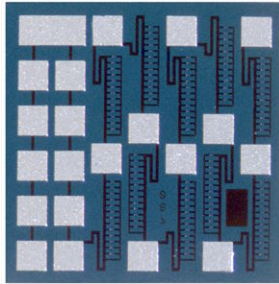


## Wire Bondable Thin Film Multi-Tap Resistor Arrays



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.

### FEATURES

- Wire bondable
- Selectable values by wire bonding
- Resistance range: 1.1 k $\Omega$  to 275 k $\Omega$
- 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)



### APPLICATIONS

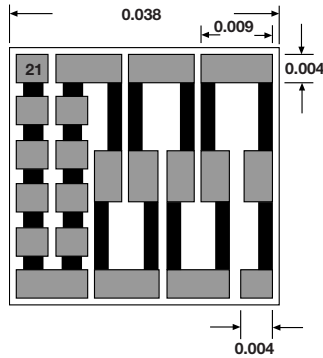
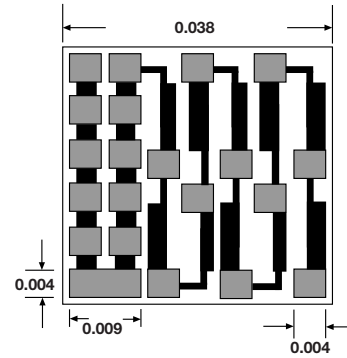
The MTT series of multi-tap resistor chips are designed to satisfy the requirements of prototype development and circuit trimming in hybrid packages through selective wire-bonding.

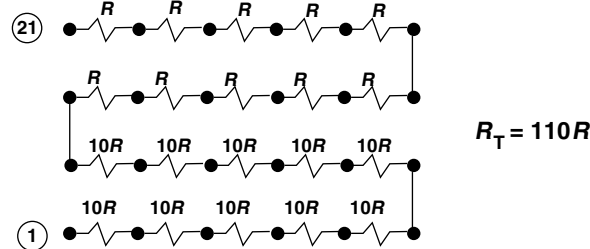
TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES		
PARAMETER	VALUE	UNIT
Total Resistance Range	1.1K, 2.75K, 5.5K, 11K, 27.5K, 55K, 110K, 275K	$\Omega$
10 Resistors Between Pads 1 and 11 10 Resistors Between Pads 11 and 21	Each 9.1 % of total resistance Each 0.91 % of total resistance	
Standard Tolerances	$\pm 1$ , $\pm 5$ , $\pm 10$ , $\pm 20$ of total resistance of all 20 resistors	%
TCR	$\pm 250$	ppm/ $^{\circ}$ C

#### Example:

When the total resistance value is 55 k $\Omega$ , the resistors between pads 11 and 21 are 500  $\Omega$  each, and the resistors between pads 1 and 11 are 5 k $\Omega$  each.

STANDARD ELECTRICAL SPECIFICATIONS		
PARAMETER	VALUE	UNIT
TCR Tracking Between Elements	$\pm 5$	ppm/ $^{\circ}$ C
Noise, MIL-STD-202, Method 308	- 30 typ.	dB
Moisture Resistance, MIL-STD-202, Method 106	$\pm 0.5$ max. $\Delta R/R$	%
Stability, 1000 h, + 125 $^{\circ}$ C, 125 mW	$\pm 0.5$ max. $\Delta R/R$	%
Operating Temperature Range	- 55 to + 125	$^{\circ}$ C
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	$\pm 0.25$ max. $\Delta R/R$	%
High Temperature Exposure $\pm 150$ $^{\circ}$ C, 100 h	$\pm 0.5$ max. $\Delta R/R$	%
Dielectric Voltage Breakdown	200	V
Insulation Resistance	$10^{12}$ min.	$\Omega$
Operating Voltage	100 max.	V
DC Power Rating at + 70 $^{\circ}$ C (Derated to Zero at + 175 $^{\circ}$ C)	0.250, total $R$	W
5 x Rated Power Short-Time Overload, + 25 $^{\circ}$ C, 5 s	$\pm 0.25$ max. $\Delta R/R$	%

**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" ± 0.002" (0.762 mm x 0.762 mm)
Chip Thickness	0.010" ± 0.002" (0.254 mm ± 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: <b>MTT11002KMANHWS</b>														
Global Part Number Description: <b>MTT 110K 10 %, 250 ppm/°C, Al termination, no back metal, class H, WS</b>														
<b>M</b>	<b>T</b>	<b>T</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>K</b>	<b>M</b>	<b>A</b>	<b>N</b>	<b>H</b>	<b>W</b>	<b>S</b>
MODEL	RESISTANCE	RESISTANCE MULTIPLIER CODE	TOL. CODE (%)	TCR (ppm/°C)	TERMINATION	BACK METAL	VISUAL CLASS	PACKAGING CODE						
<b>MTT</b>	First 4 digits are significant figures of resistance	<b>A</b> = 0.1 <b>0</b> = 1 <b>1</b> = 10 <b>2</b> = 100	<b>F</b> = 1.0 <b>G</b> = 2.0 <b>J</b> = 5.0 <b>K</b> = 10 <b>M</b> = 20 <b>L</b> = 25	<b>C</b> = ± 50 <b>K</b> = ± 100 <b>M</b> = ± 250 <b>R</b> = 0/- 250	<b>G</b> = Gold <b>A</b> = Aluminum	<b>G</b> = Gold <b>N</b> = None	<b>H</b> = Class H <b>K</b> = Class K	<b>WS</b> = Waffle pack 100 min, 1 mult						
Historical Part Number: <b>WMTT00210002K</b> (will continue to be accepted)														



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