NiCr Thin Film, Top-Contact Resistor

Product may not be to scale

The QFN series nichrome on quartz resistor chips offer a combination of nichrome stability, excellent frequency response and small size.

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

FEATURES

- Wire bondable
- Chip size: 0.020 inches square
- Case: 0202
- Resistance range: 1 Ω to 510 kΩ
- Resistor material: Nichrome
- Quartz substrate: < 0.1 pF shunt capacitance
- Power: 25 mW
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

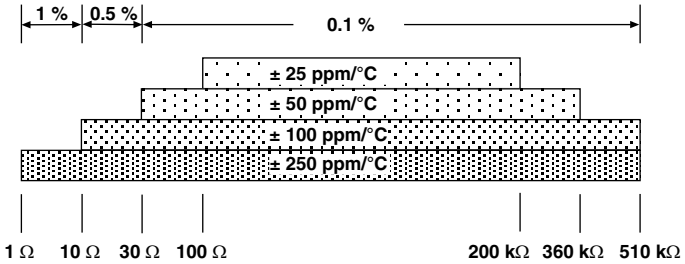
APPLICATIONS

Vishay EFI QFN top-contact 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.

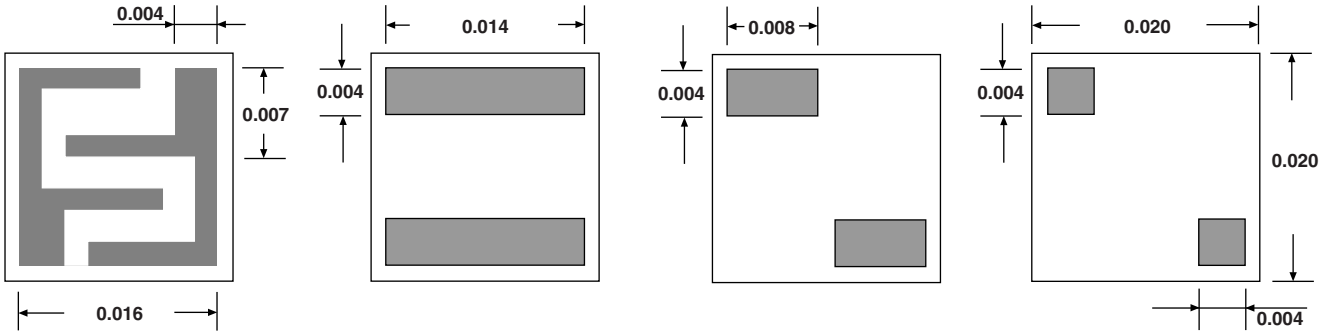
TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES		
PARAMETER	**VALUE**	**UNIT**
Total Resistance Range	1 to 510K	Ω
Standard Tolerances	± 0.1, ± 0.5, ± 1	%
TCR	± 25, ± 50, ± 100, ± 250	ppm/°C

Tightest Standard Tolerance Available



STANDARD ELECTRICAL SPECIFICATIONS		
PARAMETER	**VALUE**	**UNIT**
Noise, MIL-STD-202, Method 308 100 Ω to 250 kΩ < 100 Ω or > 251 kΩ	 -35 typ. -20 typ.	dB
Stability, 1000 h, +125 °C, 12.5 mW	± 0.1 % max. $\Delta R/R$	%
Operating Temperature Range	-55 to +125	°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)	0.025	W
5x Rated Power Short-Time Overload, +25 °C, 5 s	± 0.25 max. $\Delta R/R$	%

CONFIGURATIONS in inches



TYPICAL RANGE
1 Ω to 9 Ω

TYPICAL RANGE
10 Ω to 55 Ω

TYPICAL RANGE
56 Ω to 7.4 kΩ

TYPICAL RANGE
7.5 kΩ to 510 kΩ

SCHEMATIC

MECHANICAL SPECIFICATIONS	
PARAMETER	**VALUE**
Chip Size	0.020" x 0.020" ± 0.003" (0.51 mm x 0.51 mm ± 0.076 mm)
Chip Thickness	0.010" ± 0.002" (0.254 mm ± 0.05 mm)
Chip Substrate Material	Quartz
Resistor Material	Nichrome (passivation optional)
Bonding Pad size	0.004" x 0.004" (0.10 mm x 0.10 mm)
Number of Pads	2
Pad Material	15 kÅ minimum gold (Al optional)
Backing	None, lapped quartz (Au optional)

GLOBAL PART NUMBER INFORMATION

Global Part Number: QFN50000FKANHWS

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

Q	F	N	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
QFN 20 x 20 size NiCr on quartz	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** = gold **A** = aluminum	**G** = gold **N** = none	**H** = class H **K** = class K	**WS** = waffle pack 100 min., 1 mult

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