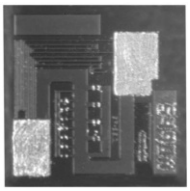
Thin Film Top-Contact Resistor with Part Mark



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.

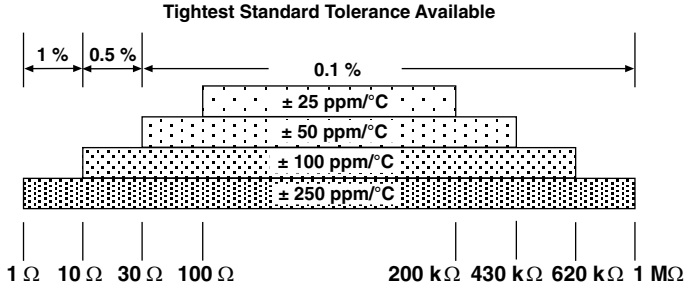
FEATURES

- Wire bondable
- Part marked - 5 digits
- Small size: 0.022 inches square
- 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

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



PROCESS CODE	
CLASS H*	CLASS K*
103	108
102	107
101	106
100	105

* MIL-PRF-38534 inspection criteria

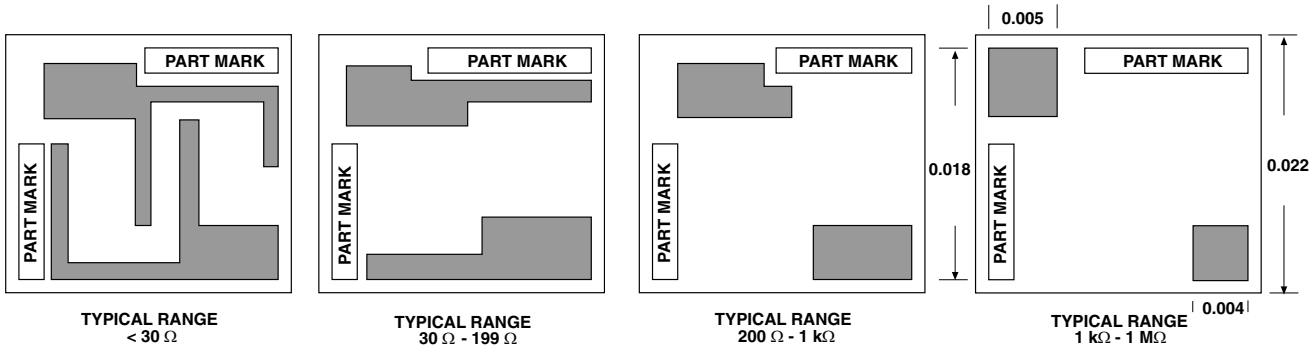
STANDARD ELECTRICAL SPECIFICATIONS

PARAMETER	
Noise, MIL-STD-202, Method 308 **100 Ω - 250 kΩ** **< 100 Ω or > 251 kΩ**	 - 35 dB typ. - 20 dB typ.
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 °C 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.
Operating Voltage	100 V max.
DC Power Rating at + 70 °C (Derated to Zero at + 175 °C)	250 mW
5 x Rated Power Short-Time Overload, + 25 °C, 5 s	± 0.25 % max. Δ*R*/*R*

Values above 1M available

For technical questions, contact: ff2bresistors@vishay.com

DIMENSIONS in inches



SCHEMATIC

STANDARD MARKING - 5 DIGITS

XXXX
Four significant digits of value

X
Multiplier
C = 0.001
B = 0.01
A = 0.1
0 = 0
1 = 10
2 = 100
3 = 1000

MECHANICAL SPECIFICATIONS in inches	
PARAMETER	
Chip Size	0.022 x 0.022 ± 0.003 (0.558 x 0.558 ± 0.05 mm)
Chip Thickness	0.010 ± 0.002 (0.254 ± 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 x 0.10 mm)
Number of Pads	2
Pad Material	25 kÅ minimum aluminum
Backing	None, lapped semiconductor silicon

Options: Gold backing for eutectic die attach
Gold bonding pads, 15 kÅ minimum thickness
Consult Applications Engineer

ORDERING INFORMATION

Example: 100 % visual, 10 kΩ, ± 1 %, ± 250 ppm/°C TCR, aluminum pads, class H visual inspection

W	**SFP**	**100**	**1000**	**1**	**F**
INSPECTION /PACKAGING	PRODUCT FAMILY	PROCESS CODE	RESISTANCE VALUE	MULTIPLIER CODE	TOLERANCE CODE
W = 100 % visually inspected parts in matrix tray per MIL-STD-883 X = Sample, commercial visually inspected parts loaded in matrix trays (4 % AQL)		See Process Code table	Use first 4 digits of the resistance	**B** = 0.01 **A** = 0.1 **0** = 1 **1** = 10 **2** = 100 **3** = 1000 **4** = 10000	**B** = 0.1 % **C** = 0.2 % **D** = 0.5 % **F** = 1.0 % **G** = 2.0 % **H** = 2.5 % **J** = 5.0 % **K** = 10 % *Coating standard

Disclaimer

All product specifications and data are subject to change without notice.

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