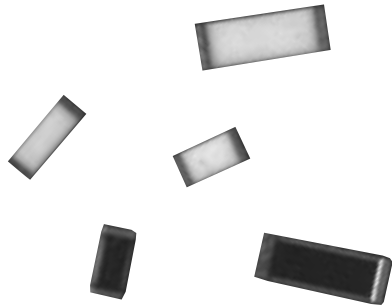


Commercial Thin Film Chip Resistors

P-NE Series



Actual Size 1206

For low noise and precision applications, superior stability, low temperature coefficient of resistance, and low voltage coefficient, Vishay's proven precision thin film wraparound resistors meet your exact requirements.

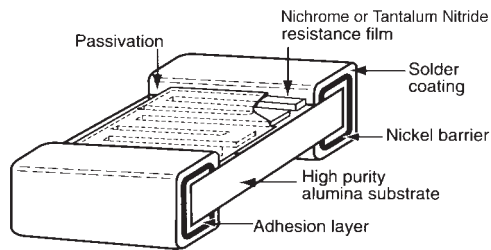
FEATURES

- Low temperature coefficient down to +10 ppm/°C
- Very low noise and voltage coefficient
- Laser trimmed tolerances to ±0.01%
- In lot tracking <5 ppm/°C on request
- Termination: Thin film technology
- Available with gold plated or pre-tinned terminations over nickel barrier

TYPICAL PERFORMANCE

	ABS
TCR	10
TOL	0.1

Construction



Resistance Tolerance

Tolerance	Code	Standard
±0.01	L	50 Ω to 1M Ω
±0.02	P	
±0.05	W	
±0.1	B	
±0.25	C	100 Ω to 1M Ω
±0.5	D	
+1	F	100 Ω to 1M Ω
+2	G	50 Ω to 1M Ω
+5	J	20 Ω to 1M Ω
Special	S	—

Test	Specifications	Conditions
Material	Nichrome or Tantalum Nitride	
Resistance Range	10 Ω to 1M Ω	see case sizes
Absolute TCR:	Y: ±10 ppm/°C H: ±50 ppm/°C * E: ±25 ppm/°C K: ±100 ppm/°C	Y only for values – 50 Ω - 1M Ω E does whole value range
Absolute Tolerance:	±0.1% to ±5%	±1 Ω for Rn <100 Ω
Stability Load Life	0.1% ±0.25%	2000 hrs. @ +70°C
Voltage Coefficient	0.1 ppm/Volt	
Operating Temperature Range	-55°C to +155°C	
Storage Temperature Range	-55°C to +155°C	
Noise	-35 dB	
Thermal EMF	0.1 μ V/°C	
Shelf Life Stability	100 ppm 200 ppm	

* Standard

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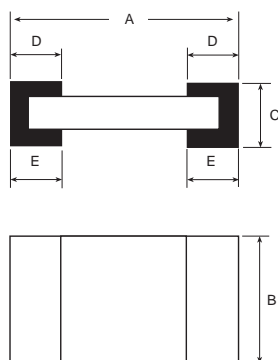
P-NE Series



SURFACE MOUNT
CHIPS

Case Size	Power Rating (mW)	Limiting Element Voltage (V)	Resistance Range (Ω)
0505	125	50	10 to 260K
0603	125	50	10 to 260K
0705	200	50	10 to 300K
0805	200	50	10 to 300K
1005	250	75	10 to 500K
1206	330	75	10 to 1M
1505	350	75	10 to 500K
2010	1000	100	10 to 1M

Dimensions



Case size	Dimensions Inches (Millimeters)			
	A	B	C	D/E
	max. tol. 0.025 (+0.64) min. tol. -0.005 (-0.13)	max. 0.010 (+0.26) min. -0.005 (-0.13)	max. 0.024 (+0.64) min. -0.005 (-0.13)	max. 0.005 (+0.13) min. -0.005 (-0.13)
0505	0.050 (1.27)	0.050 (1.27)	0.015 (0.38)	0.015 (0.38)
0603	0.060 (1.52)	0.030 (0.75)	0.015 (0.38)	0.015 (0.38)
0705	0.075 (1.91)	0.050 (1.27)	0.015 (0.38)	0.015 (0.38)
0805				
1005	0.100 (2.54)	0.050 (1.27)	0.015 (0.38)	0.015 (0.38)
1206	0.126 (3.20)	0.063 (1.60)	0.015 (0.38)	0.015 (0.38)
1505	0.150 (3.81)	0.050 (1.27)	0.015 (0.38)	0.015 (0.38)
2010	0.200 (5.08)	0.100 (2.54)	0.015 (0.38)	0.015 (0.38)

