Features

- Power ratings from 0.5 - 3 watts
- Large terminals and optimized body shape for power dissipation
- Excellent surge capabilities
- Low TCR
- Non-inductive versions available
- RoHS compliant*

Applications

- Telecommunications
- Audio equipment
- Medical equipment (low/medium risk)**
- Base stations
- Industrial equipment

PWR2010/3014/4318/5322 - Surface Mount Wirewound Resistors

General Information

The PWR2010/3014/4318/5322 Series surface mount wirewound resistors boast a high power density and excellent pulse power characteristics. They can be used in a wide range of applications where surge voltages or inrush currents are present.

Electrical Characteristics

Parameter	PWR2010	PWR3014	PWR4318	PWR5322
Power	0.5 W	1.0 W	2.0 W	3.0 W
Resistance Range 1 % Based on E24+E96 Series 5 % Based on E24 Series	0.005 Ω - 1.2K Ω	0.005 Ω - 5K Ω	0.005 Ω - 12K Ω	0.01 Ω - 20K Ω
Resistance Range (Non-inductive Versions) Based on E24 Series	0.1 Ω - 200 Ω	0.1 Ω - 1K Ω	0.1 Ω - 2.4K Ω	0.1 Ω - 4K Ω
Tolerance	0.5 % / 1 % / 5 %			
Temperature Coefficient <0.1 Ω 0.1 - 0.99 Ω 1.0 - 10 Ω >10 Ω	 ±200 PPM/°C ±90 PPM/˚C ±50 PPM/˚C ±20 PPM/˚C			
Operating Temperature	-55 ˚ to 155 ˚C			
Maximum Voltage	√P*R			

Environmental Characteristics

Test	Description	Specification
Thermal Shock	-55 +0 °C/-3 °C to 150 °C +3 °C/-0 °C, 5 cycles, with minimum 15 minutes at each cycle	ΔR ±(2.0 % +0.05 Ω)
Short Time Overload	Five times rated power for 5 seconds	ΔR ±(0.5 % +0.05 Ω)
Solderability	Immersion in solder 260 °C ±5 ˚C for 5 ±0.5 seconds	90 % of contact covered in solder
Resistance to Solder Heat	Immersion in solder 260 °C ±5 ˚C for 5 ±0.5 seconds	ΔR ±(0.5 % +0.05 Ω)
Dielectric Strength	Test voltage >500 Vrms for greater than 1 minute	Pass
Insulation Resistance	Test voltage greater than 500 Vrms for one minute	>1000 GΩ
High Temperature Exposure	Ambient temperature of 175 °C +5 ˚C/-0 ˚C for 250 ±8 hours	ΔR ±(2.0 % +0.05 Ω)
Low Temperature Exposure	Ambient Temperature of -65C ±2C for 24 hours ±4 hours	ΔR ±(2.0 % +0.05 Ω)
Load Life	Rated continuous voltage for 1000 hours (1 hour on and 0.5 hours off) at a test temperature of 70°C ±2 °C	ΔR ±(2.0 % +0.05 Ω)

Environmental Characteristics (Cont'd)

Moisture Sensitivity Level.....1
ESD Classification (HBM).....N/A

Physical Characteristics

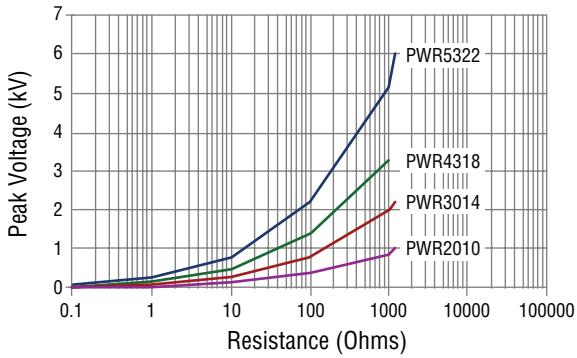
Body Material..... Epoxy resin
Lead Frame .... 100 % Sn Plated Copper
Flammability ..... Conforms to UL 94V-0

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

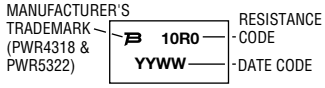
* RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

** Bourns® products have not been designed for and are not intended for use in "lifesaving," "life-critical" or "life-sustaining" applications nor any other applications where failure or malfunction of the Bourns® product may result in personal injury or death. See Legal Disclaimer Notice www.bourns.com/docs/legal/disclaimer.pdf.

