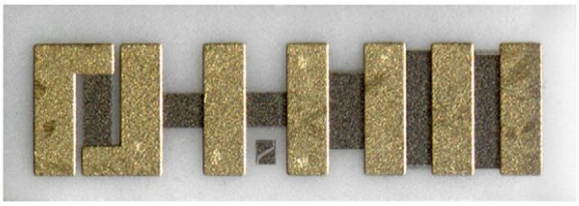
Thin Film Tapped Microwave Resistor



Product may not be to scale

The TMR resistor chips on alumina are designed with multiple low ohm taps for circuit trimming. The resistor geometries are compatible with strip lines, making them ideally suited for microwave circuits.

These chips are manufactured using Vishay Electro-Films (EFI) sophisticated thin film equipment and manufacturing technology. The TMRs are 100 % electrically tested and visually inspected to MIL-STD-883, method 2032 class H or K.

FEATURES

- Wire bondable
- High frequency
- Six resistors on a single chip: size 0.020" x 0.060"
- Case: 0206
- Resistance range RT: 100 Ω to 430 Ω
- Alumina substrate
- Low stray capacitance: < 0.2 pF
- Resistor material: tantalum nitride self passivating
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

APPLICATIONS

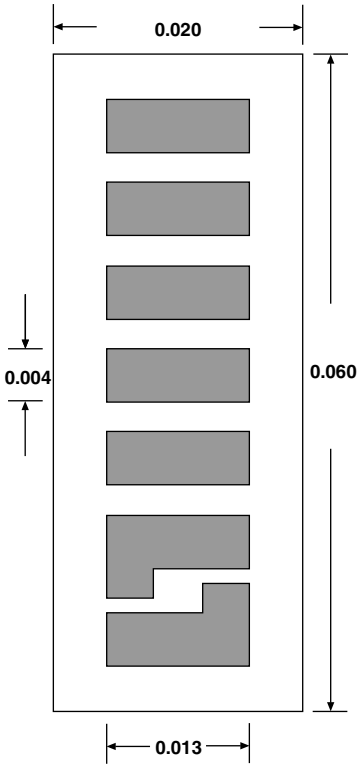
Vishay EFI TMR chip resistors provide excellent high frequency response and are ideally suited for prototyping. Typical application areas are:

- Amplifiers
- Oscillators
- Attenuators
- Couplers
- Filters
- Limiters

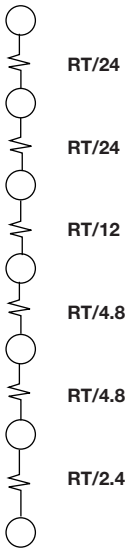
TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES		
PARAMETER	**VALUE**	**UNIT**
Resistance Range RT	100 to 430	Ω
Tolerances	± 10, of total value	%
TCR	± 100	ppm/°C

STANDARD ELECTRICAL SPECIFICATIONS		
PARAMETER	**VALUE**	**UNIT**
Noise, MIL-STD-202, Method 308	- 20 typ.	dB
Moisture Resistance, MIL-STD-202, Method 106	± 0.5 max. $\Delta R/R$	%
Stability, 1000 h, + 125 °C, 62 mW	± 1.0 max. $\Delta R/R$	%
Operating Temperature Range	- 55 to + 125	°C
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	± 0.25 max. $\Delta R/R$	%
High Temperature Exposure + 150 °C, 1000 h	± 0.5 max. $\Delta R/R$	%
Dielectric Voltage Breakdown	200	V
Insulation Resistance	10^{12} min.	Ω
Operating Voltage	100 max.	V
DC Power Rating at + 70 °C (Derated to Zero at 150 °C)	0.125	W
5 x Rated Power Short-Time Overload, + 25 °C, 5 s	± 0.25 max. $\Delta R/R$	%

DIMENSIONS in inches



SCHEMATIC



Note

- Example 240 Ω RT = 10 Ω, 10 Ω, 20 Ω, 50 Ω, 50 Ω, 100 Ω

MECHANICAL SPECIFICATIONS

PARAMETER	
Chip Size	0.020" x 0.060" ± 0.003" (1.5 mm x 0.5 mm ± 0.08 mm)
Chip Thickness	0.010" ± 0.002" (0.25 mm ± 0.05 mm)
Chip Substrate Material	99.6 % alumina, 2 µ" to 4 µ" finish
Resistor Material	Tantalum nitride, self-passivating
Bonding Pad Size	0.004" x 0.013" (0.10 mm x 0.33 mm)
Number of Pads	7
Pad Material	15 kÅ minimum gold
Backing	None

GLOBAL PART NUMBER INFORMATION

Global Part Number: TMR2400AKKNHWS

Global Part Number Description: TMR 240 10 %, 100 ppm/°C, none, class H, WS

T	M	R	2	4	0	0	A	K	K	N	H	W	S

MODEL	RESISTANCE RT	RESISTANCE MULTIPLIER CODE	TOL. CODE (%)	TCR (ppm/°C)	BACK METAL	VISUAL CLASS	PACKAGING CODE
TMR 20 x 60 size tapped microwave resistor TaN on alumina	First 4 digits are significant figures of resistance	**A** = 0.1	**F** = 1.0 **G** = 2.0 **J** = 5.0 **K** = 10 **M** = 20	**E** = ± 25 **C** = ± 50 **K** = ± 100 **L** = ± 200	**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.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

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.