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GREEN (5-2008)





Thin Film Microwave Resistor



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 (EFI) 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 500 Ω
- Overall resistance range: 2 Ω to 20 k Ω
- Alumina substrate
- Low stray capacitance: < 0.2 pF
- · Resistor material: Tantalum nitride, self passivating
- Moisture resistant
- Material categorization: for definitions of compliance please see <u>www.vishav.com/doc?99912</u>

APPLICATIONS

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

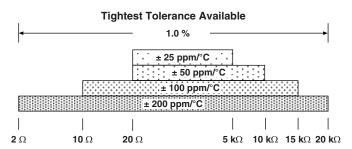
Typical application areas are:

- Amplifiers
- Oscillators
- Attenuators
- Couplers
- Filters

TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES		
PARAMETER	VALUE	UNIT
Resistance Range	2 to 20K	Ω
Tolerances	± 1	%
TCR	± 25, ± 50, ± 100, ± 200	ppm/°C

Note

• Only 20 Ω to 500 Ω are standard strip line designs for microwave applications

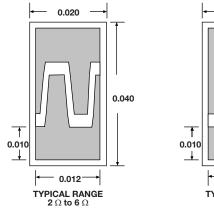


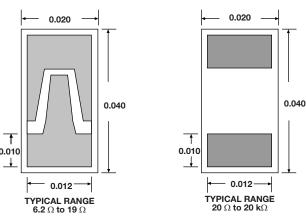
STANDARD ELECTRICAL SPECIFICATIONS		
PARAMETER	VALUE	UNIT
Noise, MIL-STD-202, Method 308	-20 typ.	dB
Moisture Resistance, MIL-STD-202, Method 106	± 0.1 max. ΔR/R	%
Stability, 1000 h, +125 °C, 62 mW	± 0.2 max. ΔR/R	%
Operating Temperature Range	-55 to +125	°C
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	\pm 0.1 max. $\Delta R/R$	%
High Temperature Exposure +150 °C, 1000 h	± 0.2 max. ΔR/R	%
Dielectric Voltage Breakdown	400	V
Insulation Resistance	10 ¹² min.	Ω
Operating Voltage	100 max.	V
DC Power Rating at +70 °C (Derated to Zero at 150 °C)	0.125 max.	W
5x Rated Power Short-Time Overload, +25 °C, 5 s	\pm 0.1 max. $\Delta R/R$	%

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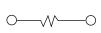
Vishay Electro-Films

DIMENSIONS in inches

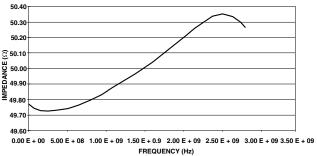




SCHEMATIC



IMPEDANCE VS. FREQUENCY 50 Ω , 20 mil x 40 mil SIZE



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 kÅ minimum gold standard	
Backing	None	

TAPE AND REEL STANDARD LOAD ORIENTATION

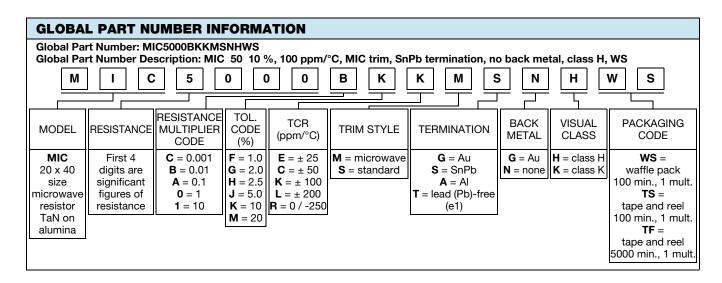
Note

• VEFI will load die pattern side up in tape unless otherwise specified



Product image may not be to scale

Vishay Electro-Films





Legal Disclaimer Notice

Vishay

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