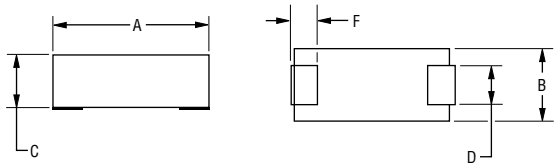
Surge Performance (IEC 61000-4-5 1.2 μs / 50 μs)



Typical Part Marking



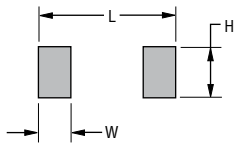
Product Dimensions



DIMENSIONS: MM (INCHES)

TOLERANCE: ± 0.508 (0.02)

Recommended Pad Layout

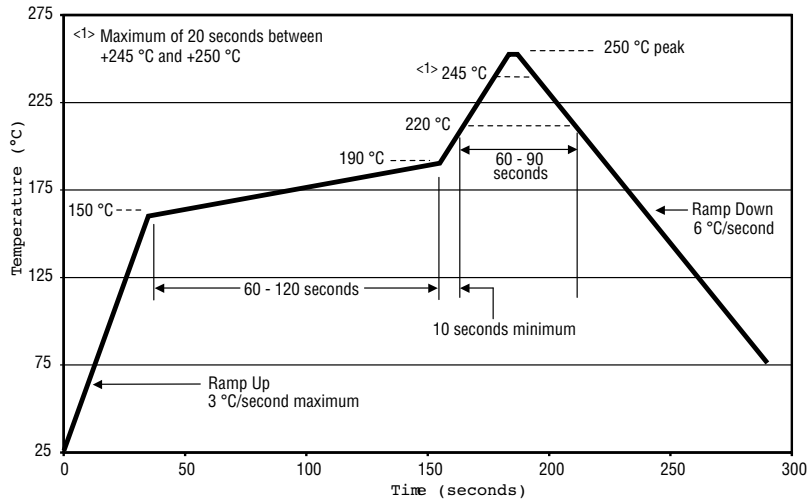


Model	A	F	L	C	B	D	W	H
PWR2010	5.08 (0.20)	1.28 (0.05)	6.48 (0.255)	3.25 (0.128)	2.54 (0.10)	1.663 (0.065)	1.98 (0.078)	2.16 (0.085)
PWR3014	7.5 (0.29)	1.75 (0.069)	8.9 (0.35)	4.64 (0.183)	3.50 (0.138)	2.405 (0.095)	2.45 (0.096)	2.95 (0.116)
PWR4318	11.0 (0.43)	2.00 (0.079)	12.5 (0.49)	4.65 (0.189)	4.50 (0.177)	3.590 (0.141)	3.20 (0.126)	3.70 (0.146)
PWR5322	13.5 (0.53)	2.50 (0.098)	14.9 (0.587)	5.65 (0.229)	5.50 (0.217)	4.20 (0.165)	3.70 (0.146)	4.20 (0.165)

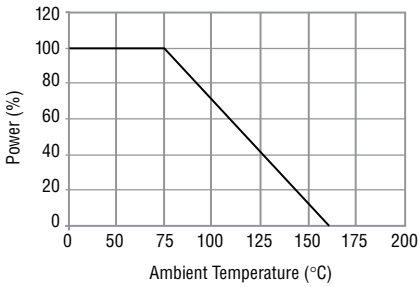
Packaging Specifications

Model	Tape Width	Reel Diameter	Pieces per Reel	Bulk Pkg. Quantity
PWR2010	12.0 (0.472)	330 (13.0)	2500	200
PWR3014	16.0 (0.629)		1500	200
PWR4318	24.0 (0.945)		1500	100
PWR5322	24.0 (0.945)		1500	100

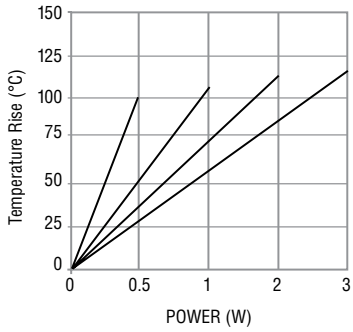
Soldering Profile



Power Derating Curve



Temperature Rise



How to Order

PWR4318 W __ 10R0 J E

Model
- PWR2010
- PWR3014
- PWR4318
- PWR5322

Type
- W = Wirewound
- N = Non-inductive Option

Special Version
- Blank = Default

Resistance Value
- <100 ohms ... "R" represents decimal point (examples: 7R50 = 7.5 Ω; R050 = 0.050 Ω)
- ≥100 ohms.... First three digits are significant, fourth digit represents number of zeros to follow (examples: 2000 = 200 ohms; 2002 = 20K ohms)

Resistance Tolerance
- J = 5 %
- F = 1 %
- D = 0.5 %

Packaging
- E = Tape & Reel
- Blank = Bulk

Legal Disclaimer Notice

BOURNS®

This legal disclaimer applies to purchasers and users of Bourns® products manufactured by or on behalf of Bourns, Inc. and its affiliates (collectively, "Bourns").

