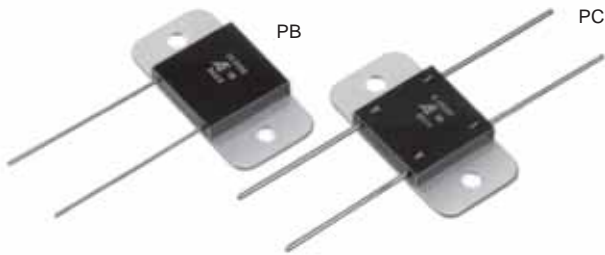


Ultra-Precision Power Resistor

(10 Watts)



Composition of Type Number

Example:

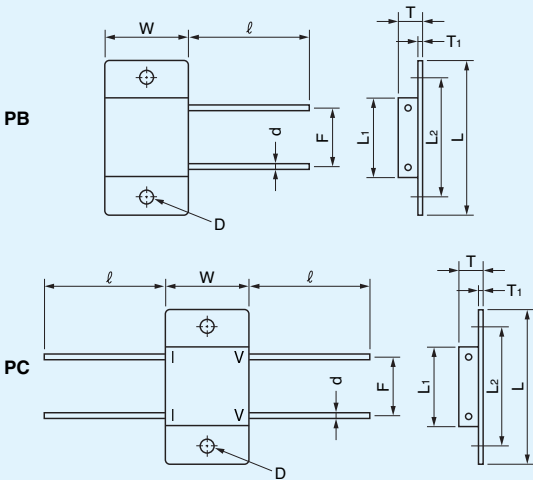
PB X 50R000 B

Diagram showing the breakdown of the type number PB X 50R000 B:

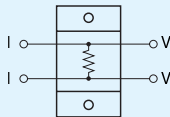
- Type: PB
- TCR: X
- Resistance Value: 50R000
- Tolerance: B

Resistance value, in ohm, is expressed by a series of six characters, five of which represent significant digits. The sixth 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



Schematic of PC



4-Terminal Connection

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	φ0.4	
d	φ0.8±0.05	φ1.2±0.05

Dimensions in mm

TCR, Resistance Range, Tolerance, Rated Power

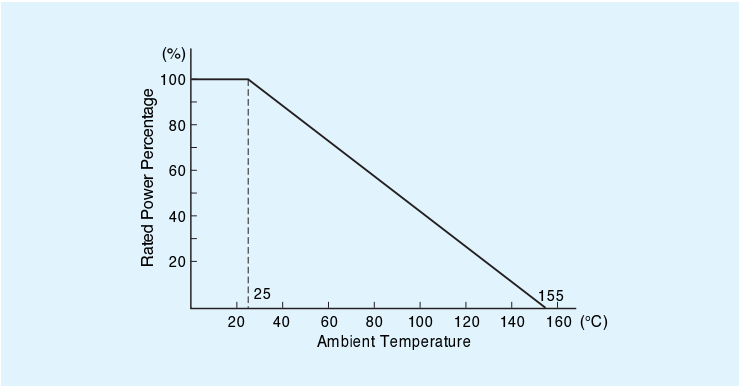
Type	TCR (ppm/°C) -55°C to +125°C	Resistance Range (Ω)	Resistance Tolerance (%)*	Rated Power (W) at 25°C
PB	0±15 (W) 0±5 (X) 0±2.5 (Y)	0.4 to 1	±1 to ±5 (F, G, J)	2 On heat sink**
		1 to 5	±0.5 to ±5 (D, F, G, J)	
		5 to 10	±0.1 to ±5 (B, D, F, G, J)	
		10 to 25	±0.05 to ±5 (A, B, D, F, G, J)	
		25 to 50	±0.02 to ±5 (Q, A, B, D, F, G, J)	
PC	0±15 (W) 0±5 (X)	50 to 50k	±0.01 to ±5 (T, Q, A, B, D, F, G, J)	10
		0.002 to 0.05	±0.5 to ±5 (D, F, G, J)	
	0±15 (W) 0±5 (X) 0±2.5 (Y)	0.05 to 0.1	±0.5 to ±5 (D, F, G, J)	
		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±3.2mm away from the root, but in case of resistance below 10 ohm, the values at 5.08±0.6mm away.

