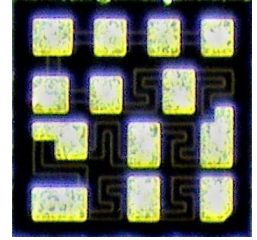




# Network Resistor Array – PN Series

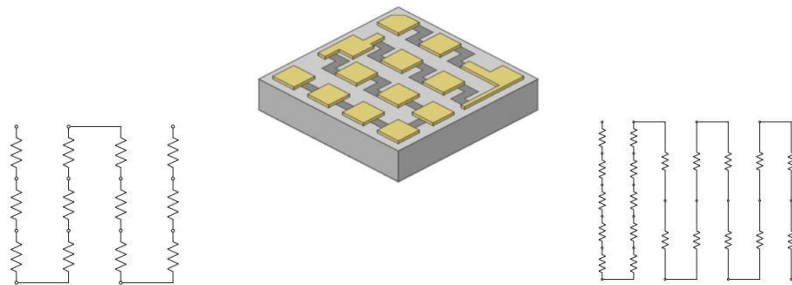
## Product Features

- Multiple resistances in a single, space saving chip.
- Single chip geometry offers excellent TCR tracking and resistance ratio tracking.
- PPI offers chips with 12 or 20 resistive elements as standard.
- Other configurations are available upon request.
- Can be used in Non-Magnetic Applications



## Product Specifications

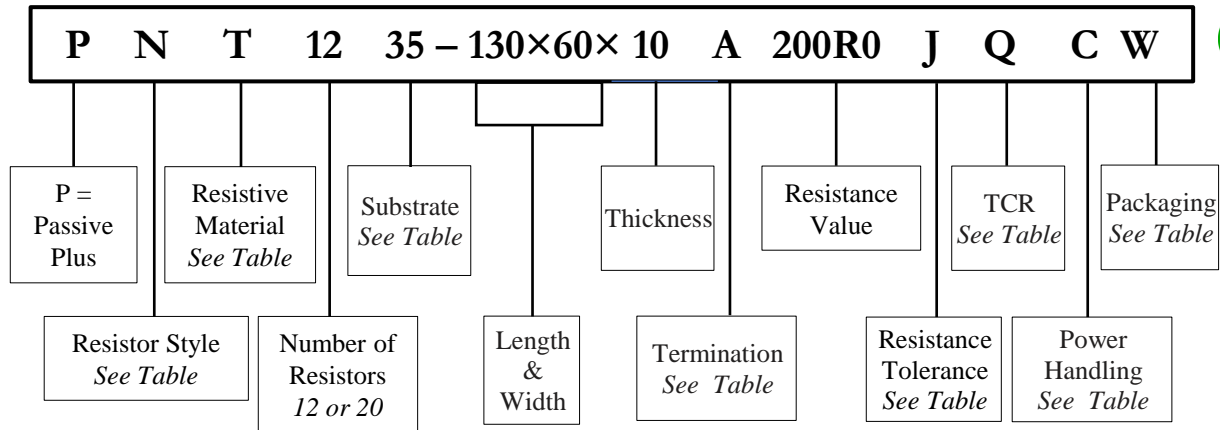
<b>Resistive Material</b>	Tantalum Nitride
<b>Ratio Tolerance</b>	To 0.01% value dependent



12 Resistor Configuration

20 Resistor Configuration

## Part Numbering



## Resistive Style

Code	Style
N	Network Array

## Resistive Materials

Material	Code	Passivation	Sheet Resistivity (Ω/Sq)	Abs. Tolerance	Ratio Tolerance
Tantalum Nitride (TaN)	T	Self Passivating Ta <sub>2</sub> O <sub>5</sub>	5 to 270	From ±0.01%	From ±0.01%



