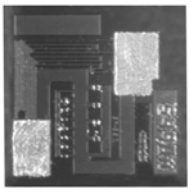
Thin Film Top-Contact Resistor with Part Mark



Product may not be to scale

The SFP series single-value resistor chips offer a small size, wide ohmic value range and excellent power capacity.

The SFPs are part marked with resistance value allowing user the ability to visually determine the resistance value of the chip.

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

FEATURES

- Wire bondable
- Part marked - 5 digits
- Small size: 0.022 inches square
- Case: 0202
- Resistance range: 1 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

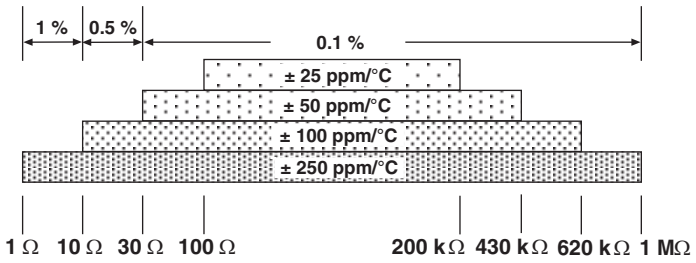
GREEN (5-2008)

APPLICATIONS

Vishay EFI SFP small resistor chips are widely used in hybrid packages where space is limited and chip value marking is important for identification. The die is part marked with the resistance value. Wire bonding is made to the two pads on the top of the chip.

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

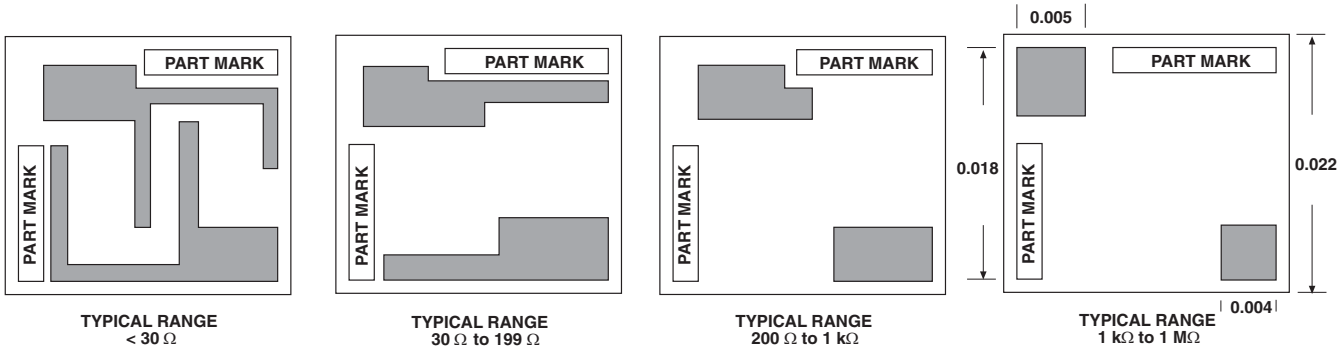
Tightest Standard Tolerance Available



STANDARD ELECTRICAL SPECIFICATIONS		
PARAMETER	**VALUE**	**UNIT**
Noise, MIL-STD-202, Method 308 100 Ω - 250 kΩ < 100 Ω or > 251 kΩ	 - 35 typ. - 20 typ.	dB
Moisture Resistance, MIL-STD-202, Method 106	± 0.5 max. Δ*R*/*R*	%
Stability, 1000 h, + 125 °C, 125 mW	± 0.25 max. Δ*R*/*R*	%
Operating Temperature Range	- 55 to + 125	°C
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	± 0.25 max. Δ*R*/*R*	%
High Temperature Exposure, + 150 °C, 100 h	± 0.5 max. Δ*R*/*R*	%
Dielectric Voltage Breakdown	200	V
Insulation Resistance	10^{12} min.	Ω
Operating Voltage	100 V 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. Δ*R*/*R*	%

Note
- Values above 1M available

DIMENSIONS in inches



SCHEMATIC

STANDARD MARKING - 5 DIGITS

XXXX	X
Four significant digits of value	**Multiplier** **C = 0.001** **B = 0.01** **A = 0.1** **0 = 0** **1 = 10** **2 = 100** **3 = 1000**

MECHANICAL SPECIFICATIONS

PARAMETER	VALUE
Chip Size	0.022" x 0.022" ± 0.003" (0.558 mm x 0.558 mm ± 0.05 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 (Au optional)
Backing	None, lapped semiconductor silicon (Au optional)

GLOBAL PART NUMBER INFORMATION

Global Part Number: SFP50000FKANHWS

Global Part Number Description: SFP 5K 1 % 100 ppm/°C Al None H WS

S	F	P	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
SFP 22 x 22 size Ta2N on Silicon w/ part mark	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 **J** = 5.0 **K** = 10.0	**E** = ± 25 **C** = ± 50 **K** = ± 100 **M** = ± 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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