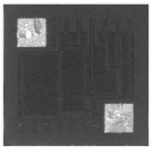
Thin Film Top-Contact Resistor



Product may not be to scale

The SFM series single-value resistor chips offer a small size, wide ohmic value range and excellent power capacity.
The SFMs tantalum nitride resistor material offers excellent resistance to high moisture environments.
The SFMs are manufactured using Vishay Electro-Films (EFI) sophisticated thin film equipment and manufacturing technology. The SFMs are 100 % electrically tested and visually inspected to MIL-STD-883, method 2032 class H or K.

FEATURES

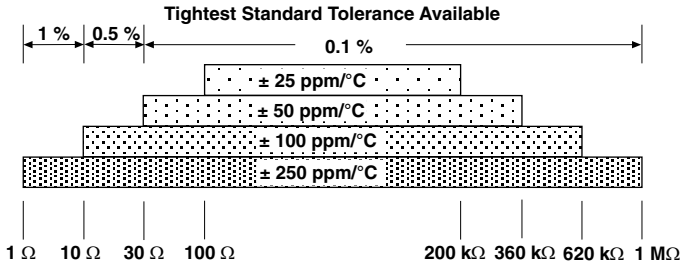
- Wire bondable
- Small size: 0.020 inches square
- Case: 0202
- Resistance range: 1.0 Ω to 1 MΩ
- DC power rating: 250 mW
- Oxidized silicon substrate for good power dissipation
- Resistor material: tantalum nitride, self-passivating
- Moisture resistant
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free
RoHS COMPLIANT
HALOGEN FREE
GREEN (5-2008)

APPLICATIONS

Vishay EFI SFM top-contact resistor chips are designed to handle substantial power loads in many types of hybrid packages. They are ideally suited for this purpose because of their small size.

TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES		
PARAMETER	**VALUE**	**UNIT**
Total resistance range	1 to 1M	Ω
Standard tolerances	± 0.1, ± 0.5, ± 1	%
TCR	± 25, ± 50, ± 100, ± 250	ppm/°C



STANDARD ELECTRICAL SPECIFICATIONS		
PARAMETER	**VALUE**	**UNIT**
Noise, MIL-STD-202, method 308 100 Ω to 250 kΩ < 100 Ω or > 251 kΩ	 -35 typ. -20 typ.	dB
Moisture resistance, MIL-STD-202 method 106	± 0.5 max. $\Delta R/R$	%
Stability, 1000 h, +125 °C, 125 mW	± 0.25 max. $\Delta R/R$	%
Operating temperature range	-55 to +150	°C
Thermal shock, MIL-STD-202, method 107, test condition F	± 0.25 max. $\Delta R/R$	%
High temperature exposure, +150 °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 °C (derated to zero at +175 °C)	0.250	W
5 x rated power short-time overload, +25 °C, 5 s	± 0.25 max. $\Delta R/R$	%

For technical questions, contact: efi@vishay.com
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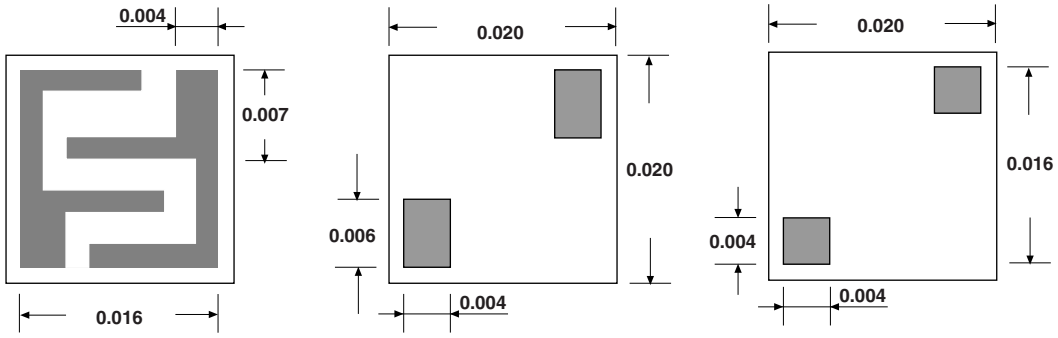
CONFIGURATIONS in inches



TYPICAL RANGE
1 Ω to 29 Ω

TYPICAL RANGE
30 Ω to 819 Ω

TYPICAL RANGE
820 Ω to 1 MΩ

SCHEMATIC

MECHANICAL SPECIFICATIONS	
PARAMETER	**VALUE**
Chip size	0.020" x 0.020" ± 0.003" (0.5 mm x 0.5 mm ± 0.076 mm)
Chip thickness	0.010" ± 0.002" (0.254 mm ± 0.05 mm)
Chip substrate material	Oxidized silicon, 10 kÅ minimum SiO_2
Resistor material	Tantalum nitride, self-passivating
Bonding pad size	0.004" x 0.004" (0.10 mm x 0.10 mm)
Number of pads	2
Pad material	25 kÅ minimum aluminum
Backing	None, lapped semiconductor silicon

GLOBAL PART NUMBER INFORMATION

Global Part Number: SFM50000FKANHWS

Global Part Number Description: SFM 5K 1 %, 100 ppm/°C, Al, no back metal, class H, WS

S	F	M	5	0	0	0	0	F	K	A	N	H	W	S

MODEL	RESISTANCE	RESISTANCE MULTIPLIER CODE	TOLERANCE CODE (%)	TCR (ppm/°C)	TERMINATION	BACK METAL	VISUAL CLASS	PACKAGING CODE
SFM	First 4 digits are significant figures of resistance	**C** = 0.001 **B** = 0.01 **A** = 0.1 **0** = 1 **1** = 10 **2** = 100 **3** = 1000	**B** = 0.1 **C** = 0.25 **D** = 0.5 **F** = 1.0 **G** = 2.0 **H** = 2.5 **J** = 5.0 **K** = 10	**E** = ± 25 **C** = ± 50 **K** = ± 100 **M** = ± 250 **R** = 0 / -250	**G** = Au **A** = Al	**G** = Au **N** = none	**H** = class H **K** = class K	**WS** = waffle pack 100 min., 1 mult.

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