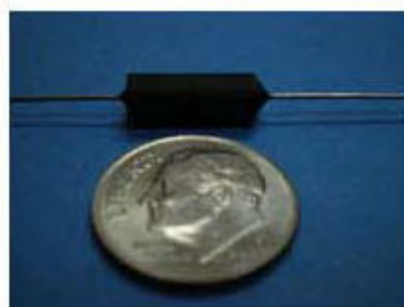
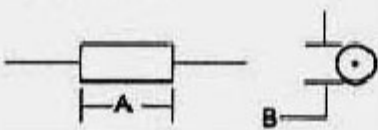


## HR188N .25W Wire Wound Axial Lead Ultra Precision Resistor

### TYPE HR



### Electrical & Physical Specifications:

<b>A-Length:</b>	12.7mm (.500")
<b>B-Diameter:</b>	4.9mm (.193")
<b>Lead Dimensions:</b>	.025" D X 1.500" L
<b>Max Watts @ 1% Tol:</b>	.25
<b>Max Volts @ 1% Tol:</b>	150
<b>Temperature Range:</b>	-65°C. to +125°C.
<b>Resistance Range (Ω):</b>	.1 to 200K

### HR Series Engineering Attributes:

#### RESISTANCE & TOLERANCES

You can select any Ohmic value or decimal part of an Ohm with tolerances to  $\pm 0.05\%$ . 10Ω minimum resistance for  $\pm 0.1\%$  tolerance. See figure #2 shown below.

#### TCR CHARACTERISTIC

##### Standard:

100Ω & higher values:  $0 \pm 5 \text{ ppm}/^\circ\text{C}$ .

For values below 100Ω:  $0 \pm 15 \text{ ppm}/^\circ\text{C}$ .

##### Special:

100Ω & higher:  $0 \pm 1 \text{ ppm}/^\circ\text{C}$ , matching to  $0 \pm 0.5 \text{ ppm}/^\circ\text{C}$ .

Please specify temperature span of operation. The TCR is calculated between +25°C. & +100°C.

#### POWER VS. AMBIENT TEMPERATURE

All Ultra Precision Resistors are designed for full load based upon  $\pm 1\%$  resistance tolerance providing the ambient temperature (+) plus the rise in temperature due to self-heating, does not exceed +125°C. Derated to zero power @ +145°C., See figure #1 shown below.

#### STABILITY

To  $\pm 0.001\%/yr.$  @ +25°C. with no Load.

#### REDUCTION OF THERMAL EMF USING COPPER TERMINALS:

Less than  $\pm 3$  microvolts/ $^\circ\text{C}$ . emitted.

#### INDUCTANCE

Non-inductive balanced reverse pi windings are standard for the HR series with the exception of the HR103.

#### PROTECTIVE SEAL

Features a stress free base coat as well as an epoxy casing that is resistant to solder heat & solvents.

#### MARKING

PRC stamp, part type & name, Ω value & tolerance, physical size permitting.

### Type HR Derating Table\*

For  $\pm 1\%$  resistance tolerance apply up to 100% of rated power to +125 Degrees Celsius. derated to zero @ +145 Degrees Celsius.

For  $\pm 1/2\%$  resistance tolerance apply up to 75% of rated power to +125 Degrees Celsius. derated to zero @ +140 Degrees Celsius.

For  $\pm 1/4\%$  resistance tolerance apply up to 50% of rated power to +125 Degrees Celsius. derated to zero @ +135 Degrees Celsius.

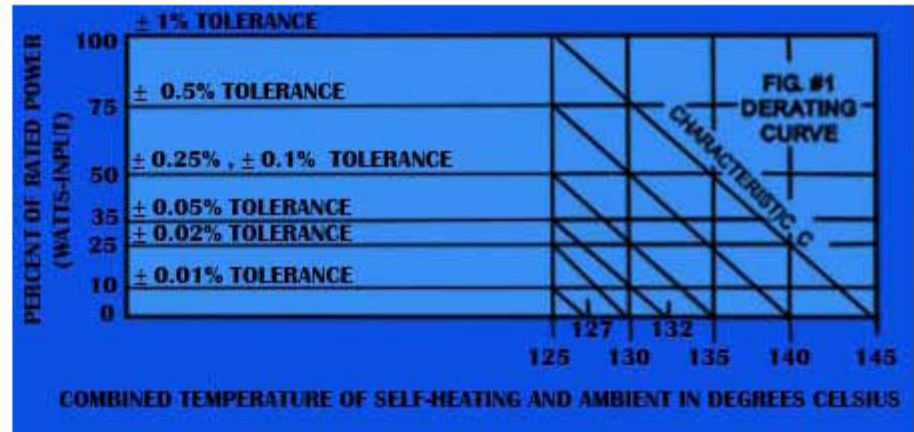
For  $\pm 0.1\%$  resistance tolerance apply up to 50% of rated power to +125 Degrees Celsius. derated

to zero @ +135 Degrees Celsius.

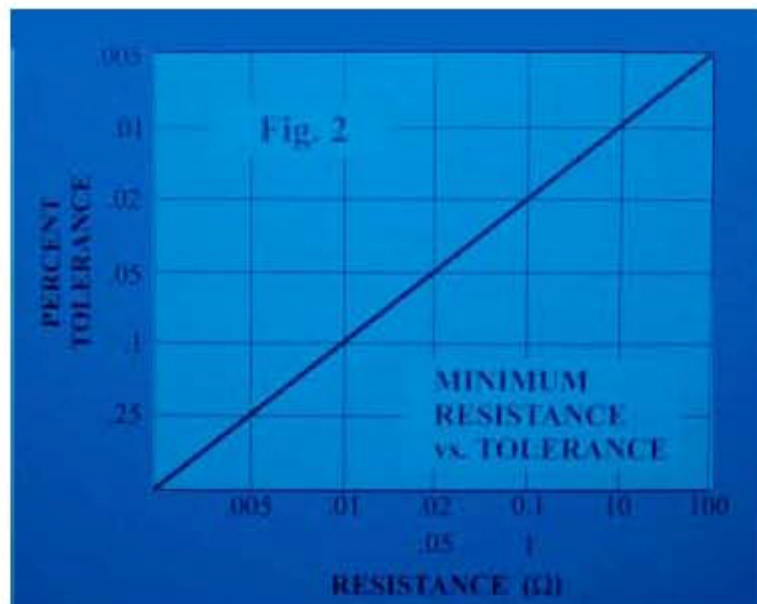
For  $\pm 0.05\%$  resistance tolerance apply up to 35% of rated power to +125 Degrees Celsius. derated to zero @ +132 Degrees Celsius.

\* Percent of Rated Power vs. Combined Temp. of Self-Heating and Ambient (in °C.).

## Detailed Images



## Derating Information



## Minimum Resistance vs. Tolerance

### Details

SKU	HR188N
Type	Axial
Length	12.7mm (.500")
Lead Dimensions	.025" dia. X 1.500" long
Diameter	4.9mm (.193")
TCR Char.	0 $\pm$ 5ppm (Std.) to 0 $\pm$ 1ppm /°C.
Temperature	-65°C. to +125°C.
Resistance	.1 $\Omega$ to 200K $\Omega$
Tolerance	$\pm 0.01\%$ (std.) Ranging from $\pm 1\%$ to $\pm 0.005\%$
Stability	to $\pm 0.001\%$ per year
Max Watts	.25
Max Volts	150
Lead Free	Yes