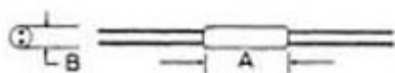




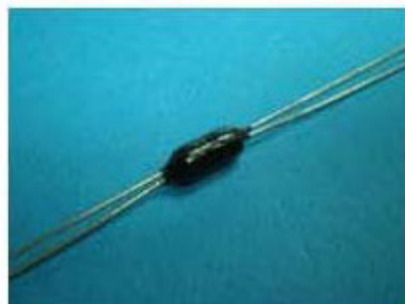
## SM186-4 2.5 Watt Wire Wound 4-Terminal Resistor

# SM186-4



### Electrical & Physical Specifications:

<b>A-Length:</b>	16.50mm (.650")
<b>B-Diameter:</b>	6.35mm (.250")
<b>Lead Dimensions:</b>	.0285" dia. X 1.400" long (min.)
<b>Min Res. @ Max Power:</b>	.025Ω @ 2.5W
<b>Min Res. @ Derated Power:</b>	.001Ω @ .1W
<b>Temperature Range:</b>	-55°C to +275°C



### SM-4 Series Engineering Attributes:

#### RESISTANCE & TOLERANCE

**Standard:** Any Ohmic value or decimal part of an Ohm desired from .015Ω to 100Ω with tolerances to ±.005%

**Special:** From .001Ω to .015Ω with tolerances to ±.1%  
Refer to Fig. 6 for min. resistance vs. tolerance ratios.

#### TCR CHARACTERISTICS

**Standard:** 0±15 PPM/°C.

**Special:** 0±10 PPM/°C.

Please specify temperature span of operation.

#### STABILITY VS. TIME

To ±.001%/year @ +25°C. (No Load)

#### PROTECTIVE COATING SEAL

Solvent resistant coat with indelible marking

#### POWER RATING

The standard minimum resistance at full power is based upon ±1% resistance tolerance @ +25°C. Derating is required for lower values, closer tolerances, and higher temperatures. Please refer to the Derating Table shown here & Fig. 5 below.

#### \*Type SM-4 Derating Table:

For ±1% Res. tol. apply up to 100% of rated power at +25°C, derated to zero at +275°C.
For ±0.5% Res. tol. apply up to 80% of rated power at +25°C, derated to zero at +225°C.
For ±0.25% Res. tol. apply up to 60% of rated power at +25°C, derated to zero at +175°C.
For ±0.1% Res. tol. apply up to 40% of rated power at +25°C, derated to zero at +125°C.
For ±0.05% Res. tol. apply up to 20% of rated power at +25°C, derated to zero at +75°C.

\* Percent of Rated Power vs. Combined Temp. of Self-Heating and Ambient in Degrees Celsius.

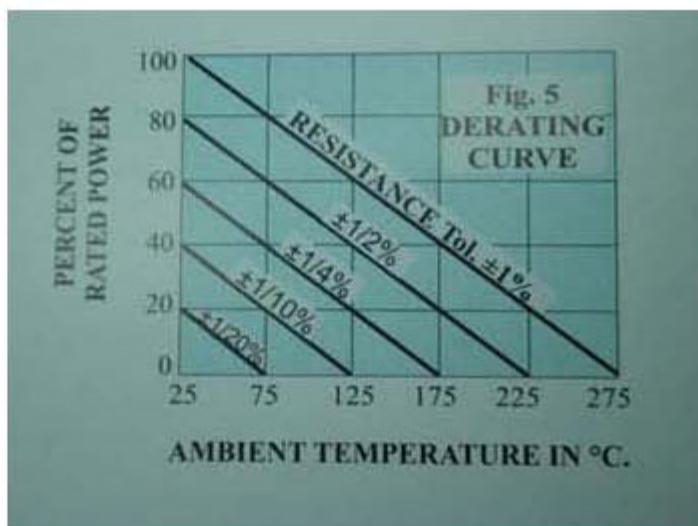
## TWO (2) TERMINAL VS. FOUR (4) TERMINAL (Kelvin)

Two terminal resistors are generally used for high Ohmic values, where the effects of lead-out resistance and contact resistance are minimal. Allow approximately  $\pm 0.001\%$  of an Ohm per inch, for the lead-out resistance on two terminal designs. However, on low values where lead resistance can be a part of a very accurate measurement, the adder may be eliminated by using a 4-terminal device, because 4 terminal circuits will only be indicate the voltage drop across the resistor.

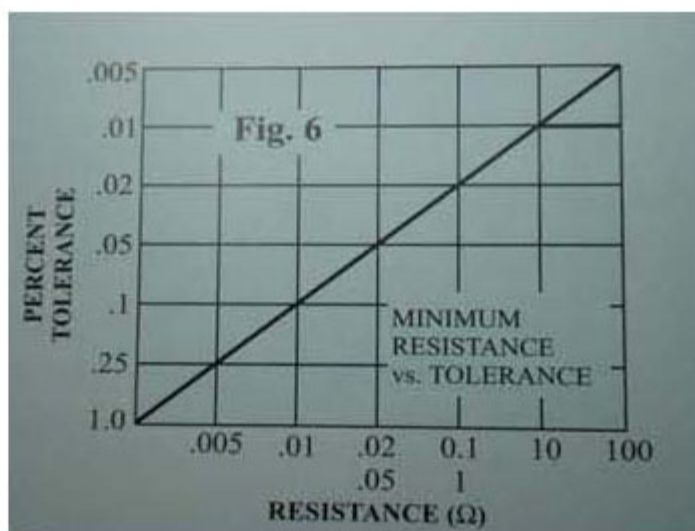
### FOUR TERMINALS

PRC's type SM-4 has four solderable hot-tinned copper leads. Lead identification is academic because of its single joint construction. To observe uniformity, while observing the PRC marking on the body of the resistor, select the 2 leads closest to the top for sense leads & use the remaining two for current leads.

## Detailed Images



Derating Information



Minimum Resistance vs. Tolerance

## Details

SKU	SM186-4
Type	4-Terminal Axial
Length	16.50mm (.650")
Lead Dimensions	.0285" dia. X 1.400" long (min.)
Diameter	6.35mm (.250")
TCR Char.	0 $\pm$ 15ppm/ $^{\circ}$ C (between +25 $^{\circ}$ C. and +100 $^{\circ}$ C.)
Temperature	-65 $^{\circ}$ C. to +275 $^{\circ}$ C.
Resistance	.001 $\Omega$ to 100 $\Omega$
Tolerance	to $\pm 0.005\%$
Max Amps	10
Stability	to $\pm 0.001\%$ per year at +25 $^{\circ}$ C
Max Watts	2.5
Amps	10
Special Resistance	.001 $\Omega$ @ .1W to .025 $\Omega$ @ 2.5W
Lead Free	Yes