt{P \cdot R}$ with a maximum of 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 $\pm 0.25\%$
Moisture Sensitivity Level	1

Derating Curve



Material Characteristics

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

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

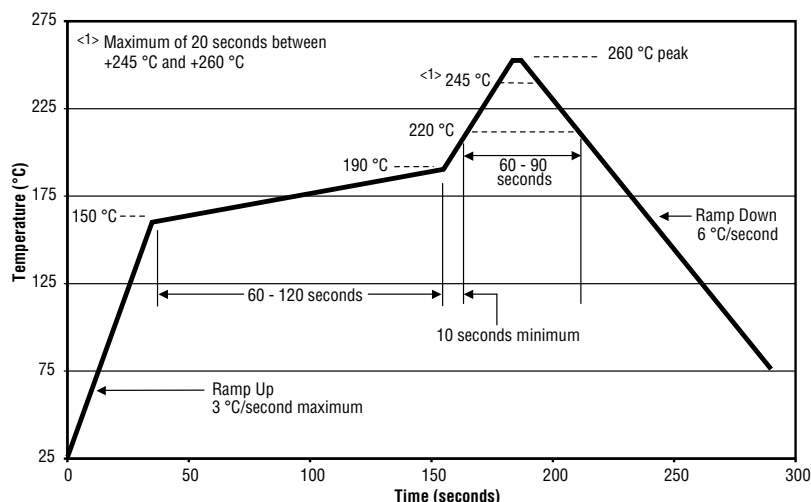
*** 5 % Tolerance

*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.

PWR163 Series Power Resistor

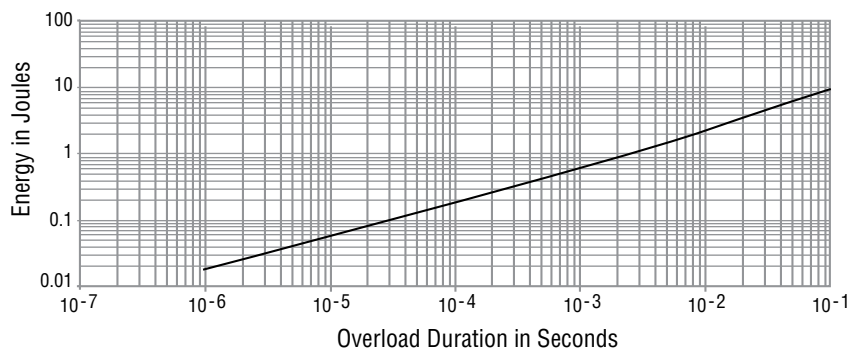
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Soldering Profile



Power dissipation is 2.8 W at an ambient temperature of 25 °C when mounted on a double-sided copper board using FR4 standard, 70 μ m of copper, 39 x 30 x 1.6 mm.

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.

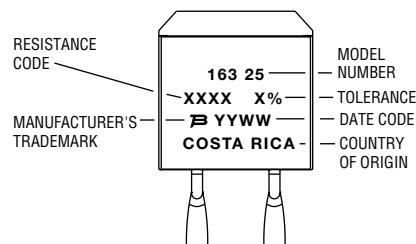
The energy should not exceed the limits shown in the graph. The overload voltage should not exceed 1.5 times the maximum operating voltage.

How to Order

PWR 163 S - 25 - 10R0 J E

Model _____
PWR = Power Resistor
Package _____
163 = DPAK Style
Pin Style _____
S = Surface Mount
Power _____
25 = 25 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 %
Packaging _____
E = Tape & Reel
Blank = Tubes

Typical Part Marking

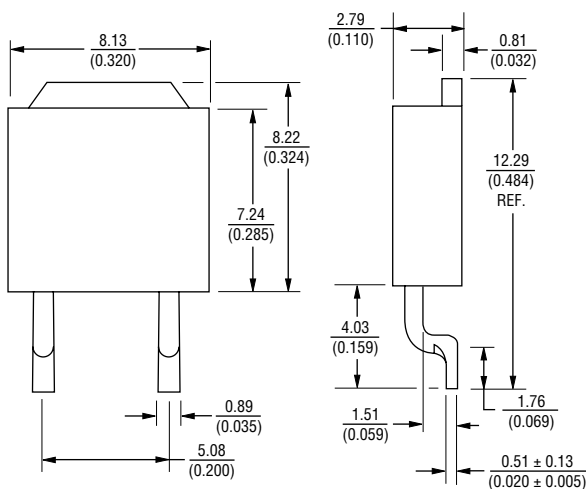


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PWR163 Series Power Resistor

