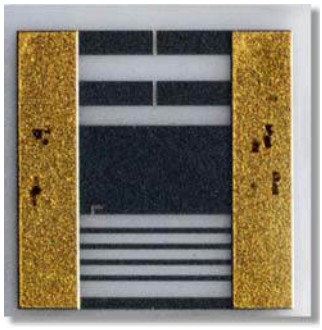
Thin Film Microwave Resistor



Product may not be to scale

The MID resistor chips on alumina are designed for low shunt capacitance applications with 200 mW power requirements.

These chips are manufactured using Vishay Electro-Films (EFI) sophisticated Thin Film equipment and manufacturing technology. The MIDs are 100 % electrically tested and visually inspected to MIL-STD-883, method 2032 class H or K.

FEATURES

- Wire bondable
- High frequency
- Chip size: 0.050" x 0.050"
- Case: 0505
- Microwave resistance range: 18 Ω to 500 Ω
- Overall resistance range: 2 Ω to 100 kΩ
- Alumina substrate
- Low stray capacitance: < 0.2 pF
- Power: 200 mW
- Resistor material: Tantalum nitride, self passivating
- Moisture resistant
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

APPLICATIONS

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

- Amplifiers
- Oscillators
- Attenuators
- Couplers
- Filters

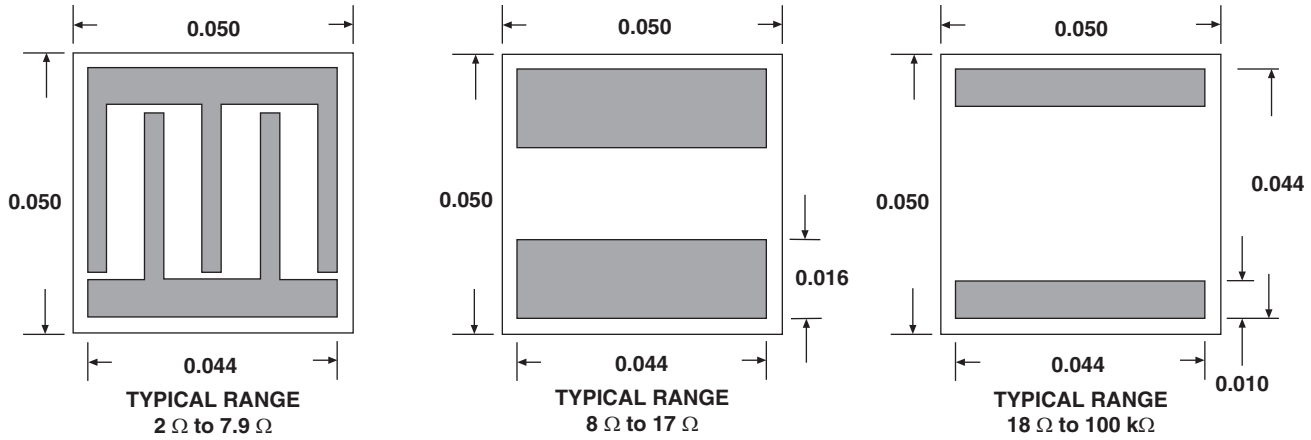
TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES		
PARAMETER	**VALUE**	**UNIT**
Resistance Range	2 to 100K	Ω
Tolerances	1	%
TCR	± 25; ± 50; ± 100; ± 200	ppm/°C

Note

- Only 18 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. $\Delta R/R$	%
Stability, 1000 h, + 125 °C, 100 mW	± 0.2 max. $\Delta R/R$	%
Operating Temperature Range	- 55 to + 125	°C
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	± 0.1 max. $\Delta R/R$	%
High Temperature Exposure + 150 °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 °C (Derated to Zero at 150 °C)	0.200 max.	W
5 x Rated Power Short-Time Overload, + 25 °C, 5 s	± 0.1 max. $\Delta R/R$	%

DIMENSIONS in inches



SCHEMATIC

MECHANICAL SPECIFICATIONS	
PARAMETER	
Chip Size	0.050" x 0.050" ± 0.003" (1.27 mm x 1.27 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 0.044" (0.254 mm x 1.11 mm)
Number of Pads	2
Pad Material	25 kÅ minimum gold standard
Backing	None

GLOBAL PART NUMBER INFORMATION

Global Part Number: MID5000AFCSGGKWS

Global Part Number Description: MID 500 1 %, 50 ppm/°C, standard, Au, Au, K, WS

M	I	D	5	0	0	0	A	F	C	S	G	G	K	W	S

MODEL	RESISTANCE	RESISTANCE MULTILPLIER CODE	TOL. CODE (%)	TCR (ppm/°C)	TRIM STYLE	TERMINATION	BACK METAL	VISUAL CLASS	PACKAGING CODE
MID 50 x 50 size microwave resistor TaN on alumina	First 4 digits are significant figures of resistance	**C** = 0.001 **B** = 0.01 **A** = 0.1 **0** = 1 **1** = 10 **2** = 100	**F** = 1.0 **G** = 2.0 **J** = 5.0 **K** = 10 **M** = 20	**E** = ± 25 **C** = ± 50 **K** = ± 100 **L** = ± 200	**M** = Microwave **S** = Standard	**G** = Au **S** = SnPb **A** = Al **T** = Lead (Pb)-free (e1)	**G** = Au **N** = None	**H** = Class H **K** = Class K	**WS** = Waffle pack 100 min, 1 mult

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