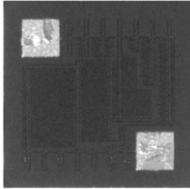


## Thin Film, Top-Contact Resistor



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.

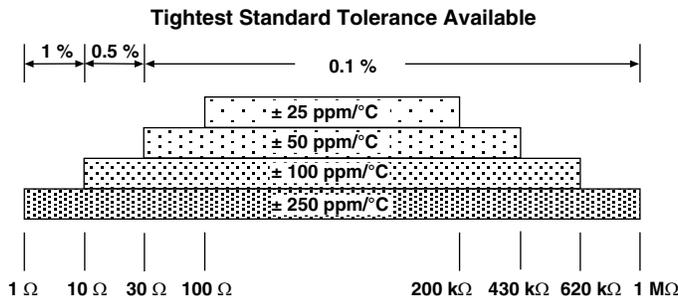
### APPLICATIONS

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.

### FEATURES

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

### TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES AND TOLERANCES

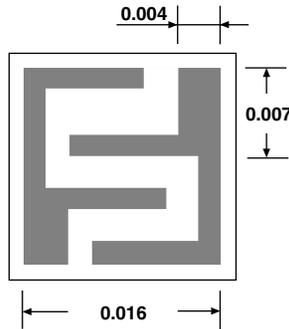
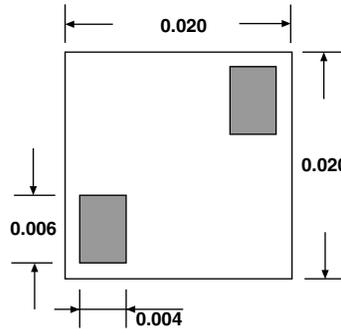
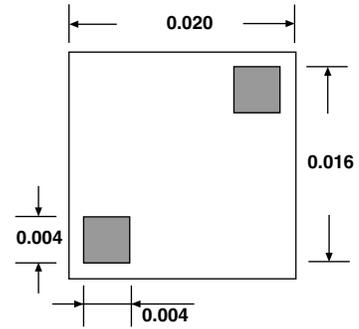


PROCESS CODE	
CLASS H*	CLASS K*
103	107
101	105
102	106
100	104
Aluminum terminations	

\*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. ΔR/R
Stability, 1000 h, + 125 °C, 125 mW	± (0.25 % + 0.01 Ω) max. ΔR/R
Operating Temperature Range	- 55 °C to + 125 °C
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	± 0.25 % max. ΔR/R
High Temperature Exposure, + 150 °C, 100 h	± 0.5 % max. ΔR/R
Dielectric Voltage Breakdown	200 V
Insulation Resistance	10 <sup>12</sup> min.
Operating Voltage	100 V max.
DC Power Rating at + 70 °C (Derated to Zero at + 175 °C)	25 mW
5 x Rated Power Short-Time Overload, + 25 °C, 5 s	± 0.25 % max. ΔR/R

**CONFIGURATIONS** in inches

**TYPICAL RANGE**  
 $1 \Omega - 29 \Omega$ 

**TYPICAL RANGE**  
 $30 \Omega - 819 \Omega$ 

**TYPICAL RANGE**  
 $820 \Omega - 1 M\Omega$ 
**CHIP RESISTORS**
**SCHEMATIC**


<b>MECHANICAL SPECIFICATIONS</b> in inches	
PARAMETER	
Chip Size	0.020 x 0.020 ± 0.003 (0.5 x 0.5 ± 0.076 mm)
Chip Thickness	0.010 ± 0.002 (0.254 ± 0.05 mm)
Chip substrate Material	Quartz
Resistor Material	Tantalum nitride, self-passivating
Bonding Pad Size	0.004 x 0.004 (0.10 x 0.10 mm) minimum
Number of Pads	2
Pad Material	10 kÅ minimum aluminum
Backing	None, lapped quartz

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

<b>ORDERING INFORMATION</b>					
Example: 100 % visual, 10 kΩ, ± 1 %, ± 100 ppm/°C TCR, aluminum pads, class H visual inspection					
<b>W</b>	<b>QFM</b>	<b>102</b>	<b>1000</b>	<b>1</b>	<b>F</b>
INSPECTION/ PACKAGING	PRODUCT FAMILY	PROCESS CODE	RESISTANCE VALUE	MULTIPLIER CODE	TOLERANCE CODE
W = 100 % visually inspected parts in matrix tray per MIL-STD-883		See Process Code table	Use the first 4 digits of the resistance	<b>D</b> = 0.0001 <b>C</b> = 0.001 <b>B</b> = 0.01 <b>A</b> = 0.1 <b>0</b> = 1 <b>1</b> = 10 <b>2</b> = 100 <b>3</b> = 1000 <b>4</b> = 10 000	<b>B</b> = 0.1 % <b>C</b> = 0.2 % <b>D</b> = 0.5 % <b>F</b> = 1.0 % <b>G</b> = 2.0 % <b>H</b> = 2.5 % <b>J</b> = 5.0 % <b>K</b> = 10 %
X = Sample, commercial visually inspected parts loaded in matrix trays (4 % AQL)					



## Disclaimer

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