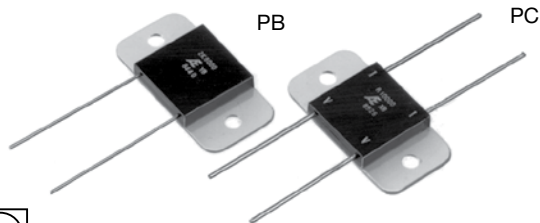


Ultra Precision Power Resistor (10 Watts)



COMPOSITION OF TYPE NUMBER

Example:
PB X 50R000 B

Labels for PB X 50R000 B:
 - PB: Type
 - X: TCR
 - 50R000: Resistance Value
 - B: Tolerance

Resistance value, in ohm, is expressed by a series of six characters, five of which represent significant digits. R or K is a dual-purpose letter that designates both the value range (R for ohmic; K for kilo-ohm) and the location of decimal point.

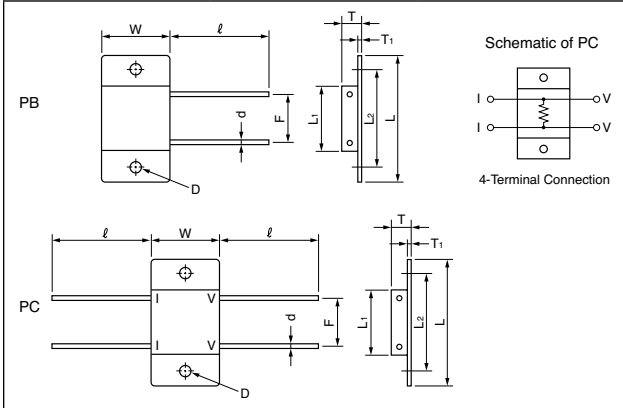
| TCR, RESISTANCE RANGE, TOLERANCE, RATED POWER | | | | |
|---|----------------------------------|--------------------------------------|-----------------------------------|--------------------------------------|
| Type | TCR (ppm/°C) -25°C to 125°C* | Resistance Range (Ω) | Resistance Tolerance (%)† | Rated Power (W) at 25°C |
| PB | 0±15 (W) | 0.4 to 1 | 1 to ±5 (F, G, J) | 2 in free air and 10 On heat sink ** |
| | 0±15 (W) 0±5 (X) 0±2.5 (Y) | 1 to 5 | ±0.5 to ±5 (D, F, G, J) | |
| | | 5 to 10 | ±0.1 to ±5 (B, D, F, G, J) | |
| | | 10 to 25 | ±0.05 to ±5 (A, B, D, F, G, J) | |
| | | 25 to 50 | ±0.02 to ±5 (Q, A, B, D, F, G, J) | |
| | 50 to 50k | ±0.01 to ±5 (T, Q, A, B, D, F, G, J) | | |
| PC | 0±15 (W) | 0.002 to 0.05 | ±0.5 to ±5 (D, F, G, J) | |
| | 0±15 (W) 0±5 (X) | 0.05 to 0.1 | ±0.5 to ±5 (D, F, G, J) | |
| | 0±15 (W) 0±5 (X) 0±2.5 (Y) | 0.1 to 5 | ±0.1 to ±5 (B, D, F, G, J) | |
| | | 5 to 10 | ±0.05 to ±5 (A, B, D, F, G, J) | |
| | | 10 to 25 | ±0.02 to ±5 (Q, A, B, D, F, G, J) | |
| | 25 to 100 | ±0.01 to ±5 (T, Q, A, B, D, F, G, J) | | |

* Symbols in parentheses are for type number composition.

† Resistance figures for type PB are the values obtained by measuring the leads at point 12.7±3.2 mm away from the root, but in case of resistance below 10 ohm, the values at 5.08±0.6 mm away.

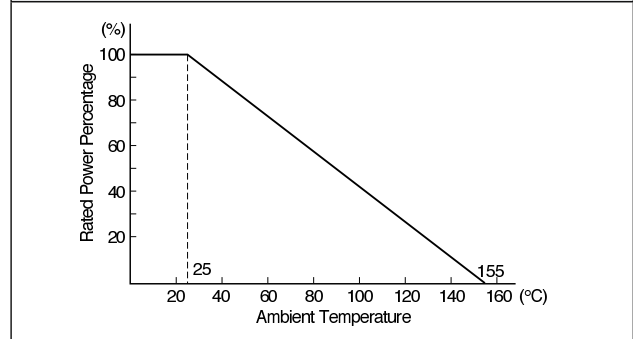
** For heat sinking, an aluminum chassis in 152.4 (L) x 101.6 (W) x 50.8 (H) x 1.0 mm (T) shall be used.