# Network Resistor Array – PN Series

## Substrate Materials

Material	Thickness	Surface Finish	Dielectric Constant (@ 1MHz)	Coefficient of Thermal Expansion (x 10 <sup>6</sup> /°C)	Thermal Conductivity (W/m <sup>2</sup> *K)	Code
Alumina (Al <sub>2</sub> O <sub>3</sub> )	0.005" - 0.010"	2μ" - 3μ"	9.9	7 (25°C to < 300°C)	26.9	35
Silicon (Si) (with 12kÅ SiO <sub>2</sub> )	0.005" - 0.010"	Chemical Polish	N/A (SiO <sub>2</sub> K=1.38)	2.49 - 4.44 (25°C to < 1000°C)	149 (SiO <sub>2</sub> 1.38)	22

## Resistance Range

	Size 30 x 30 (0.030" x 0.030")	Size 38 x 38 (0.038" x 0.038")
<b>Resistance Range:</b>		
<b>Silicon</b>	80 Ω to 240 kΩ	550Ω to 500 kΩ
<b>Alumina</b>	80 Ω to 50 kΩ	550Ω to 50 kΩ
<b>Resistance Distribution</b>	R <sub>1</sub> to R <sub>7</sub> = R <sub>t</sub> / 8 R <sub>8</sub> to R <sub>12</sub> = R <sub>t</sub> / 40	R <sub>1</sub> to R <sub>10</sub> = R <sub>t</sub> / 110 R <sub>11</sub> to R <sub>20</sub> = R <sub>t</sub> / 11

## Terminations

Metallization		Code
Top Side	Bottom Side	
Pd / Au	—	A
Pd / Au	Ta/Pd/Au	D
Pd / Au	Au Sputtered	K

## Resistance Tolerance Codes

Tolerance	J	K	M
Code	± 5%	± 10%	± 20%

## Temperature Coefficient of Resistance

Material	±150 ppm/°C	±100 ppm/°C
Tantalum Nitride (TaN)	Q	V
	Standard	Yes

## Power Handling

250mW

## Packaging

Code	Style
W	Waffle Pack (Standard)
G	Gel Pack

All parts are supplied in waffle packs. Other packaging may be available. Contact PPI for additional packaging options.

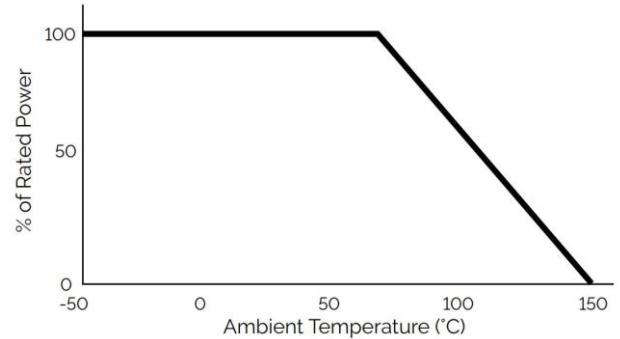


# Network Resistor Array – PN Series

## General Properties

Operating Temperature	-55°C to +150°C
Storage Temperature	-65°C to +150°C
Operating Frequency	DC to 500 MHz
Voltage Rating	100V maximum
Power Derating (See Chart at Right)	Full power up to 70°C Derated linearly to zero power at 150°C

Power Derating Curve



## Testing

Testing Performed	Specification / Standard
Visual Inspection	MIL-PRF-55342 MIL-STD-883
Mechanical Inspection	MIL-PRF-55342
DC Resistance	MIL-PRF-55342 MIL-STD-202
Resistance Temperature Characteristics (TCR)	MIL-PRF-55342
Short Time Overload	MIL-PRF-55342
High Temperature Exposure	MIL-PRF-55342
Thermal Shock	MIL-PRF-55342 MIL-STD-202
Resistance to Bonding Exposure	MIL-PRF-55342
Wire Bonding Integrity	MIL-PRF-55342
Life Test	MIL-PRF-55342 MIL-STD-202

## Performance Specifications

Higher power ratings, additional sizes, and custom resistors available. Please contact sales@passiveplus.com.

## Packaging

ESD waffle packs are standard. Film rings and gel pack packaging are available upon request.