Unless otherwise expressly indicated in writing, Bourns® products and data sheets relating thereto are subject to change without notice. Users should check for and obtain the latest relevant information and verify that such information is current and complete before placing orders for Bourns® products.

The characteristics and parameters of a Bourns® product set forth in its data sheet are based on laboratory conditions, and statements regarding the suitability of products for certain types of applications are based on Bourns' knowledge of typical requirements in generic applications. The characteristics and parameters of a Bourns® product in a user application may vary from the data sheet characteristics and parameters due to (i) the combination of the Bourns® product with other components in the user's application, or (ii) the environment of the user application itself. The characteristics and parameters of a Bourns® product also can and do vary in different applications and actual performance may vary over time. Users should always verify the actual performance of the Bourns® product in their specific devices and applications, and make their own independent judgments regarding the amount of additional test margin to design into their device or application to compensate for differences between laboratory and real world conditions.

Unless Bourns has explicitly designated an individual Bourns® product as meeting the requirements of a particular industry standard (e.g., ISO/TS 16949) or a particular qualification (e.g., UL listed or recognized), Bourns is not responsible for any failure of an individual Bourns® product to meet the requirements of such industry standard or particular qualification. Users of Bourns® products are responsible for ensuring compliance with safety-related requirements and standards applicable to their devices or applications.

Bourns® products are not recommended, authorized or intended for use in nuclear, lifesaving, life-critical or life-sustaining applications, nor in any other applications where failure or malfunction may result in personal injury, death, or severe property or environmental damage. Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any Bourns® products in such unauthorized applications might not be safe and thus is at the user's sole risk. Life-critical applications include devices identified by the U.S. Food and Drug Administration as Class III devices and generally equivalent classifications outside of the United States.

Bourns expressly identifies those Bourns® standard products that are suitable for use in automotive applications on such products' data sheets in the section entitled "Applications." Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard products in an automotive application might not be safe and thus is not recommended, authorized or intended and is at the user's sole risk. If Bourns expressly identifies a sub-category of automotive application in the data sheet for its standard products (such as infotainment or lighting), such identification means that Bourns has reviewed its standard product and has determined that if such Bourns® standard product is considered for potential use in automotive applications, it should only be used in such sub-category of automotive applications. Any reference to Bourns® standard product in the data sheet as compliant with the AEC-Q standard or "automotive grade" does not by itself mean that Bourns has approved such product for use in an automotive application.

Bourns® standard products are not tested to comply with United States Federal Aviation Administration standards generally or any other generally equivalent governmental organization standard applicable to products designed or manufactured for use in aircraft or space applications. Bourns expressly identifies Bourns® standard products that are suitable for use in aircraft or space applications on such products' data sheets in the section entitled "Applications." Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard product in an aircraft or space application might not be safe and thus is not recommended, authorized or intended and is at the user's sole risk.

The use and level of testing applicable to Bourns® custom products shall be negotiated on a case-by-case basis by Bourns and the user for which such Bourns® custom products are specially designed. Absent a written agreement between Bourns and the user regarding the use and level of such testing, the above provisions applicable to Bourns® standard products shall also apply to such Bourns® custom products.

Users shall not sell, transfer, export or re-export any Bourns® products or technology for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical or biological weapons or missiles, nor shall they use Bourns® products or technology in any facility which engages in activities relating to such devices. The foregoing restrictions apply to all uses and applications that violate national or international prohibitions, including embargos or international regulations. Further, Bourns® products and Bourns technology and technical data may not under any circumstance be exported or re-exported to countries subject to international sanctions or embargoes. Bourns® products may not, without prior authorization from Bourns and/or the U.S. Government, be resold, transferred, or re-exported to any party not eligible to receive U.S. commodities, software, and technical data.

To the maximum extent permitted by applicable law, Bourns disclaims (i) any and all liability for special, punitive, consequential, incidental or indirect damages or lost revenues or lost profits, and (ii) any and all implied warranties, including implied warranties of fitness for particular purpose, non-infringement and merchantability.

For your convenience, copies of this Legal Disclaimer Notice with German, Spanish, Japanese, Traditional Chinese and Simplified Chinese bilingual versions are available at:

Web Page: http://www.bourns.com/legal/disclaimers-terms-and-policies

PDF: http://www.bourns.com/docs/Legal/disclaimer.pdf