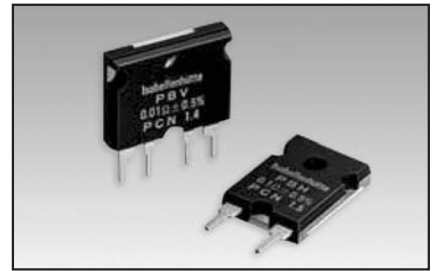


# Precision Shunt Resistors

- Max. 10W
- Tolerance: 0.5%
- TCR: 50ppm/°C

High power low resistance values and high precision. Low temperature coefficient. Excellent load life stability. Excellent short time over load. Ideal for current sensing applications.



## GENERAL SPECIFICATIONS

Model	Power Rating[W]		Resistance Range[Ω]	Resistance Tolerance(%)	Terminal	Operating Temperature	Temperature Coefficient (20°C~60°C)	Terminal Resistance To Base Plate	Weight [g]
	With Heat Sink	In Free Air							
PBV	10W	3W	0.5m~1	D [±0.5]** F [±1] J [±5]	4	-55°C~+125°C	±30ppm/°C (R > 10mΩ)	3°C/W (6K/W for R < 2mΩ)	5
PBH	10W	3W	2m~100		2		±50ppm/°C (R > 10mΩ)	4°C/W	3

\* 1) Restriction on temperature of resistance element: 125°C Max.

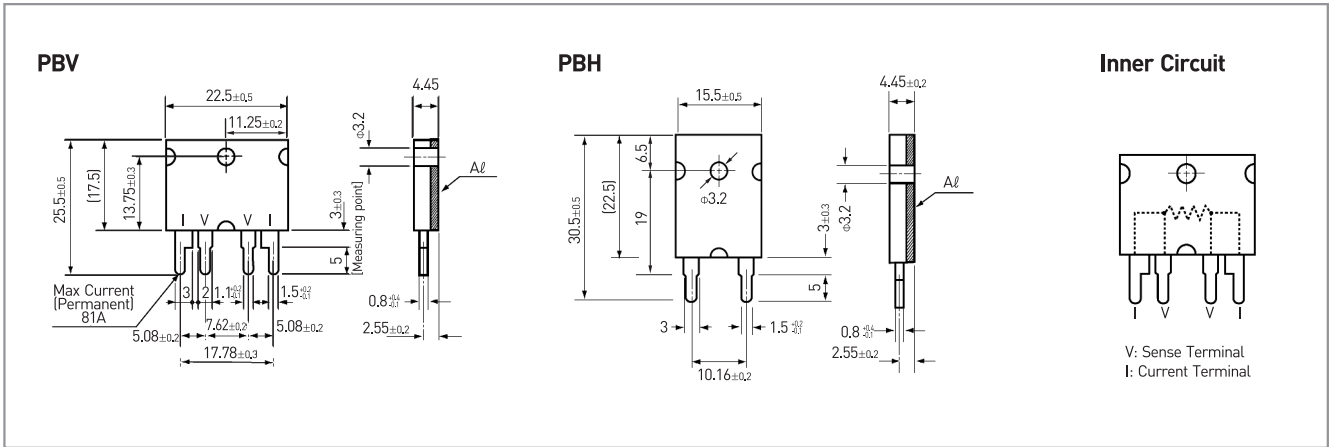
\*\* Tolerance 0.5% for values ≥ 10mΩ(PBH type)



