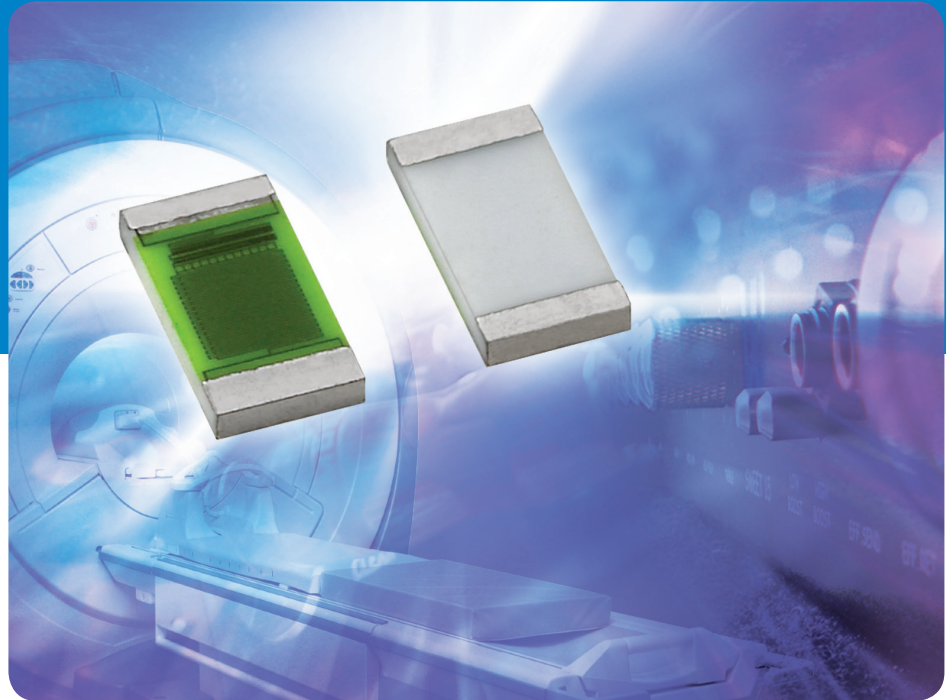




# THIN FILM RESISTORS

PNM Series



## Precision Non-Magnetic Thin Film Chip Resistors

### KEY BENEFITS

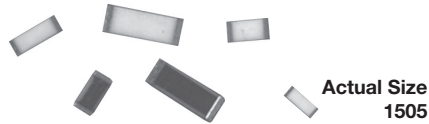
- Resistance range of 10  $\Omega$  to 3 M $\Omega$
- TCR of  $\pm 25$  ppm/ $^{\circ}$ C
- Tolerance to  $\pm 0.1$  %
- Stable film and performance characteristics: 2000 ppm at 70  $^{\circ}$ C, 10 000 h
- Non-standard resistance values available
- Lead (Pb)-free terminations available
- Very low noise and voltage coefficient: < - 30 dB, 0.1 ppm/V
- UL 94 V-0 flame resistant
- Compliant to RoHS directive 2002/95/EC

### APPLICATIONS

- Medical imaging
- High-end audio equipment
- Measurement sensing

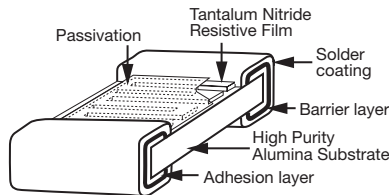
# Precision Thin Film Non-Magnetic Chip Resistors

## ± 25 ppm/°C, Tolerances to 0.1 %



These devices eliminate materials that would disturb magnetic fields applications such as in MRI magnetic resonance imaging machines. The PNM series chip resistor has been carefully engineered with non-magnetic materials to eliminate the effects of these stray magnetic fields on circuit performance, thereby resulting in simplified shielding requirements and improved sound quality in audio applications. Providing signal conditioning without distortion from magnetic fields.

### CONSTRUCTION



### FEATURES

- Non-magnetic
- Moisture resistant
- High purity alumina substrate
- Non-standard values available
- Will pass + 85 °C, 85 % relative humidity and 10 % rated power
- 100 % visual inspected per MIL-PRF-55342
- Very low noise and voltage coefficient (< - 30 dB)
- Non-inductive
- Laser-trimmed tolerances to ± 0.1 %
- Wraparound resistance less than 10 mΩ
- Halogen-free according to IEC 61249-2-21 definition
- Compliant to RoHS directive 2002/95/EC



**RoHS\***  
COMPLIANT  
HALOGEN  
**FREE**  
Available

### TYPICAL PERFORMANCE

	ABSOLUTE
TCR	25
TOL.	0.1

STANDARD ELECTRICAL SPECIFICATIONS		
TEST	SPECIFICATIONS	CONDITIONS
Material	Tantalum nitride	-
Resistance Range	10 Ω to 3 MΩ	-
TCR: Absolute	± 25 ppm/°C to ± 100 ppm/°C	- 55 °C to + 125 °C
Tolerance: Absolute	± 0.1 % to ± 1.0 %	+ 25 °C
Stability: Absolute	ΔR ± 0.03 %	-
Stability: Ratio	-	-
Voltage Coefficient	0.1 ppm/V	-
Working Voltage	75 V to 200 V	-
Operating Temperature Range	- 55 °C to + 125 °C	-
Storage Temperature Range	- 55 °C to + 150 °C	-
Noise	< - 30 dB	-
Shelf Life Stability: Absolute	-	-

GLOBAL PART NUMBER INFORMATION										
GLOBAL MODEL	CASE SIZE	TCR CHARACTERISTIC	RESISTANCE	TOLERANCE	TERMINATION	PACKAGING				
<b>PNM</b> Non-magnetic resistor	<b>0402</b> <b>0502</b> <b>0505</b> <b>0603</b> <b>0805</b> <b>1005</b> <b>1010</b> <b>1206</b> <b>1505</b> <b>2208</b> <b>2010</b> <b>2512</b>	<b>E</b> = ± 25 ppm/°C <b>H</b> = ± 50 ppm/°C <b>K</b> = ± 100 ppm/°C  < 50 Ω  ± 100 ppm/°C best	The first 3 digits are significant figures and the last digit specifies the number of zeros to follow. "R" designates the decimal point.  Example: 10R0 = 10 Ω 1000 = 100 Ω 1001 = 1 kΩ	<b>B</b> = ± 0.1 % <b>D</b> = ± 0.5 % <b>F</b> = ± 1 % <b>G</b> = ± 2 % <b>J</b> = ± 5 %	<b>B</b> = Wraparound Sn/Pb solder 63 % Sn/ 37 % Pb <b>S</b> = Wraparound lead (Pb)-free solder 96.5 % Sn/3.0 % Ag/ 0.5 % Cu RoHS compliant - e1	<b>BS</b> = BULK 100 min., 1 mult <b>WS</b> = WAFFLE 100 min., 1 mult  TAPE AND REEL <b>T0</b> = 100 min., 100 mult <b>T1</b> = 1000 min., 1000 mult <sup>(1)</sup> <b>T3</b> = 300 min., 300 mult <b>T5</b> = 500 min., 500 mult <b>TF</b> = Full reel <b>TS</b> = 100 min., 1 mult				

Revision 23-Dec-09

**Note**  
(1) Preferred packaging code

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