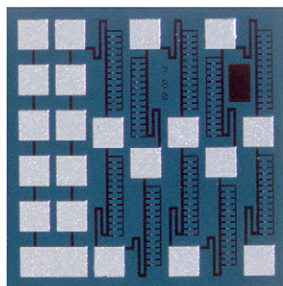


Wire Bondable Thin Film Multi-Tap Resistor Arrays



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 k Ω to 275 k Ω
- 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



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

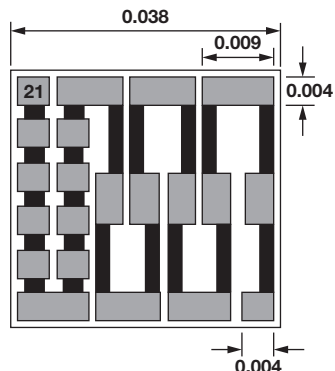
| PARAMETER | VALUE | UNIT |
|---|---|-------------------|
| Total Resistance Range | 1.1K, 2.75K, 5.5K, 11K, 27.5K, 55K, 110K, 275K | Ω |
| 10 Resistors Between Pads 1 and 11 10 Resistors Between Pads 11 and 21 | Each 9.1 % of total resistance Each 0.91 % of total resistance | |
| Standard Tolerances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

Example:

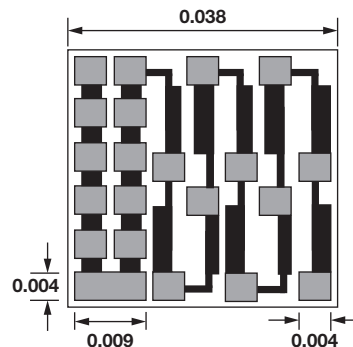
When the total resistance value is 55 k Ω , the resistors between pads 11 and 21 are 500 Ω each, and the resistors between pads 1 and 11 are 5 k Ω each.

STANDARD ELECTRICAL SPECIFICATIONS

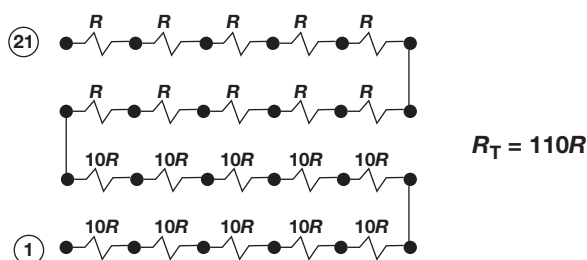
| PARAMETER | VALUE | UNIT |
|--|------------------------------|-------------------|
| TCR Tracking Between Elements | ± 5 | ppm/ $^{\circ}$ C |
| Noise, MIL-STD-202, Method 308 | -30 typ. | dB |
| Moisture Resistance, MIL-STD-202, Method 106 | ± 0.5 max. $\Delta R/R$ | % |
| Stability, 1000 h, +125 $^{\circ}$ C, 125 mW | ± 0.5 max. $\Delta R/R$ | % |
| Operating Temperature Range | -55 to +125 | $^{\circ}$ C |
| Thermal Shock, MIL-STD-202, Method 107, Test Condition F | ± 0.25 max. $\Delta R/R$ | % |
| High Temperature Exposure +150 $^{\circ}$ 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 $^{\circ}$ 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 | ± 0.25 max. $\Delta R/R$ | % |

DIMENSIONS in inches


TYPICAL RANGE
1.1 k Ω to 5.5 k Ω



TYPICAL RANGE
11 k Ω to 275 k Ω

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 k \AA minimum SiO ₂ |
| 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 k \AA 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

MODEL

RESISTANCE

RESISTANCE MULTIPLIER CODE

TOL. CODE (%)

TCR (ppm/°C)

TERMINATION

BACK METAL

VISUAL CLASS

PACKAGING CODE

MTT

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 = ± 50

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: WMTT00210002K (will continue to be accepted)



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