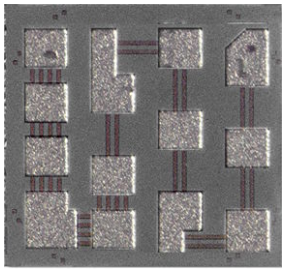
Wire Bondable Thin Film Multi-Tap Resistor Arrays



Product may not be to scale

The MTR multi-tap resistors, available in two formats, offer eleven taps allowing the user to select specified increments a wide range of values. The desired resistance value is obtained by bonding the wires to the appropriate pads.

These chips are manufactured using Vishay Electro-Films (EFI) sophisticated Thin Film equipment and manufacturing technology. The MTRs are 100 % electrically tested and visually inspected to MIL-STD-883.

FEATURES

- Wire bondable
- Selectable values by wire bonding
- Chip size: 0.030" x 0.030"
- Case: 0303
- Standard resistance range: 100 Ω to 24 kΩ or 800 Ω to 240 kΩ
- Resistor material: Tantalum nitride, self-passivating
- Oxidized silicon substrate for good power dissipation
- Ideally suited for hybrid prototyping
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

APPLICATIONS

The MTR series of multi-tap resistor chips are designed to satisfy the requirements of prototype development and circuit trimming in hybrid packages through selective wire-bonding.

TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES			
PARAMETER		**VALUE**	**UNIT**
Total Resistance Range	Format A Format B	100, 200, 400, 800, 2.4K, 8K, 24K 800, 2.4K, 8K, 24K, 80K, 160K, 240K	Ω
7 Resistors Between Pads 1 and 8 5 Resistors Between Pads 8 and 13		Each 12.5 % of total resistance Each 2.5 % of total resistance	
Standard Tolerances		± 10, ± 20 of total resistance of all 12 resistors	%
TCR		± 100	ppm/°C

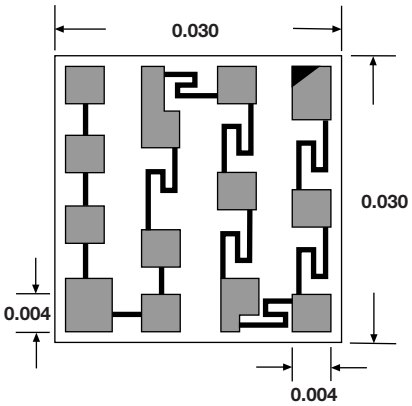
Example:

When the total resistance value is 8 kΩ, the resistors between pads 8 and 13 are 200 Ω each, and the resistors between pads 1 and 8 are 1 kΩ each.

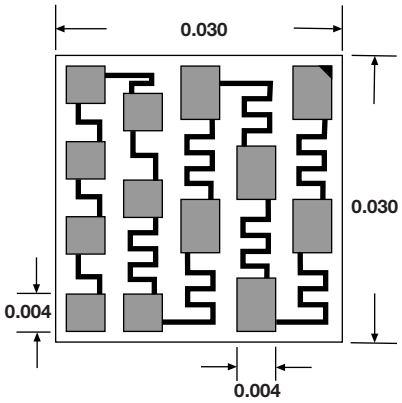
STANDARD ELECTRICAL SPECIFICATIONS		
PARAMETER	**VALUE**	**UNIT**
TCR Tracking Between Elements	± 5	ppm/°C
Noise, MIL-STD-202, Method 308	-30 typ.	dB
Moisture Resistance, MIL-STD-202, Method 106	± 0.5 max. $\Delta R/R$	%
Stability, 1000 h, +125 °C, 125 mW	± 0.5 max. $\Delta R/R$	%
Operating Temperature 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, 100 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 +175 °C)	0.250, total *R*	W
5 x Rated Power Short-Time Overload, +25 °C, 5 s	± 0.25 max. $\Delta R/R$	%

For technical questions, contact: efi@vishay.com

DIMENSIONS in inches

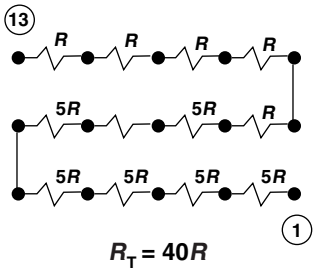


Format A



Format B

SCHEMATIC



$R_T = 40R$

MECHANICAL SPECIFICATIONS

PARAMETER	
Chip Size	0.030" x 0.030" ± 0.003" (0.762 mm x 0.762 mm ± 0.076 mm)
Chip Thickness	0.010" ± 0.002" (0.254 mm ± 0.05 mm)
Chip Substrate Material	Oxidized silicon, 10 kÅ minimum SiO2
Resistor Material	Tantalum nitride, self-passivating
Bonding Pads	0.004" x 0.004" (0.10 mm x 0.10 mm)
Number of Top Pads	13
Pad Material	10 kÅ minimum aluminum
Backing	None, lapped semiconductor silicon

GLOBAL PART NUMBER INFORMATION

Global Part Number: MTR24001KAKANHWS

Global Part Number Description: MTR 24K 10 %, format A, 100 ppm/°C, Al pads, no back metal, class H, WS

M	T	R	2	4	0	0	1	K	A	K	A	N	H	W	S

MODEL	RESISTANCE	RESISTANCE MULTILPLIER CODE	TOL. CODE (%)	FORMAT	TCR (ppm/°C)	TERMINATION	BACK METAL	VISUAL CLASS	PACKAGING CODE
MTR	First 4 digits are significant figures of resistance	**A** = 0.1 **0** = 1 **1** = 10 **2** = 100	**J** = 5.0 **K** = 10 **M** = 20 **L** = 25	**A** = form A **B** = form B	**K** = ± 100 **M** = ± 250 **R** = 0/- 250	**G** = gold **A** = aluminum	**G** = gold **N** = none	**H** = class H **K** = class K	**WS** = waffle pack 100 min, 1 mult

Historical Part Number: WMTR05024001K (will continue to be accepted)

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.