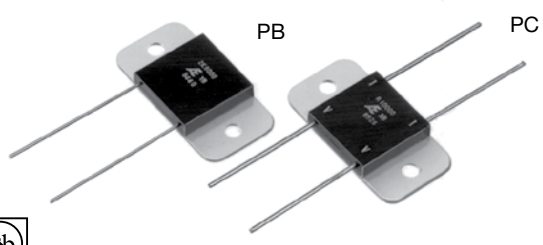
Ultra Precision Power Resistor (10 Watts)



Pb-free Available

RoHS COMPLIANT

COMPOSITION OF TYPE NUMBER

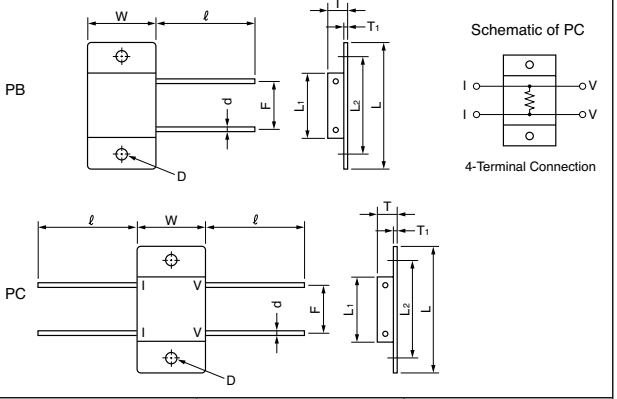
Example:

PB X 50R000 B

- B — Tolerance
- 50R000 — Resistance Value
- X — TCR
- PB — Type

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.

CONFIGURATION (DIMENSIONS IN mm)



Type	PB	PC
L	40.0±0.2	
L_1	20.0±0.2	
L_2	30.0±0.5	
W	20.0±0.2	
T	5.0±0.2	
T_1	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

TCR, RESISTANCE RANGE, TOLERANCE, RATED POWER

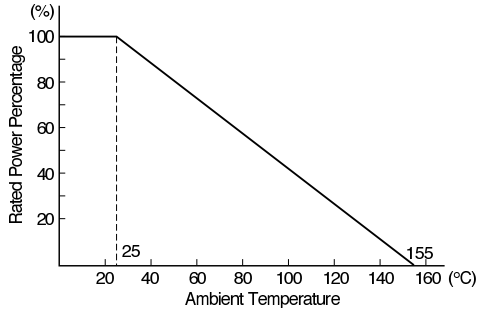
Type	TCR (ppm/°C) –25°C to 125°C*	Resistance Range (Ω)	Resistance Tolerance (%)*†	Rated Power (W) at 25°C
PB	0±15 (W)	0.4 to 1	1 to ±5 (F, G, J)	2 in free air and 10 On heat sink **
	0±15 (W) 0±5 (X) 0±2.5 (Y)	1 to 5	±0.5 to ±5 (D, F, G, J)	
		5 to 10	±0.1 to ±5 (B, D, F, G, J)	
		10 to 25	±0.05 to ±5 (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.

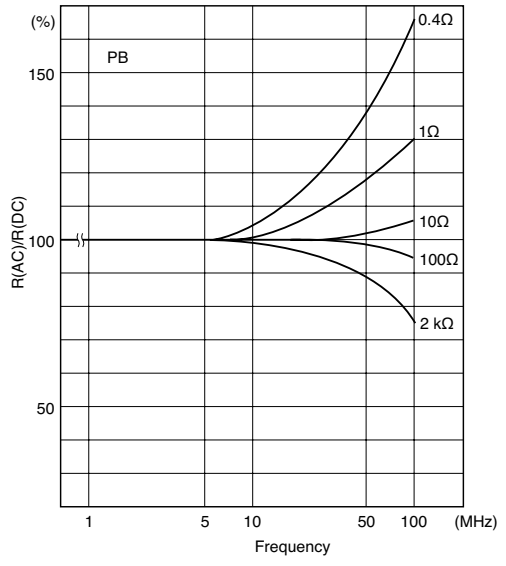
POWER DERATING CURVE



PERFORMANCE

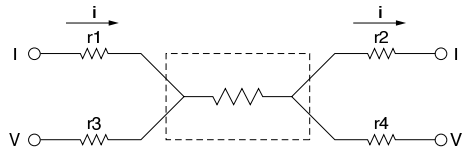
Parameters	Test Condition	MIL-R-39009 Specification	ALPHA Typical Test Data
Maximum Rated Operating Temperature **Working Temperature Range** **Maximum Working Voltage** **Maximum Working Current**		25°C –55°C to +155°C 750V PB=5A, PC=32A	
Power Conditioning	25°C, Rated Voltage, 96 hrs.	±0.2%	±0.2%
Low 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

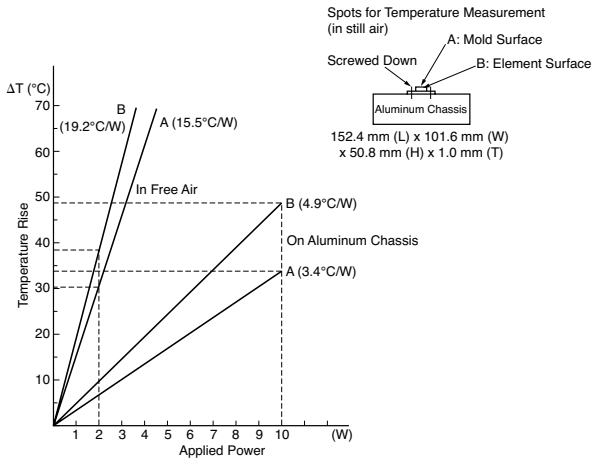


FOUR-TERMINAL RESISTOR

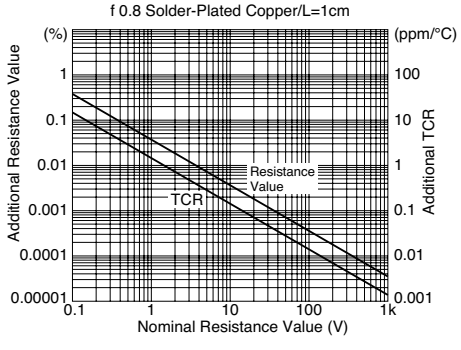
For low ohmic resistor (less than 10 ohm), the resistance value and TCR of the copper lead increases overall resistance value. Four-terminal (Kelvin) connection is recommended per the following figure. Loading current at terminals (V) causes measurement error.



TEMPERATURE OF RESISTOR SURFACE



AFFECT OF PB TYPE LEAD FOR RESISTANCE VALUE AND TCR



Resistance Value of Lead: 0.36V/cm
TCR of Lead: 3,900 ppm/°C