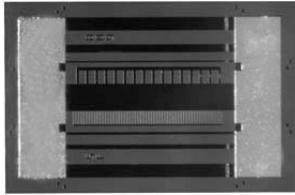


## Thin Film Power Resistors

CHIP RESISTORS



Product may not be to scale

The PWA series resistor chips offer a 500 mW power rating in a small size. These offer one of the best combinations of size and power available.

The PWAs are manufactured using Vishay Electro-Films (EFI) sophisticated thin film equipment and manufacturing technology. The PWAs are 100 % electrically tested and visually inspected to MIL-STD-883.

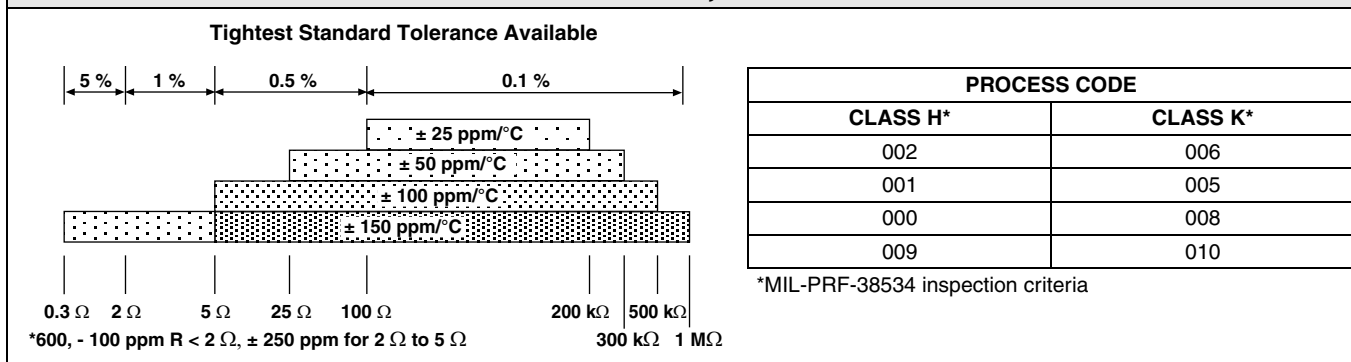
### FEATURES

- Wire bondable
- 500 mW power
- Chip size: 0.030 x 0.045 inches
- Resistance range 0.3 Ω to 1 MΩ
- Oxidized silicon substrate for good power dissipation
- Resistor material: Tantalum nitride, self-passivating

### APPLICATIONS

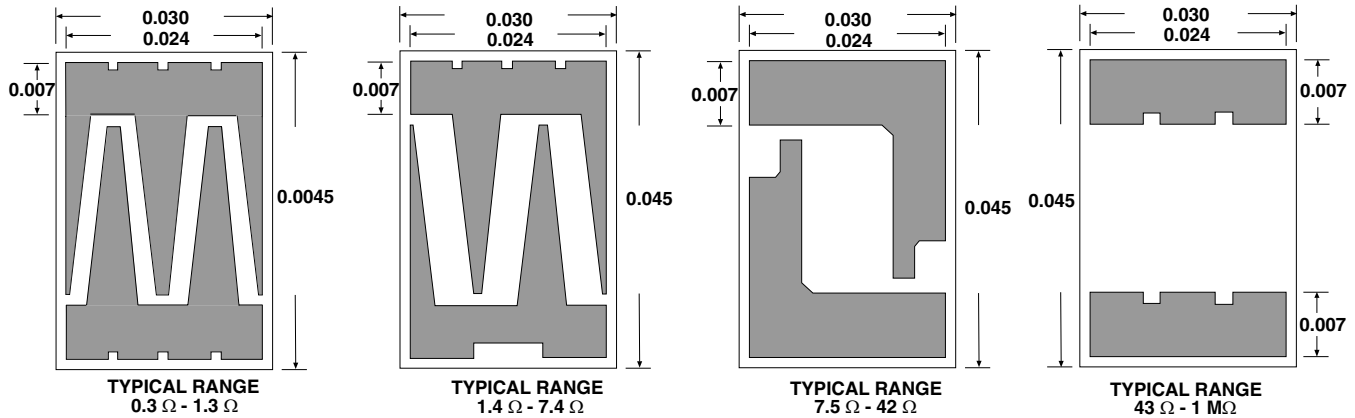
The PWA resistor chips are used mainly in higher power circuits of amplifiers where increased power loads require a more specialized resistor.

### TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES AND TOLERANCES



### STANDARD ELECTRICAL SPECIFICATIONS

PARAMETER	
Noise, MIL-STD-202, Method 308 100 Ω - 250 kΩ < 100 Ω or > 251 kΩ	- 35 dB typ. - 20 dB typ.
Moisture Resistance, MIL-STD-202 Method 106	± 0.5 % max. ΔR/R
Stability, 1000 h, + 125 °C, 250 mW	± 0.5 % max. ΔR/R
Operating Temperature Range	- 55 °C to + 125 °C
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	± 0.1 % max. ΔR/R
High Temperature Exposure, + 150 °C, 100 h	± 0.2 % max. ΔR/R
Dielectric Voltage Breakdown	200 V
Insulation Resistance	10 <sup>12</sup> min.
Operating Voltage Steady State 5 x Rated Power	100 V max. 200 V max.
DC Power Rating at + 70 °C (Derated to Zero at + 175 °C) (Conductive Epoxy Die Attach to Alumina Substrate)	500 mW
5 x Rated Power Short-Time Overload, + 25 °C, 5 s	± 0.1 % max. ΔR/R

**DIMENSIONS** in inches

**SCHEMATIC**

**MECHANICAL SPECIFICATIONS** in inches

PARAMETER	
Chip Size	0.030 x 0.045 ± 0.002 (0.762 x 1.143 ± 0.5 mm)
Chip Thickness	0.010 ± 0.002 (0.254 ± 0.05 mm)
Chip Substrate Material	Oxidized silicon, 10 kÅ minimum SiO <sub>2</sub>
Resistor Material	Tantalum nitride, self-passivating
Bonding Pad Size	0.007 x 0.024 (0.1778 x 0.6096 mm)
Number of Pads	2
Pad Material	10 kÅ minimum aluminum
Backing	None, lapped semiconductor silicon

**Options:** Gold back for eutectic die attach  
 Gold bonding pads, 15 kÅ minimum thickness  
 Contact Applications Engineer

**ORDERING INFORMATION**

Example: 100 % visual, 10 kΩ, ± 1 %, ± 100 ppm/°C TCR, aluminum pads, class H visual inspection

W	PWA	000	1000	1	F
INSPECTION/ PACKAGING	PRODUCT FAMILY	PROCESS CODE	RESISTANCE VALUE	MULTIPLIER CODE	TOLERANCE CODE
W = 100 % visually inspected parts in matrix tray per MIL-STD-883 X = Sample, visually inspected parts loaded in matrix trays (4 % AQL)		See Process Code table	Use first 4 digits significant digits of the resistance	D = 0.0001 C = 0.001 B = 0.01 A = 0.1 0 = 1 1 = 10 2 = 100 3 = 1000	B = 0.1 % C = 0.2 % D = 0.5 % F = 1.0 % G = 2.0 % H = 2.5 % J = 5.0 % K = 10 %



## Disclaimer

All product specifications and data are subject to change without notice.

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