Environmental Test

Test	Conditions	Values and Drifts			
		Tantalum Nitride		Nichrome	
		MIL-PRF-55342 Requirements	Typical performance	MIL-PRF-55342 Requirements	Typical performance
Thermal Shock	MIL-PRF-55342 C MIL-STD-702, Method 107	0.25%	0.02%	0.05%	0.02%
Short Term Overload	MIL-PRF-55342 C Para 3.10.4.7.5	0.10%	0.01%	0.05%	0.01%
Low Temperature Operation	MIL-PRF-55342 C Para 3.9 & 4.7.4	0.25%	0.01%	0.05%	0.01%
Resistance to Solder Heat	MIL-PRF-55342 C Para 3.12, 4.7.7, 4.7.1.2	0.25%	0.04%	0.05%	0.03%
Moisture Resistance	MIL-PRF-55342 C Para 3.11 & 4.7.6 MIL-STD-202, Method 106	0.40%	0.01%	0.10%	0.01%
High Temperature	MIL-PRF-55342 C Para 3.11 & 4.7.6	0.20%	0.075%	0.05%	0.05%
Load Life	MIL-PRF-55342 C 2000 hours Pn at +70°C MIL-STD-202, Method 108	0.50%	0.15%	0.5%	0.10%

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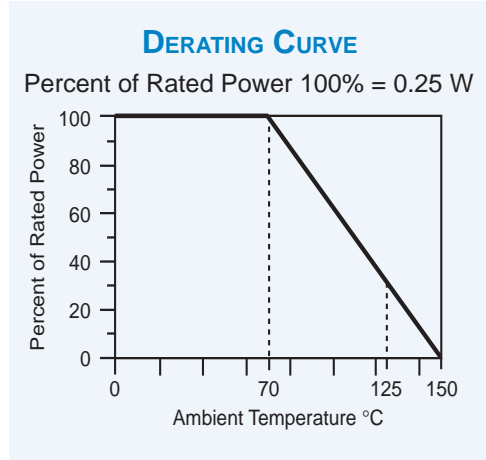
Mechanical Specifications

Resistive Element Nichrome or Tantalum Nitride
 Substrate Material 99.5% or 99.6% alumina
 Protection Silicon Nitride and Silicone Rosin
 Body alumina (substrate)
 Terminals B-type (for soldering): pre-tinned over nickel barrier or
 G type: gold over nickel barrier

Packaging Information

Several types of packaging are proposed: tube, waffle-pack and tape and reel.

Size	Number of pieces per package			Tape Width	
	Tube	Waffle pack (2"x2")	Tape and Reel Min. Max.		
0505	500	100	500	4000	8mm
0603					
0805					
0705					
1005	250	140	500	4000	
1206		100			
1505					
2010	100	60			12mm



How to Order

Series	Case size	TCR	Ohmic value	Tolerance	Termination
P	0505	H	1003	B	B
P = standard chip P HR = high reliability chip (consult factory)		K = ±100 ppm/°C H = ±50 ppm/°C E = ±25 ppm/°C Y = ±10 ppm/°C	The first three digits (2 digits are enough for tolerance G and J) are significant figures and the last digit specifies the number of zeros to follow. R designates decimal point. 10R0 = 10 Ω 3901 = 3900 Ω 1004 = 1M Ω	L = 0.01% P = 0.02% W = 0.05% B = 0.1% C = 0.25% D = 0.5% F = 1% G = 2% J = 5% S = Special	B: tinned over nickel barrier G: gold over nickel barrier