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

Power Derating Curve

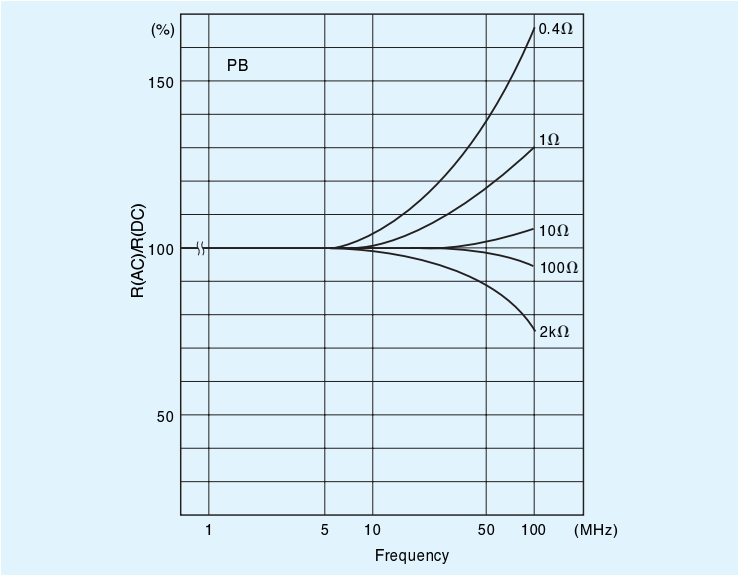




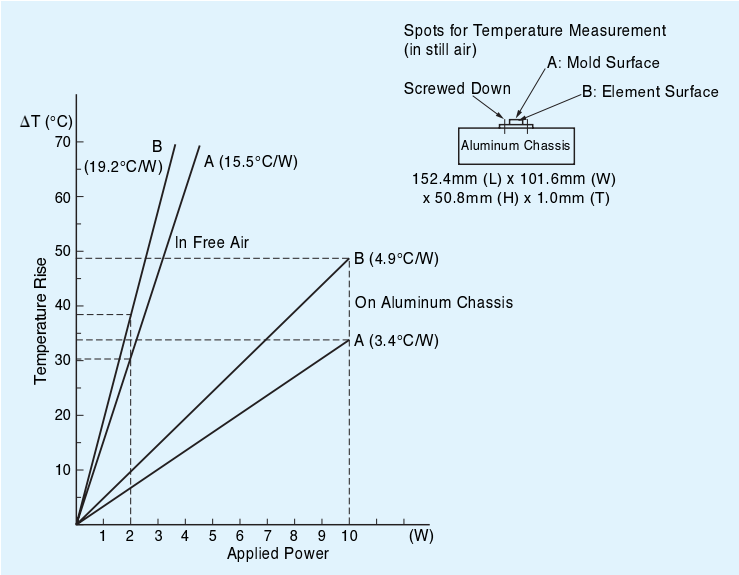
Performance

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%	±0.02%
Low Temperature Storage Dielectric Withstanding Voltage Insulation Resistance Low Temperature Operation Overload Moisture Resistance Terminal Strength	-55°C, No Load, 24 hrs. Atmospheric: AC 1KV, 1 min. Barometric: 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.) 2.27kg (5 pounds),10 sec.	±0.3% ±0.2% over 10,000MΩ ±0.3% ±0.3% ±0.5% ±0.2%	±0.005% ±0.005% over 10,000MΩ ±0.005% ±0.01% ±0.05% ±0.005%
Shock Vibration, High Frequency	100G, 6ms., Sawtooth Wave, X, Y, Z, each 3 shocks 20G, 10Hz to 2,000Hz to 10Hz, 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	over 95% coverage

Frequency Characteristics

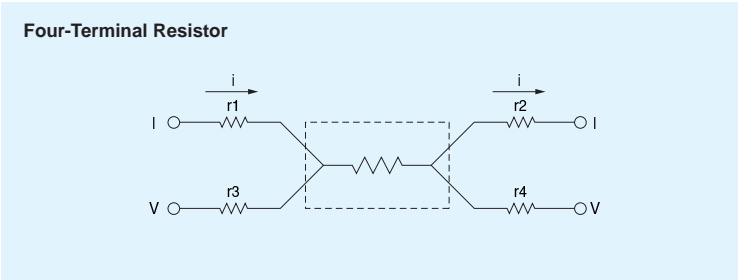


Temperature of Resistor Surface



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 voltage and current terminals (V, I) causes measurement error.



Affect of PB type lead for resistance value and TCR