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Product Dimensions



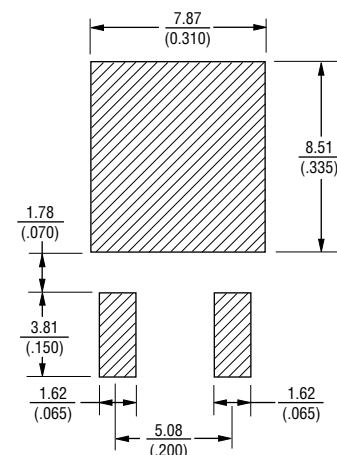
BACKPLANE ELECTRICALLY ISOLATED

DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$

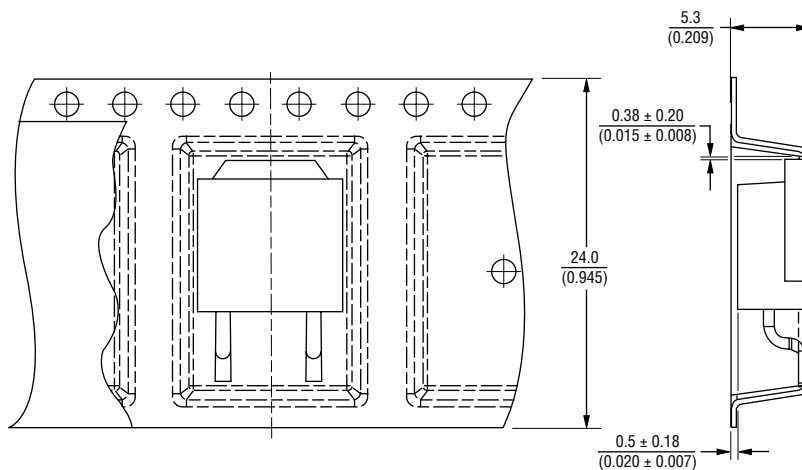
TOLERANCE: ± 0.38 UNLESS OTHERWISE NOTED
(± 0.015)

LEAD COPLANARITY: ± 0.102 MAX. AT MOUNTING SURFACE
(± 0.004)

Recommended Pad Layout



Packaging Specifications



DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$

TOLERANCE: ± 0.38 UNLESS OTHERWISE NOTED
(± 0.015)

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Asia-Pacific: Tel: +886-2 2562-4117 • Email: asiacus@bourns.com

EMEA: Tel: +36 88 520 390 • Email: eurocus@bourns.com

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Mouser Electronics

Authorized Distributor

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

Bourns:

PWR163S-25-1002F	PWR163S-25-1002J	PWR163S-25-10R0F	PWR163S-25-10R0J	PWR163S-25-1R00F
PWR163S-25-1R00J	PWR163S-25-2R20F	PWR163S-25-2R20J	PWR163S-25-47R0F	PWR163S-25-47R0J
PWR163S-25-4R70F	PWR163S-25-4R70J	PWR163S-25-50R0F	PWR163S-25-50R0J	PWR163S-25-5R00F
PWR163S-25-5R00J	PWR163S-25-8R20F	PWR163S-25-8R20J	PWR163S-25-R050J	PWR163S-25-R100F
PWR163S-25-R100J	PWR163S-25-R500F	PWR163S-25-3R00J	PWR163S-25-1001J	PWR163S-25-20R0J
PWR163S-25-3R30F	PWR163S-25-1001F	PWR163S-25-20R0F	PWR163S-25-75R0J	PWR163S-25-30R0J
PWR163S-25-1R50F	PWR163S-25-R500J	PWR163S-25-12R0J	PWR163S-25-R200J	PWR163S-25-1R00FE
PWR163S-25-R750J	PWR163S-25-30R0FE	PWR163S-25-8200F	PWR163S-25-7500FE	PWR163S-25-2R50J
PWR163S-25-3300FE	PWR163S-25-3000FE	PWR163S-25-56R0J	PWR163S-25-R330FE	PWR163S-25-15R0J
PWR163S-25-R200FE	PWR163S-25-2R00F	PWR163S-25-R100FE	PWR163S-25-4R00JE	PWR163S-25-5R00JE
PWR163S-25-R025JE	PWR163S-25-75R0FE	PWR163S-25-39R0J	PWR163S-25-7R50J	PWR163S-25-50R0FE
PWR163S-25-7R50FE	PWR163S-25-56R0F	PWR163S-25-R033J	PWR163S-25-33R0J	PWR163S-25-R033JE
PWR163S-25-27R0J	PWR163S-25-R050JE	PWR163S-25-1200JE	PWR163S-25-R400FE	PWR163S-25-33R0F
PWR163S-25-20R0JE	PWR163S-25-15R0FE	PWR163S-25-3R00F	PWR163S-25-3600FE	PWR163S-25-5R60J
PWR163S-25-2500FE	PWR163S-25-3R00FE	PWR163S-25-4700J	PWR163S-25-25R0FE	PWR163S-25-6800JE
PWR163S-25-R500FE	PWR163S-25-15R0JE	PWR163S-25-3301J	PWR163S-25-4422JE	PWR163S-25-1500FE
PWR163S-25-1802FE	PWR163S-25-5R00FE	PWR163S-25-2R00J	PWR163S-25-40R0FE	PWR163S-25-4301FE
PWR163S-25-1000FE	PWR163S-25-1201J	PWR163S-25-27R0F	PWR163S-25-7R50F	PWR163S-25-15R0F
PWR163S-25-2R50F	PWR163S-25-8201FE	PWR163S-25-40R0J	PWR163S-25-5600FE	PWR163S-25-3002J
PWR163S-25-40R0F	PWR163S-25-5R60F	PWR163S-25-R250FE	PWR163S-25-2R00FE	PWR163S-25-R750FE