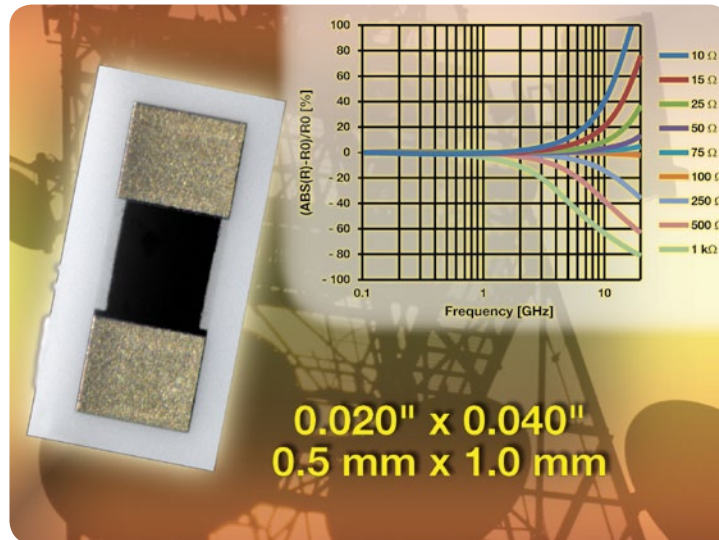


Thin Film Microwave Chip Resistors



KEY BENEFITS

- Low shunt capacitance: < 0.2 pF
- Resistance range: 2 Ω to 20 kΩ
- Tolerances: to 1.0 %
- Small size: 0.020 in. x 0.040 in.
- Strip-line compatibility

APPLICATIONS

- Couplers
- Attenuators
- Amplifiers
- Oscillators

RESOURCES

- Datasheet: MIC - <http://www.vishay.com/doc?61037>
- For technical questions contact efi@vishay.com



Thin Film Microwave Chip Resistors



Product may not be to scale

The MIC resistor chips on alumina are designed with low shunt capacitance. Most lower value resistor geometrics are compatible with strip lines, making them ideally suited for microwave circuits.

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

FEATURES

- Wire bondable
- High frequency
- Small single chip size: 0.020" x 0.040"
- Case: 0402
- Microwave resistance range: 20 Ω to 1 k Ω
- Overall resistance range: 20 Ω to 20 k Ω
- Alumina substrate
- Low stray capacitance: < 0.2 pF
- Resistor material: Tantalum nitride, self passivating
- Moisture resistant

APPLICATIONS

Vishay EFI MIC chip resistors provide excellent high-frequency response and area ideally suited for prototyping.

Typical application areas are:

- Amplifiers
- Oscillators
- Attenuators
- Couplers
- Filters

TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES

PARAMETER	VALUE	UNIT
Resistance Range	2 to 20K	Ω
Tolerances	± 1	%
TCR	$\pm 25, \pm 50, \pm 100, \pm 200$	ppm/ $^{\circ}$ C

Note

- Only 20 Ω to 1 k Ω are standard strip line designs for microwave applications

STANDARD ELECTRICAL SPECIFICATIONS

PARAMETER	VALUE	UNIT
Noise, MIL-STD-202, Method 308	- 20 typ.	dB
Moisture Resistance, MIL-STD-202, Method 106	± 0.1 max. $\Delta R/R$	%
Stability, 1000 h, + 125 $^{\circ}$ C, 62 mW	± 0.2 max. $\Delta R/R$	%
Operating Temperature Range	- 55 to + 125	$^{\circ}$ C
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	± 0.1 max. $\Delta R/R$	%
High Temperature Exposure + 150 $^{\circ}$ C, 1000 h	± 0.2 max. $\Delta R/R$	%
Dielectric Voltage Breakdown	400	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 max.	W
5 x Rated Power Short-Time Overload, + 25 $^{\circ}$ C, 5 s	± 0.1 max. $\Delta R/R$	%

MECHANICAL SPECIFICATIONS

PARAMETER	
Chip Size	0.020" x 0.040" ± 0.003 " (0.5 mm x 1.0 mm ± 0.076 mm)
Chip Thickness	0.010" ± 0.002 " (0.254 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	0.010" x 0.012" (0.254 mm x 0.30 mm) min.
Number of Pads	2
Pad Material	25 k Å minimum gold standard
Backing	None

SCHEMATIC