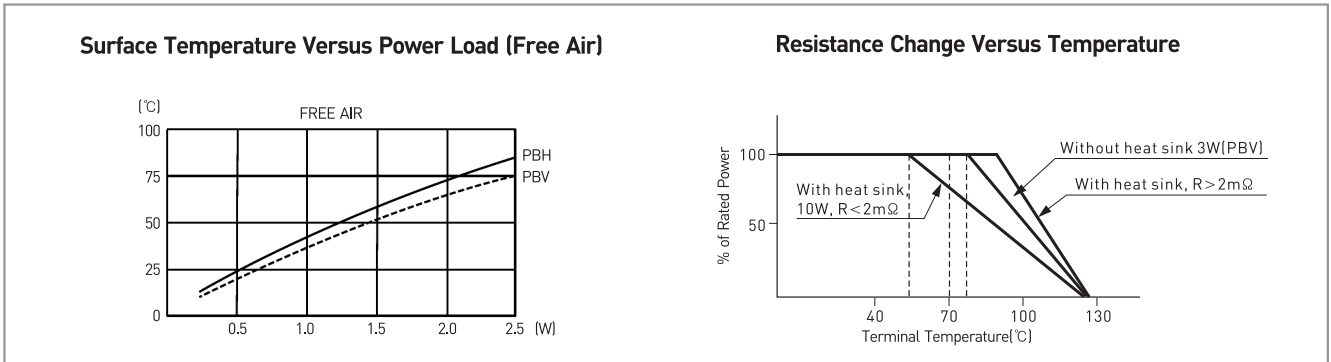
## CHARACTERISTICS

TEST	LIMIT	TYPICAL	CONDITION
Insulation Resistance	100MΩ minimum	10GΩ	DC 100V
Dielectric Withstanding Voltage	±0.02% maximum	0	AC 500V 1minute
Short Time Overload	±0.2% maximum	±0.5%	5 x Power rating 5seconds
Moisture Resistance	±0.1%	±0.1%	90~98% RH, +25°C, +65°C, -10°C, 10Cycles (10days)
Thermal Shock	±0.1% maximum	±0.1%	-65°C, 25°C, 125°C, 25°C 25Cycles
Shock	±0.2%	±0.1%	50g's 11ms
Vibration High Frequency	±0.2%	±0.05%	MIL-STD-202 method 204-B
Storage Life at Elevated Temperature	±0.3%	±0.2%	MIL-STD-202 method 108-F
Thermal EMF	2μV/°C maximum	2μV/°C	0°C~100°C
Frequency Characteristic	PBH: < 40 nH PBV: < 10 nH	< 40 nH < 10 nH	Inductivity
Resistance to Solvents	No Damage	No Damage	IPA 3minutes
Solderability	> 95% Coverage	≥99% Coverage	MIL-STD-202 method 208 245°C, 5seconds
Resistance to Soldering Heat	±0.1%	0.02%	MIL-STD-202 method 210 350°C, 3seconds
Terminal Strength	50N, ±0.02%	0.02%	50N, 5~10seconds
Load Life	±0.2%	±0.1%	Power rating 1.5 hours on, 0.5 hours off, 2000 hours
Stability (Nominal load) Deviation	Tk=Terminal temperature	< 0.5%	After 2000hours (Tk=70°C)

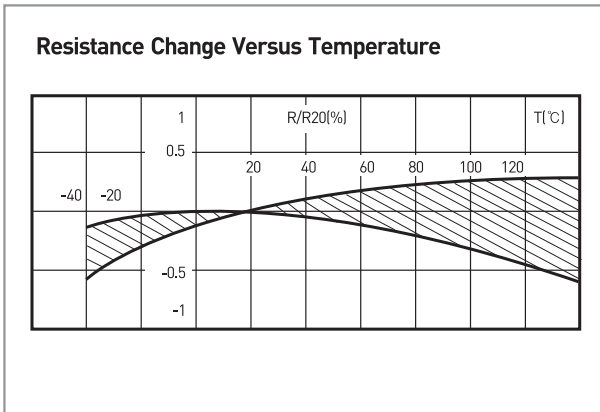
**DIMENSIONS [mm]**



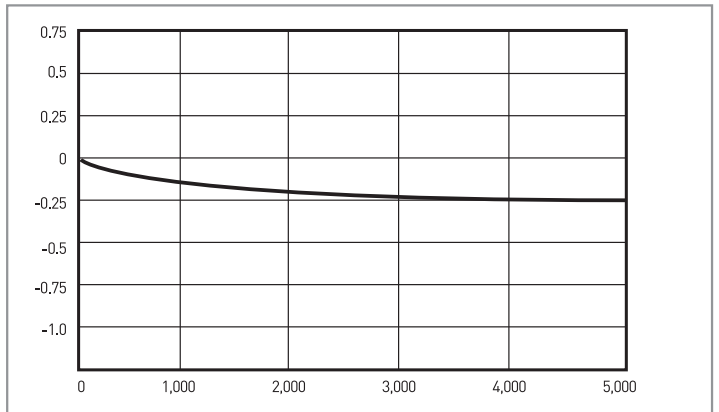
**SURFACE TEMPERATURE INCREASE VERSUS POWER LOAD AND DERATING CURVES**



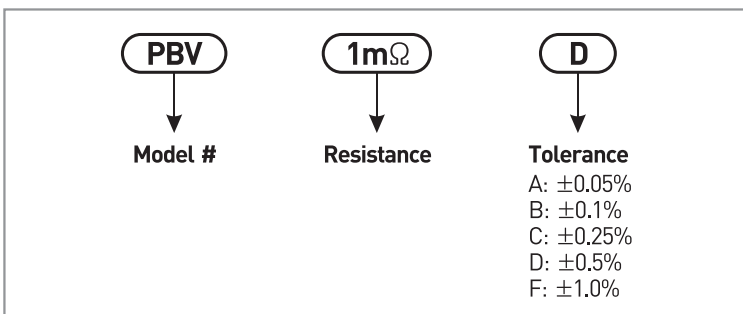
**CHARACTERISTIC CURVES**



**LONG TERM STABILITY OF MANGANIN RESISTOR AT 140°C**



**ORDERING PROCEDURE EXAMPLE**



**STANDARD RESISTANCES(STOCK)**

- 1, 1.5, 2, 2.2, 3.3, 4.7, 5, 6.8(mΩ): ±0.5%
- 10, 15, 20, 22, 33, 47, 50, 68(mΩ): ±0.5%
- 100, 150, 220, 330, 470, 680(mΩ): ±0.5%