

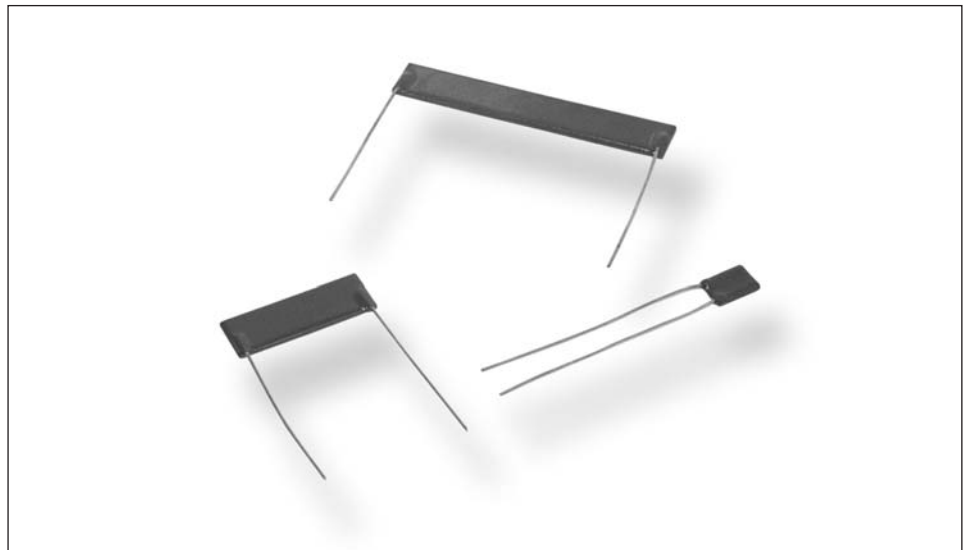
## Type HB Series

### Key Features

- Up to 15kV Element Voltage
  - Unique specification for the most demanding applications
- High Ratio of Size to Power
  - The solution to your PCB population problems
- 1kW to 1GW
  - Coupled with 1% tolerance gives ultimate design flexibility
- Established Product with Proven Reliability
- Low Inductance
  - For the fastest switching speeds

### Applications

- High Voltage
- Voltage Divider
- Surge
- Filter
- Balancing
- Inrush Limiting



TE Connectivity (TE) is a leading supplier of standard and custom designed high value/high voltage resistors for high voltage, industrial, control, medical and general-purpose use. The HB is a tough epoxy coated high voltage resistor, with axial or radial leads, values up to 1G Ohm and an operational voltage to 20kV as standard and 30kV to order. The resistors are made from quality materials for optimum reliability and stability. TE can test resistors to conform to relevant international, MIL or customer specifications. TE is happy to advise on the use of resistors for high frequency applications and to supply information for high voltage use.

### Characteristics - Electrical

	HBA	HB1	HB3
<b>Power Dissipation - Power @ 20°C (W):</b>	0.8	2.0	4.0
<b>@ 70°C:</b>	0.4	1.0	2.0
<b>Ohmic Value - Min (Ohms):</b>	1K	10K	10K
<b>Max:</b>	120M	1G	1G
<b>Resistance Tolerance (%) (Tighter By Request):</b>	1%, 2%, 5%	1%, 2%, 5%	1%, 2%, 5%
<b>Maximum Working Voltage - DC or ACrms (Volts):</b>	1kV	7.5kV	15kV
<b>Insulation Resistance - Epoxy Coated, @500V dc (Ohms):</b>	>10 <sup>9</sup> MΩ	>10 <sup>9</sup> MΩ	>10 <sup>9</sup> MΩ
<b>Load Stability - 1000hr's @ 70°C (%):</b>	±0.5%	±0.5%	±0.5%
<b>Temp. Rapid Change - -55°C to 125°C for 5 cycles (ΔR):</b>	±0.1%	±0.1%	±0.1%
<b>Endurance - 1000 Hours @ 200°C (ΔR):</b>	≤2%	≤2%	≤2%
<b>Resistance to Soldering Heat - 350°C for 3.5seconds (ΔR):</b>	0.05%	0.05%	0.05%
<b>Temperature Coefficient (ppm/°C):</b>	±100ppm/°C	±100ppm/°C	±100ppm/°C
<b>(±20ppm/°C available to special order)</b>			
<b>Voltage Coefficient:</b>	Negligible up to 100K		Negligible up to 200K
	Increasing to 0.02ppm/Volt at 800K		Increasing to 0.01ppm/Volt at 1M0
	Increasing to 1.0ppm/Volt at 5M0		Increasing to 1.0ppm/Volt at 10M
	Increasing to 2.0ppm/Volt at 50M		Increasing to 2.0ppm/Volt at 100M
	Increasing to 8.0ppm/Volt at 1000M		Increasing to 8.0ppm/Volt at 1000M
<b>Ambient Temperature Range (°C):</b>	-55 to 125	-55 to 125	-55 to 125
<b>Long Term Damp Heat (%):</b>	0.25%	0.25%	0.25%
<b>(Steady state 56 Days 95% RH at 40°C)</b>			
<b>Noise (Quantech) Dependent on Resistor Type and Value:</b>	-20dB (0.1μ V/V) at lower values +10dB (3.3μ V/V) at higher values		
<b>Encapsulation:</b>	Epoxy coating (Optional)		
<b>Solvent Resistance:</b>	Print will withstand the action of all commonly used industrial solvents.		
<b>Lead Material:</b>	Tinned copper wire		
<b>Lead Length:</b>	Minimum 20mm		
<b>Lead Diameter:</b>	Nominal 0.6 ± 0.05mm		

## Type HB Series

### Dimensions - Type HBA, HB1 & HB3 (Radial)



### Type HB1 & HB3 (Axial)



Type		A	B	C	D	E	F	G	H	I
HBA	Uncoated	10.2	7	1.75	60.2	5.0	-	-	-	-
	Epoxy Coated	12.5	8	2.6	60.5	5.0	-	-	-	-
HB1	Uncoated	8.4	26	1.5	33.8	22.9	26	66	1.5	8.4
	Epoxy Coated	10.4	26.5	3.0	35.8	22.9	26.3	66	3	9.2
HB3	Uncoated	8.4	51.1	1.5	33.8	48.3	51.1	91.1	1.5	8.4
	Epoxy Coated	10.4	52	3.0	35.8	48.3	53.5	91.1	3	9.6

### Derating Curve



### Surface Temperature Rise



### How to Order

HB	3	1K0	J	Z	R	E
<b>Common Part</b>	<b>Power Rating @ 70°C</b>	<b>Resistance Value</b>	<b>Tolerance</b>	<b>Temp. Coefficient of Resistance</b>	<b>Lead Style</b>	<b>Coating Styles</b>
HB- High Value / High Voltage Resistor	A - 0.4W 1 - 1.0W 3 - 2.0W	1Kohm (1000Ω) 1K0 1Mohm (1000000Ω) 1M0	F - 1% G - 2% J - 5%	Z - 100ppm	R - Radial Leads A - Axial Leads (HB1, HB3 only for Axial Leads)	E - Epoxy Blue Coating

TE Connectivity, TE connectivity (logo) and TE (logo) are trademarks.  
Other logos, product and Company names mentioned herein may be trademarks of their respective owners.

While TE has made every reasonable effort to ensure the accuracy of the information in this datasheet, TE does not guarantee that it is error-free, nor does TE make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE reserves the right to make any adjustments to the information contained herein at any time without notice. TE expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this datasheet are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE for the latest dimensions and design specifications.