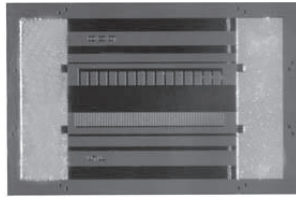


Thin Film Power Resistors



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

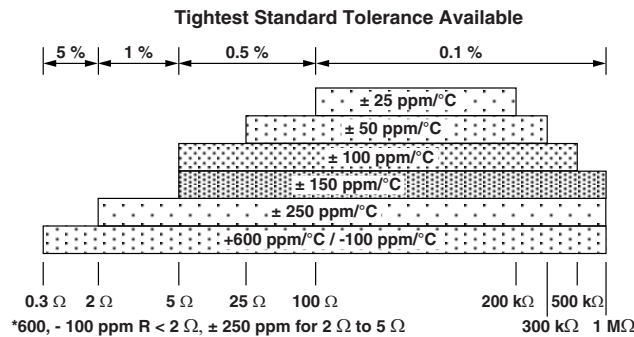


APPLICATIONS

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

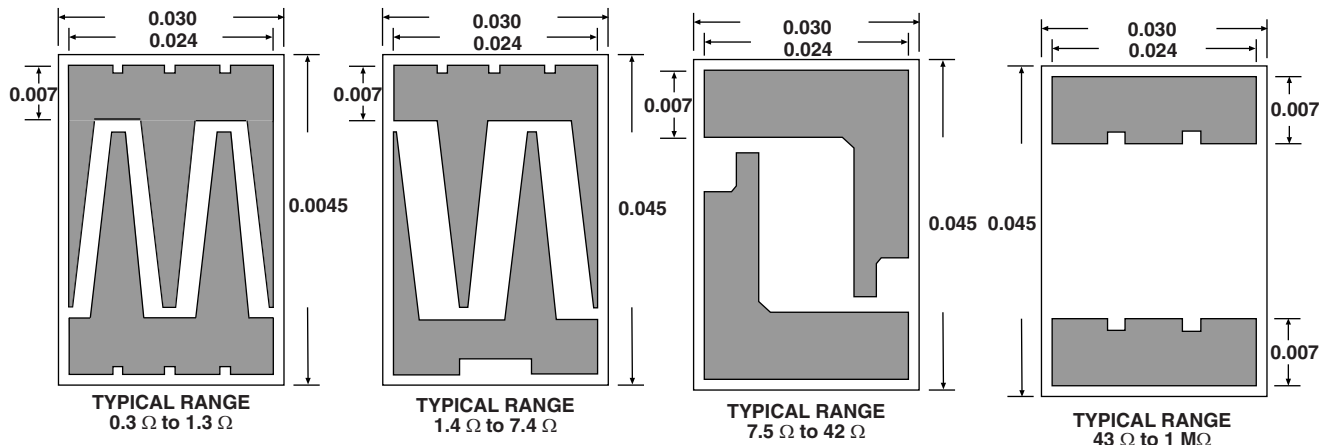
TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES

PARAMETER	VALUE	UNIT
Total Resistance Range	0.3 to 1M	Ω
Standard Tolerances	$\pm 0.1, \pm 0.5, \pm 1, \pm 5$	%
TCR	$\pm 25, \pm 50, \pm 100, \pm 150$	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													
P	W	A	5	0	0	0	F	K	A	N	H	W	S
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.					



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.