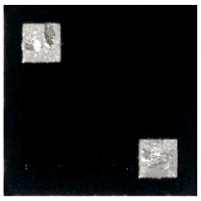
NiCr Thin Film, Top-Contact Resistor



Product may not be to scale

The SFN series resistor chips offer a combination of nichrome stability, good power rating and small size.

The SFNs are manufactured using Vishay Electro-Films (EFI) sophisticated thin film equipment and manufacturing technology. The SFNs are 100 % electrically tested and visually inspected to MIL-STD-883.

FEATURES

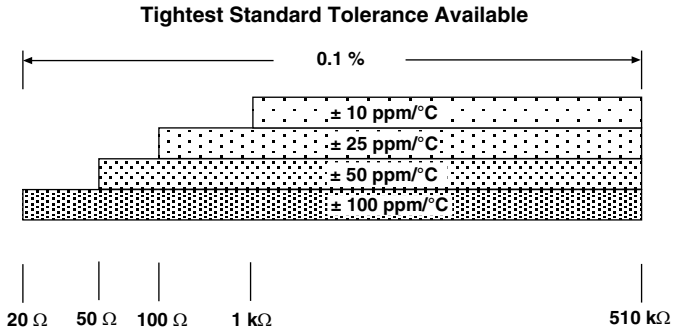
- Chip size: 20 inches square
- Resistance range: 10 Ω to 510 kΩ
- Resistor material: nichrome
- Oxidized silicon substrate
- 250 mW power

APPLICATIONS

Vishay EFI SFN resistor chips are widely used in hybrid packages where space is limited. Designed with capacity to handle substantial power loads, they also have the benefit of nichrome stability.

Recommended for hermetic environments where die is not exposed to moisture.

TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES AND TOLERANCES



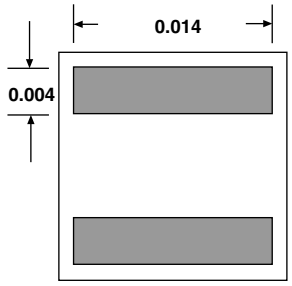
PROCESS CODE	
CLASS H*	CLASS K*
208	209
200	201
202	203
204	205

*MIL-PRF-38534 inspection criteria

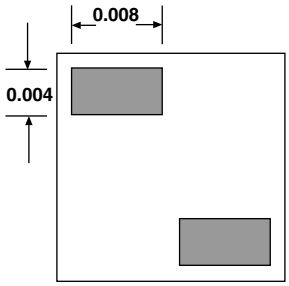
STANDARD ELECTRICAL SPECIFICATIONS

PARAMETER	
Noise, MIL-STD-202, Method 308 100 Ω - 250 kΩ < 100 Ω or > 251 kΩ	 - 35 dB typical - 20 dB typical
Stability, 1000 hours, + 125 °C, 50 mW	± 0.25 % maximum ΔR/R
Operating temperature range	- 55 °C to + 125 °C
Thermal shock, MIL-STD-202, Method 107, Test condition F	± 0.25 % maximum ΔR/R
High temperature exposure, + 150 °C, 100 hours	± 0.5 % maximum ΔR/R
Dielectric voltage breakdown	200 V
Insulation resistance	10^{12} minimum
Operating voltage	100 V maximum
DC power rating at + 70 °C (derated to zero at + 175 °C)	250 mW
5 x rated power short-time overload, + 25 °C, 5 seconds	± 0.25 % maximum ΔR/R

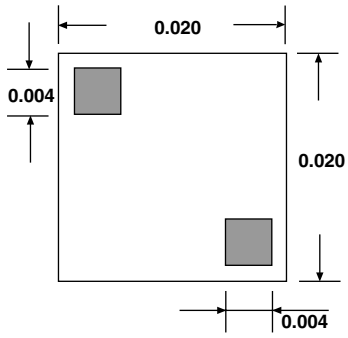
DIMENSIONS in inches



TYPICAL RANGE
10 Ω - 55 Ω



TYPICAL RANGE
56 Ω - 7.4 kΩ



TYPICAL RANGE
7.5 kΩ - 510 kΩ

SCHEMATIC

MECHANICAL SPECIFICATIONS in inches	
PARAMETER	
Chip size	0.020 x 0.020 ± 0.003 (0.51 x 0.51 ± 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	Nichrome (Passivation Optional)
Bonding pad size	0.004 x 0.004 (0.10 x 0.10 mm)
Number of pads	2
Pad material	15 kÅ minimum Gold
Backing	None, lapped semiconductor silicon; Au back optional

OPTIONS: Aluminum Pads
Passivation (thermal set plastic)
Consult Applications Engineer

ORDERING INFORMATION

Example: 100 % visual, 10 kΩ, ± 1 %, ± 50 ppm/°C TCR, Gold Pads, Class H Visual inspection

W	**SFN**	**202**	**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 the first 4 significant digits of the resistance	**B** = 0.01 **A** = 0.1 **0** = 1 **1** = 10 **2** = 100 **3** = 1000 **4** = 10 000	**B** = 0.1 % **C** = 0.2 % **D** = 0.5 % **F** = 1.0 % **G** = 2.0 % **H** = 2.5 % **J** = 5.0 % **K** = 10 %

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