CONFIGURATION (DIMENSIONS IN mm)



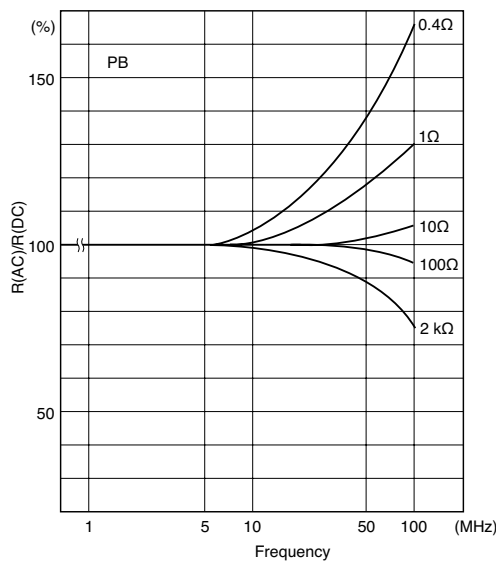
| Type | PB | PC |
|------|---------------|---------------|
| L | 40.0±0.2 | |
| L1 | 20.0±0.2 | |
| L2 | 30.0±0.5 | |
| W | 20.0±0.2 | |
| T | 5.0±0.2 | |
| T1 | 1.0±0.1 | |
| F | 15.0±0.5 | |
| ℓ | 30±10 | |
| D | Dia. 4.0 | |
| d | Dia. 0.8±0.05 | Dia. 1.2±0.05 |

POWER DERATING CURVE

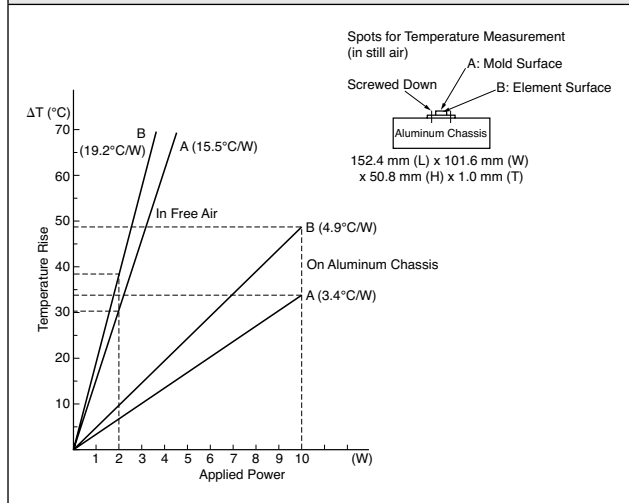


| PERFORMANCE | | | |
|--|---|--|--|
| Parameters | Test Condition | MIL-R-39009 Specification | ALPHA Typical Test Data |
| Maximum Rated Operating Temperature Working Temperature Range Maximum Working Voltage Maximum Working Current | | 25°C -55°C to +155°C 750V PB=5A, PC=32A | |
| Power Conditioning | 25°C, Rated Voltage, 96 hrs. | ±0.2% | ±0.2% |
| Low Temperature Storage Dielectric Withstanding Voltage Insulation Resistance Low Temperature Operation Overload Moisture Resistance Terminal Strength | -55°C, No Load, 24 hrs. Atmo. Pres.: AC 1 KV, 1 min. Baro. Pres. 8 mHg: AC 500V, 1min. DC 500V, 2 min. -55°C, Rated Voltage Rated Voltage x 2.5, 5 sec. +65°C to -10°C, 90% RH to 98% RH, Rated Voltage, 10 cycles (240 hrs.) 2.27 kg (5 pounds), 10 sec. | ±0.3% ±0.2% over 10,000 MΩ ±0.3% ±0.3% ±0.5% ±0.2% | ±0.005% ±0.005% over 10,000 MΩ ±0.005% ±0.01% ±0.05% ±0.005% |
| Shock Vibration, High Frequency | 100G, 6 ms., Sawtooth Wave, X, Y, Z, each 3 shocks 20G, 10 Hz to 2,000 Hz to 10 Hz, 20 min., X, Y, Z, each 4 hrs. | ±0.2% ±0.2% | ±0.005% ±0.005% |
| Life | 25°C, Rated Power, 1.5 hr. - ON, 0.5 hr. - OFF, 2,000 hrs. | ±1.0% | ±0.01% |
| High Temperature Exposure | 155°C, No Load, 2,000 hrs. | ±1.0% | ±0.01% |
| Solderability | 245°C, 5 sec. | over 95% coverage | |

FREQUENCY CHARACTERISTICS

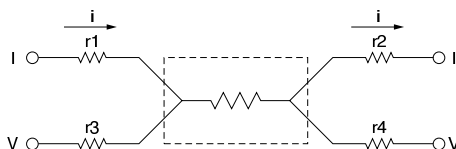


TEMPERATURE OF RESISTOR SURFACE



FOUR-TERMINAL RESISTOR

For low ohmic resistor (less than 10 ohm), the resistance value and TCR of the copper lead increases overall resistance value. Four-terminal (Kelvin) connection is recommended per the following figure. Loading current at terminals (V) causes measurement error.



AFFECT OF PB TYPE LEAD FOR RESISTANCE VALUE AND TCR

