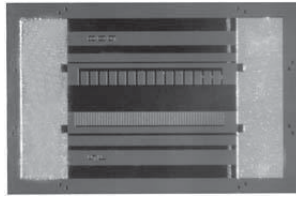


Thin Film Power Resistors



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, method 2032, class H or class K.

FEATURES

- Wire bondable
- 500 mW power
- Chip size: 0.030" x 0.045"
- Case: 0503
- Resistance range 0.3 Ω to 1 M Ω
- Oxidized silicon substrate for good power dissipation
- Resistor material: Tantalum nitride, self-passivating
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

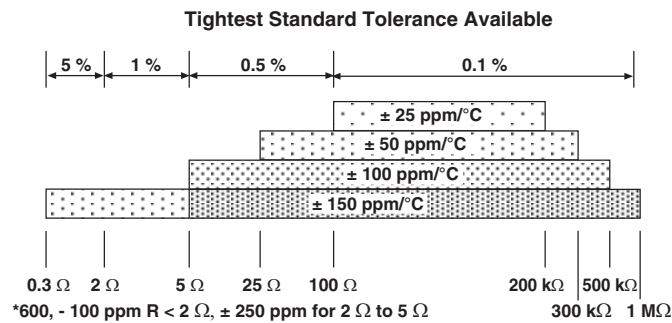


APPLICATIONS

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

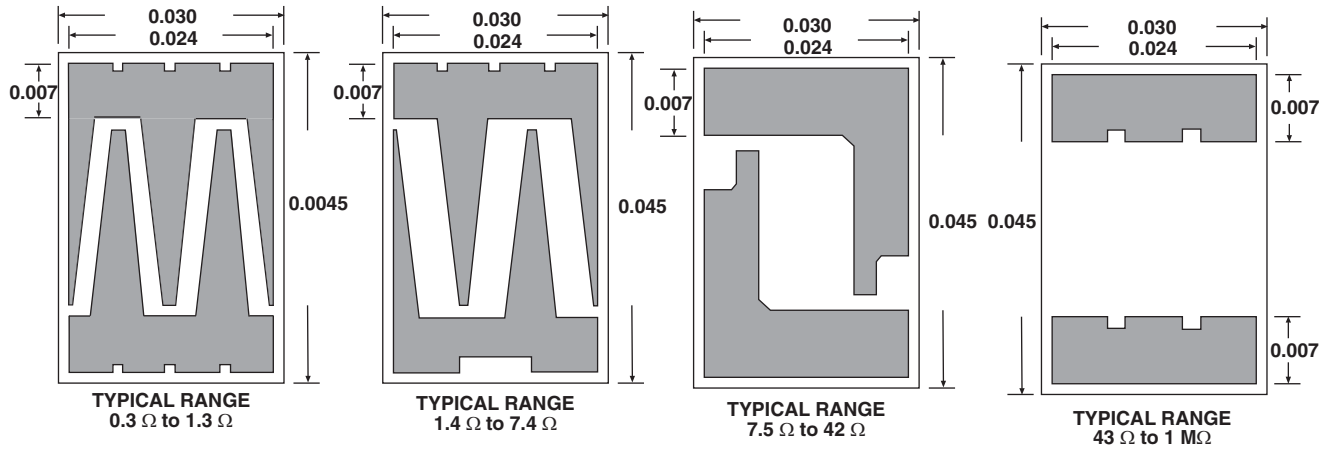
TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES

| PARAMETER | VALUE | UNIT |
|------------------------|---|-------------------|
| Total Resistance Range | 0.3 to 1M | Ω |
| Standard Tolerances | ± 0.1 , ± 0.5 , ± 1 , ± 5 | % |
| TCR | ± 25 , ± 50 , ± 100 , ± 150 | ppm/ $^{\circ}$ C |



STANDARD ELECTRICAL SPECIFICATIONS

| PARAMETER | VALUE | UNIT |
|--|-----------------------------|--------------|
| Noise, MIL-STD-202, Method 308 100 Ω to 250 k Ω < 100 Ω or > 251 k Ω | -35 typ. -20 typ. | dB |
| Moisture Resistance, MIL-STD-202, Method 106 | ± 0.5 max. $\Delta R/R$ | % |
| Stability, 1000 h, +125 $^{\circ}$ C, 250 mW | ± 0.5 max. $\Delta R/R$ | % |
| Operating Temperature Range | -55 to +125 | $^{\circ}$ C |
| Thermal Shock, MIL-STD-202, Method 107, Test Condition F | ± 0.1 max. $\Delta R/R$ | % |
| High Temperature Exposure, +150 $^{\circ}$ C, 100 h | ± 0.2 max. $\Delta R/R$ | % |
| Dielectric Voltage Breakdown | 200 | V |
| Insulation Resistance | 10^{12} min. | Ω |
| Operating Voltage Steady State 5 x Rated Power | 100 max. 200 max. | V |
| DC Power Rating at + 70 $^{\circ}$ C (Derated to zero at + 175 $^{\circ}$ C) (Conductive epoxy die attach to alumina substrate) | 0.5 | W |
| 5 x Rated Power Short-Time Overload, + 25 $^{\circ}$ C, 5 s | ± 0.1 max. $\Delta R/R$ | % |

DIMENSIONS in inches

SCHEMATIC


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

| GLOBAL PART NUMBER INFORMATION | | | | | | | | |
|---|--|--|--|--|--------------------------------|----------------------------------|--|--|
| Global Part Number: PWA50000FKANHWS | | | | | | | | |
| Global Part Number Description: PWA 5K 1% 100 ppm Al None H WS | | | | | | | | |
| <div style="display: flex; justify-content: space-around; text-align: center;"> P W A 5 0 0 0 0 F K A N H W S </div> | | | | | | | | |
| MODEL | RESISTANCE | RESISTANCE MULTIPLIER CODE | TOLERANCE CODE (%) | TCR (ppm/°C) | TERMINATION | BACK METAL | VISUAL CLASS | PACKAGING CODE |
| PWA 30 x 45 size Power resistor | First 4 digits are significant figures of 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 = 0.25 D = 0.5 F = 1.0 G = 2.0 H = 2.5 J = 5.0 K = 10 | E = ± 25 C = ± 50 K = ± 100 V = ± 150 L = ± 200 M = ± 250 Z = + 600/ - 100 | G = Au A = Al | G = Au N = None | H = Class H K = Class K | WS = Waffle pack 100 min, 1 mult |



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