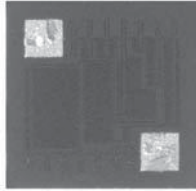


## Thin Film, Top-Contact Resistor



Product may not be to scale

The QFM series tantalum nitride on quartz single-value resistor chips offer a small size, wide ohmic value range and excellent frequency response.

The QFMs tantalum nitride resistor material offers excellent resistance to high moisture environments.

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

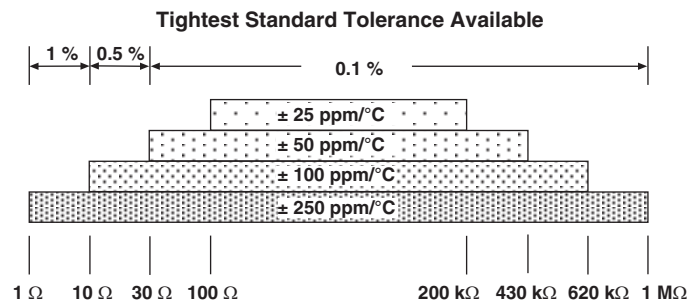
### FEATURES

- Wire bondable
- Small size: 0.020 inches square
- Case: 0202
- Resistance range: 1.0  $\Omega$  to 1 M $\Omega$
- DC power rating: 25 mW
- Quartz substrate: < 0.1 pF shunt capacitance
- Resistor material: Tantalum nitride, self passivating
- Moisture resistant

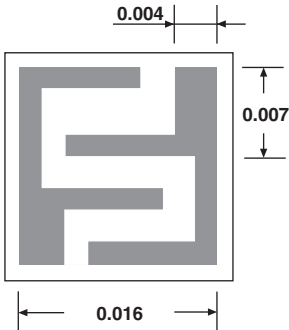
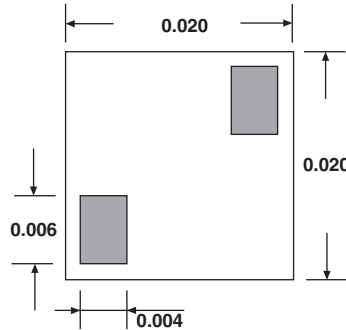
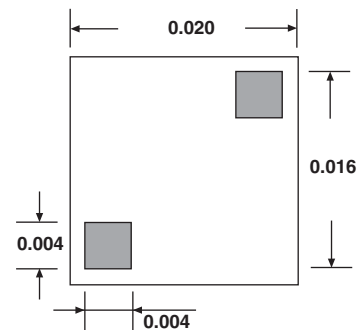
### APPLICATIONS

The QFM 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	$\Omega$
Standard Tolerances	$\pm 0.1, \pm 1, \pm 5$	%
TCR	$\pm 25, \pm 50, \pm 100, \pm 250$	ppm/ $^{\circ}$ C



STANDARD ELECTRICAL SPECIFICATIONS		
PARAMETER	VALUE	UNIT
Noise, MIL-STD-202, Method 308 100 $\Omega$ to 250 k $\Omega$ < 100 $\Omega$ or > 251 k $\Omega$	- 35 typ. - 20 typ.	dB
Moisture Resistance, MIL-STD-202, Method 106	$\pm 0.5 \Delta R/R$	%
Stability, 1000 h, + 125 $^{\circ}$ C, 125 mW	$\pm (0.25 + 0.01 \Omega) \Delta R/R$	%
Operating Temperature Range	- 55 to + 125	$^{\circ}$ C
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	$\pm 0.25$ max. $\Delta R/R$	%
High Temperature Exposure, + 150 $^{\circ}$ C, 100 h	$\pm 0.5$ max. $\Delta R/R$	%
Dielectric Voltage Breakdown	200	V
Insulation Resistance	$10^{12}$ min.	$\Omega$
Operating Voltage	100 max.	V
DC Power Rating at + 70 $^{\circ}$ C (Derated to zero at + 175 $^{\circ}$ C)	0.025	W
5 x Rated Power Short-Time Overload, + 25 $^{\circ}$ C, 5 s	$\pm 0.25$ max. $\Delta R/R$	%

**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	Quartz
Resistor Material	Tantalum nitride, self-passivating
Bonding Pad size	0.004" x 0.004" (0.10 mm x 0.10 mm) minimum
Number of Pads	2
Pad Material	10 kÅ minimum aluminum (Au optional)
Backing	None, lapped quartz (Au optional)

GLOBAL PART NUMBER INFORMATION													
Global Part Number: QFM50000FKANHWS													
Global Part Number Description: QFM 5K 1% 100 ppm/°C Al None H WS													
Q	F	M	5	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					
QFM	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					



## Disclaimer

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