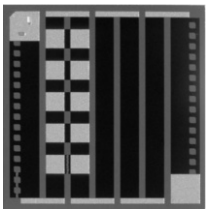
Thin Film Power Resistors



Product may not be to scale

The PWB series resistor chips offer a 1 W power rating in a relatively small size. They offer one of the best combinations of size and power available.

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

FEATURES

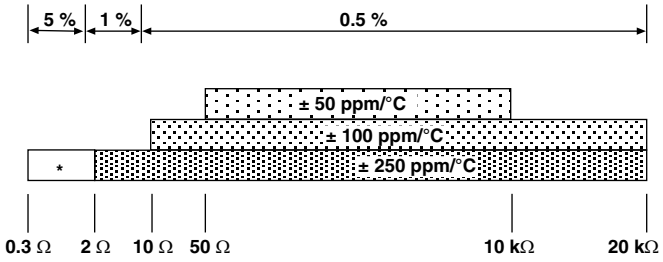
- Wire bondable
- Power: 1 W
- Chip size: 0.070 inches square
- Resistance range: 0.3 Ω to 20 kΩ
- Oxidized silicon substrate for good power dissipation
- Resistor material: Tantalum nitride, self-passivating

APPLICATIONS

The PWB 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

Tightest Standard Tolerance Available



*** ± 600 ppm/C R < 2 Ω**

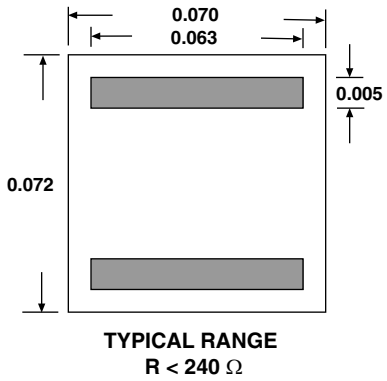
PROCESS CODE	
CLASS H*	CLASS K*
001	005
000	004
008	009

*MIL-PRF-38534 inspection criteria

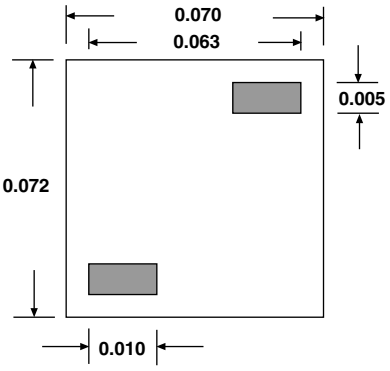
STANDARD ELECTRICAL SPECIFICATIONS

PARAMETER	
Noise, MIL-STD-202, Method 308 **100 Ω - 250 kΩ** **< 100 Ω or > 251 kΩ**	 - 35 dB typ. - 20 dB typ.
MoistureResistance, MIL-STD-202 **Method 106**	± 0.5 % max. Δ*R*/*R*
Stability, 1000 h, + 125 °C, 500 mW	± 0.5 % max. Δ*R*/*R*
Operating Temperature Range	- 55 °C to + 125 °C
Thermal Shock, MIL-STD-202, **Method 107, Test Condition F**	± 0.1 % max. Δ*R*/*R*
High Temperature Exposure, + 150 °C, 100 h	± 0.2 % max. Δ*R*/*R*
Dielectric Voltage Breakdown	200 V
Insulation Resistance	10^{12} 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 Sttach to Alumina Substrate)**	1 W
5 x Rated Power Short-Time Overload, + 25 °C, 5 s	± 0.25 % max. Δ*R*/*R* %

DIMENSIONS in inches



TYPICAL RANGE
R < 240 Ω



TYPICAL RANGE
240 Ω - 20 kΩ

SCHEMATIC

MECHANICAL SPECIFICATIONS in inches	
PARAMETER	
Chip Size	0.070 x 0.070 ± 0.005 (1.781 x 1.781 mm)
Chip Thickness	0.010 ± 0.002 (0.254 ± 0.05 mm)
Chip Substrate Material	Oxidized silicon, 10 kÅ minimum SiO_2
Resistor Material	Tantalum nitride, self-passivating
Bonding Pad Size	0.005 x 0.010 (0.127 x 0.254 mm) minimum
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
Consult Applications Engineer

ORDERING INFORMATION

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

W	**PWB**	**000**	**1000**	**1**	**F**
INSPECTION/ PACKAGING	PRODUCT FAMILY	PROCESS CODE	RESISTANCE VALUE	MULTIPLIER CODE	TOLERANCE CODE
W = 100 % visually inspected parts in matrix trays 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	**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.

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 herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

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.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.