



## 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.

### Additional Information

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### Electrical Characteristics

| Parameter                                                                                            | PWR2010                                                                                                               | PWR3014                       | PWR4318                       | PWR5322                       |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Power                                                                                                | 0.5 W                                                                                                                 | 1.0 W                         | 2.0 W                         | 3.0 W                         |
| Resistance Range<br>1 % Based on E24+E96 Series<br>5 % Based on E24 Series                           | 0.05 $\Omega$ - 500 $\Omega$                                                                                          | 0.05 $\Omega$ - 4.2K $\Omega$ | 0.05 $\Omega$ - 6K $\Omega$   | 0.05 $\Omega$ - 10K $\Omega$  |
| Resistance Range<br>(Non-inductive Versions)<br>Based on E24 Series                                  | 0.05 $\Omega$ - 120 $\Omega$                                                                                          | 0.05 $\Omega$ - 500 $\Omega$  | 0.05 $\Omega$ - 1.5K $\Omega$ | 0.05 $\Omega$ - 2.2K $\Omega$ |
| Tolerance                                                                                            | 0.5 % / 1 % / 5 %                                                                                                     |                               |                               |                               |
| Temperature Coefficient<br><0.1 $\Omega$<br>0.1 - 0.99 $\Omega$<br>1.0 - 10 $\Omega$<br>>10 $\Omega$ | $\pm 200$ PPM/ $^{\circ}$ C<br>$\pm 90$ PPM/ $^{\circ}$ C<br>$\pm 50$ PPM/ $^{\circ}$ C<br>$\pm 20$ PPM/ $^{\circ}$ C |                               |                               |                               |
| Operating Temperature                                                                                | -55 $^{\circ}$ to +155 $^{\circ}$ C                                                                                   |                               |                               |                               |
| Maximum Voltage                                                                                      | $\sqrt{P \cdot R}$                                                                                                    |                               |                               |                               |

### Environmental Characteristics

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



**WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

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### Environmental Characteristics (Cont'd)

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

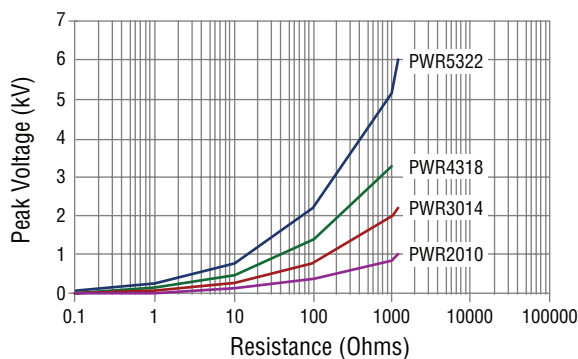
### Physical Characteristics

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

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

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## Surge Performance (IEC 61000-4-5 1.2 $\mu$ s / 50 $\mu$ s)



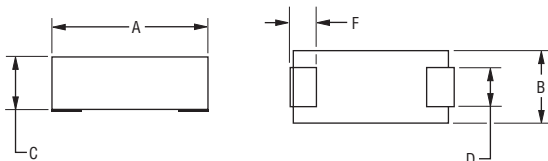
## Typical Part Marking

MANUFACTURER'S  
TRADEMARK (PWR4318 &  
PWR5322)

RESISTANCE  
CODE  
10R0

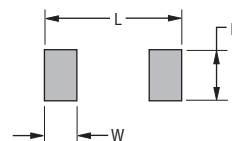
DATE CODE  
YYWW

## Product Dimensions



DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$   
TOLERANCE:  $\pm \frac{0.508}{(0.02)}$

## Recommended Pad Layout



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

## Packaging Specifications

| Model   | Tape Width             | Reel Diameter | Pieces per Reel | Bulk Pkg. Quantity |
|---------|------------------------|---------------|-----------------|--------------------|
| PWR2010 | $\frac{12.0}{(0.472)}$ | 330<br>(13.0) | 2500            | 200                |
| PWR3014 | $\frac{16.0}{(0.629)}$ |               | 1500            | 200                |
| PWR4318 | $\frac{24.0}{(0.945)}$ |               | 1500            | 100                |
| PWR5322 | $\frac{24.0}{(0.945)}$ |               | 1500            | 100                |

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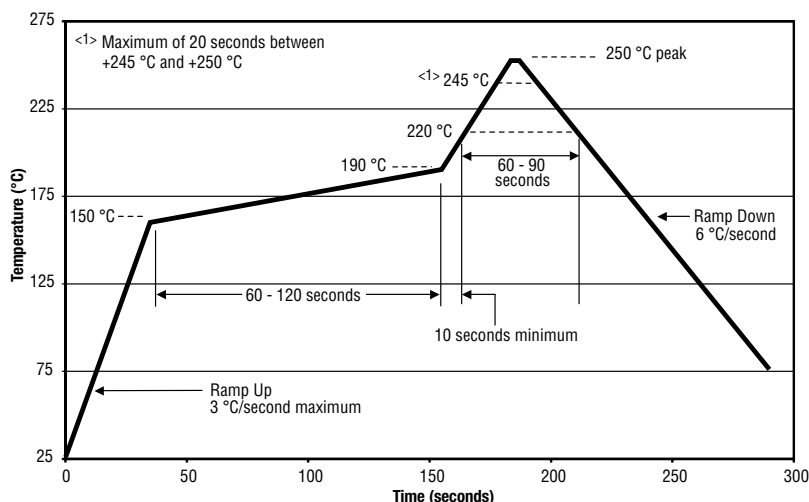
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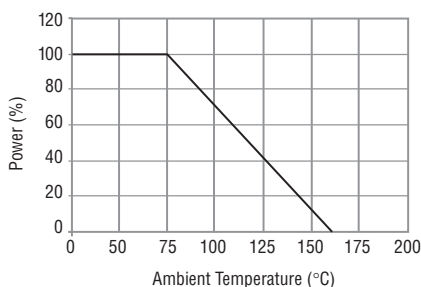
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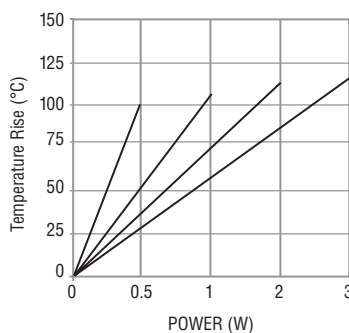
## Soldering Profile



## 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

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