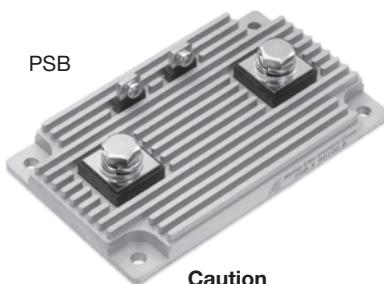


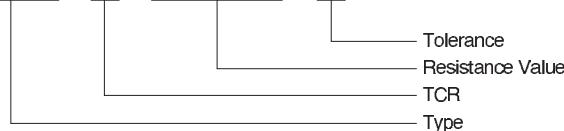
## Ultra Precision Shunt Resistor (40 Watts)

RoHS  
COMPLIANT**Caution**

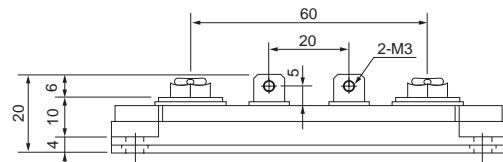
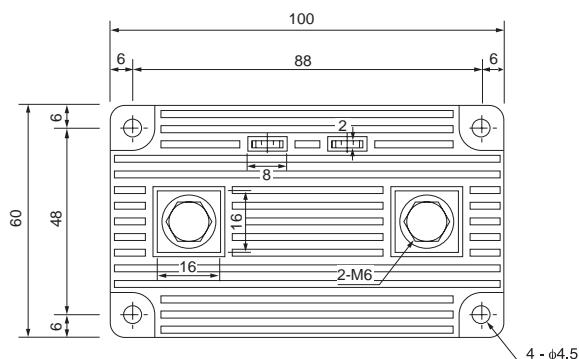
Please screw current terminals  
 $>5\text{N} \cdot \text{m}$ , voltage terminal  $>1\text{N} \cdot \text{m}$

**COMPOSITION OF TYPE NUMBER**

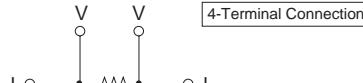
Example:

**PSB X R0100 B**

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

**CONFIGURATION (DIMENSIONS IN mm)**

## Schematic of PSB Type



Weight =170g

**FEATURES**

- Excellent temperature characteristics created by Bulk 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**

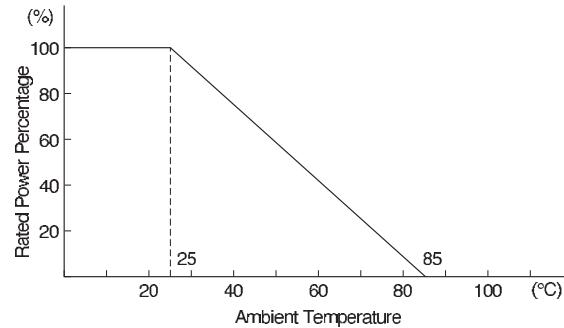
TCR (ppm/°C) 0°C to +60°C	Resistance Range (Ω)	Resistance Tolerance (%)	Rated Power (W) at 25°C
0±15 (W)	0.001 to 0.005**	±0.1 (B) ±0.5 (D) ±1 (F)	12 in free air and 40 On heat sink*
	0.005 to 1**		

\*Thermal resistance of the heat sink 1°C/W.

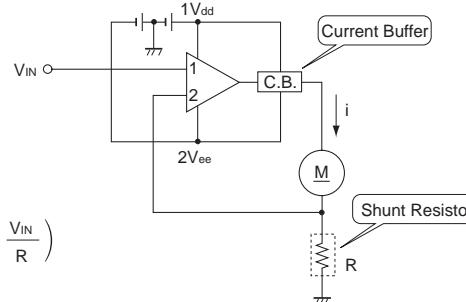
Available to use higher rated power with elevation of cooling effect.

Please keep temperature of element surface less than 60°C.

\*\*Please contact us for available resistance value

**POWER DERATING CURVE****EXAMPLE OF APPLICATIONS**

## Motor Control Circuit Using Shunt Resistor



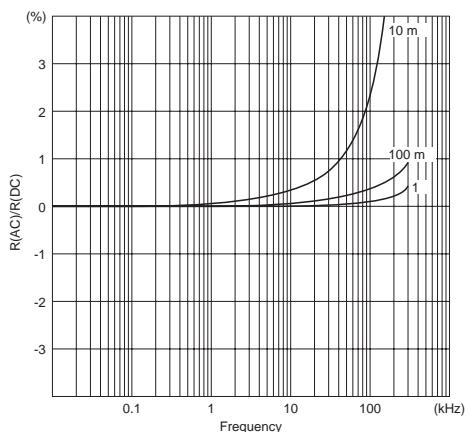
$$I = \left( \frac{V_{IN}}{R} \right)$$

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**PERFORMANCE**

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

**FREQUENCY CHARACTERISTICS**



**TEMPERATURE OF RESISTOR SURFACE**

