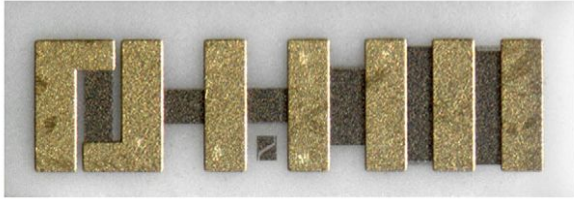


Thin Film Tapped Microwave Resistor



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



APPLICATIONS

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

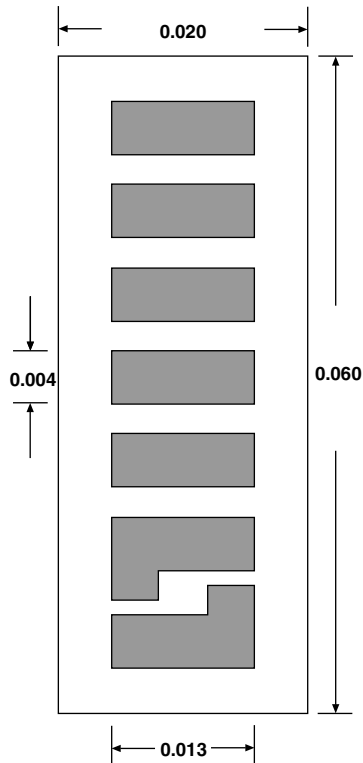
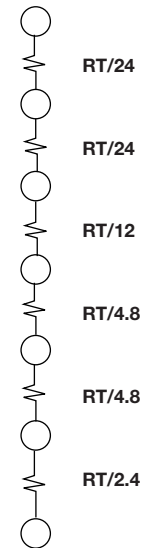
- Amplifiers
- Oscillators
- Attenuators
- Couplers
- Filters
- Limiters

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/ $^{\circ}$ 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 $^{\circ}$ C, 62 mW | ± 1.0 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, 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 $^{\circ}$ C (Derated to Zero at 150 $^{\circ}$ C) | 0.125 | W |
| 5 x Rated Power Short-Time Overload, + 25 $^{\circ}$ 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: TMR240AKKNHWS

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. |



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