

Ultra-Precision Shunt Resistor (40 Watts)



PSB

Composition of Type Number

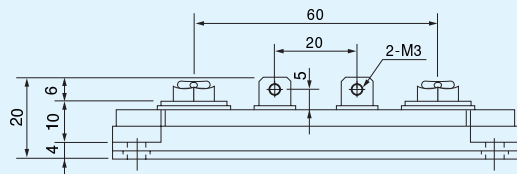
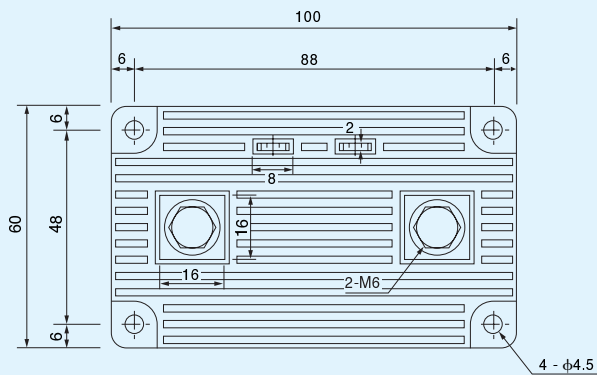
Example:

PSB X R0100 B

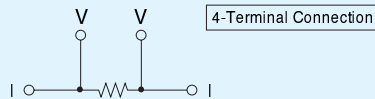
Tolerance
Resistance Value
TCR
Type

Resistance value in ohm is expressed by a series of four significant digits and an R designating the decimal point.

Configuration



Schematic of PSB Type



Dimensions in mm
Weight = 170g

Features

- Excellent temperature characteristics created by metal foil technology
- Accurate value on four-terminal wiring, even in low extremity of resistance
- High heat dissipation due to aluminum-clad construction with fins
- Readiness to mount to heat sink or water-cooled radiator
- Availability of threaded holes to fix cables with screw

Applications

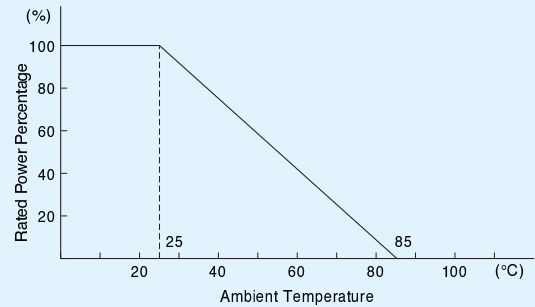
- Current-sensing in precise power supply, motor driver, etc

TCR, Resistance Range, Tolerance, Rated Power

TCR (ppm/°C) 0°C to +60°C	Resistance Range (Ω)	Resistance Tolerance (%)	Rated Power (W) at 25°C
0±15 (W)	0.001 to 0.005	±0.1 (B) ±0.5 (D) ±1 (F)	12 On heat sink*
0±5 (X) 0±15 (W)	0.005 to 1		40

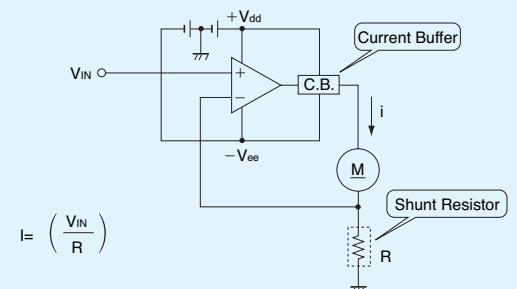
*Thermal resistance of the heat sink 1°C/W.
Available to use higher rated power with elevation of cooling effect.
Please keep temperature of surface less than 60°C.

Power Derating Curve



Example of Applications

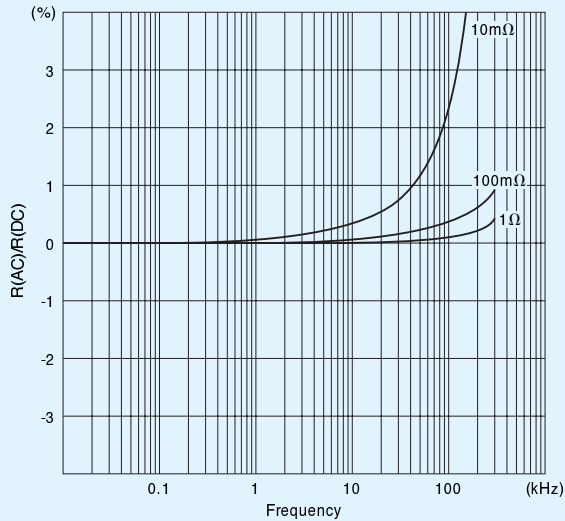
Motor Control Circuit Using Shunt Resistor



Performance

Parameters	Test Condition	ALPHA Specifications	ALPHA Typical Test Data
Maximum Rated Operating Temperature Working Temperature Range Maximum Working Current			25°C -55°C to +85°C 100 A
Power Conditioning	25°C, Rated Power, 96 hrs.	±0.1%	±0.05%
Low Temperature Storage and Operation	-55°C, No Load, 24 hrs.	±0.1%	±0.05%
Dielectric Withstanding Voltage Insulation Resistance Low Temperature Operation Overload	Atmospheric: AC 750V, 1 min. DC 500V, 2 min. -55°C, Rated Power Rated Power x 2.5, 5 sec.	±0.05% over 10,000MΩ ±0.1% ±0.1%	±0.01% over 10,000MΩ ±0.5% ±0.5%
Moisture Resistance	+65°C to -10°C, 90% RH to 98% RH, Rated Voltage, 10 cycles (240 hrs.)	±0.1%	±0.5%
Shock High Frequency Shock	30G, 11ms., Half-Sine Wave, X, Y, Z, 10 shocks each 10Hz to 50Hz to 10Hz, 1 min. X, Y, Z, 2.0 hrs. each	±0.05% ±0.05%	±0.01% ±0.01%
Life	25°C, Rated Power, 1.5 hrs. – ON, 0.5 hrs. – OFF, 2,000 hrs.	±0.2%	±0.05%
High Temperature Exposure	85°C, No Load, 2,000 hrs.	±0.2%	±0.05%
Storage Life	15°C to 35°C, 15% RH to 75% RH, No Load, 10,000 hrs.	±0.05%	±0.01%
Internal Thermal Resistance	Between resistive element and base plate		0.3°C/W
Thermal Electromotive Force			1μV/°C

Frequency Characteristics



Temperature of Resistor Surface

