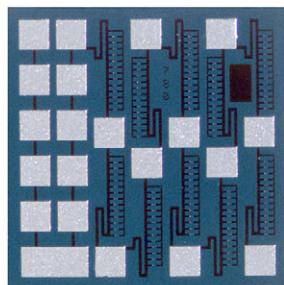


## Wire Bondable Thin Film Multi-Tap Resistor Arrays



Product may not be to scale

The MTT multi-tap resistors offer nineteen taps allowing the user to select specified increments and 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 MTT's are 100 % electrically tested and visually inspected to MIL-STD-883, method 2032 class H or K.

### FEATURES

- Wire bondable
- Selectable values by wire bonding
- Resistance range: 1.1 kΩ to 275 kΩ
- Chip size: 0.038" x 0.038"
- Case: 0404
- 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](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

### APPLICATIONS

The MTT 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

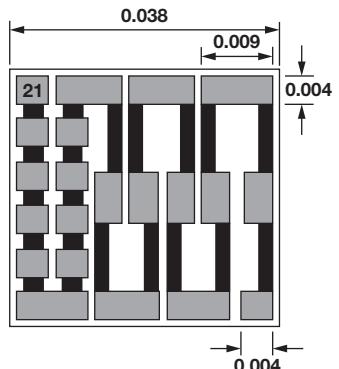
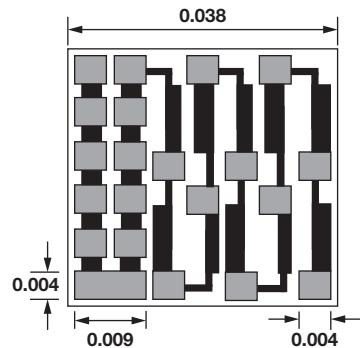
PARAMETER	VALUE	UNIT
Total Resistance Range	1.1K, 2.75K, 5.5K, 11K, 27.5K, 55K, 110K, 275K	Ω
10 Resistors Between Pads 1 and 11	Each 9.1 % of total resistance	
10 Resistors Between Pads 11 and 21	Each 0.91 % of total resistance	
Standard Tolerances	± 1, ± 5, ± 10, ± 20 of total resistance of all 20 resistors	%
TCR	± 250	ppm/°C

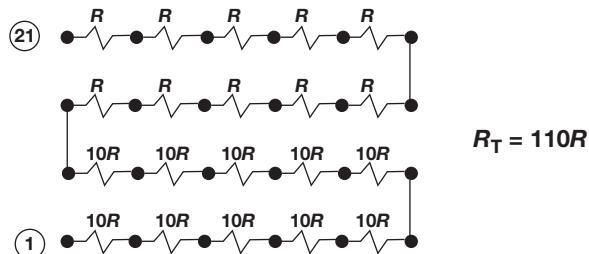
#### Example:

When the total resistance value is 55 kΩ, the resistors between pads 11 and 21 are 500 Ω each, and the resistors between pads 1 and 11 are 5 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. ΔR/R	%
Stability, 1000 h, +125 °C, 125 mW	± 0.5 max. ΔR/R	%
Operating Temperature Range	-55 to +125	°C
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	± 0.25 max. ΔR/R	%
High Temperature Exposure +150 °C, 100 h	± 0.5 max. ΔR/R	%
Dielectric Voltage Breakdown	200	V
Insulation Resistance	10 <sup>12</sup> 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. ΔR/R	%

**DIMENSIONS** in inches

**TYPICAL RANGE**  
1.1 kΩ to 5.5 kΩ

**TYPICAL RANGE**  
11 kΩ to 275 kΩ

**SCHEMATIC**

**MECHANICAL SPECIFICATIONS**

PARAMETER	
Chip Size	0.038" x 0.038" $\pm$ 0.002" (0.965 mm x 0.965 mm $\pm$ 0.05 mm)
Chip Thickness	0.010" $\pm$ 0.002" (0.254 mm $\pm$ 0.05 mm)
Chip Substrate Material	Oxidized silicon, 10 kÅ minimum SiO <sub>2</sub>
Resistor Material	Tantalum nitride, self-passivating
Bonding Pads	0.004" x 0.004" (0.10 mm x 0.10 mm)
Number of Pads	21
Pad Material	10 kÅ minimum aluminum
Backing	None, lapped semiconductor silicon

**GLOBAL PART NUMBER INFORMATION**
**Global Part Number: MTT11002KMANHWS**
**Global Part Number Description: MTT 110K 10 %, 250 ppm/°C, Al termination, no back metal, class H, WS**

M	T	T	1	1	0	0	2	K	M	A	N	H	W	S
<b>MODEL</b>	<b>RESISTANCE</b>	<b>RESISTANCE MULTIPLIER CODE</b>	<b>TOL. CODE (%)</b>	<b>TCR (ppm/°C)</b>	<b>TERMINATION</b>	<b>BACK METAL</b>	<b>VISUAL CLASS</b>	<b>PACKAGING CODE</b>						
<b>MTT</b>	First 4 digits are significant figures of resistance	A = 0.1 0 = 1 1 = 10 2 = 100	F = 1.0 G = 2.0 J = 5.0 K = 10 M = 20 L = 25	C = $\pm$ 50 K = $\pm$ 100 M = $\pm$ 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: WMTT00210002K (will continue to be accepted)**

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