

## ➤ Features

- 30Vdc max voltage
- RoHS compliant, lead-free and halogen-free
- Resettable feature
- Ideal for a broad range of general electronics using a low voltage power supply

## ➤ Applications

- Load protection on wide range of low voltage power supplies
- Computers, Computers peripherals
- General electronics

## ➤ Electrical Characteristics (25°C)

Part Number	I <sub>hold</sub>	I <sub>trip</sub>	V <sub>max</sub>	I <sub>max</sub>	P <sub>d typ</sub>	Time to trip		R <sub>i min</sub>	R <sub>1 max</sub>
	(A)	(A)	(V <sub>dc</sub> )	(A)	(W)	(A)	(Sec)	(Ω)	(Ω)
BH30-030	0.30	0.60	30	40	0.44	1.50	3.00	0.300	1.600
BH30-040	0.40	0.80	30	40	0.45	2.00	5.00	0.200	1.300
BH30-050	0.50	1.00	30	40	1.00	2.50	10.0	0.290	1.100
BH30-070	0.70	1.40	30	40	1.00	3.50	10.0	0.140	0.450
BH30-075	0.75	1.50	30	40	1.00	3.75	10.0	0.120	0.400
BH30-090	0.90	2.00	30	40	1.00	4.50	10.0	0.070	0.180
BH30-110	1.10	2.50	30	40	1.00	5.50	10.0	0.050	0.150
BH30-135	1.35	2.70	30	40	1.00	6.75	10.0	0.040	0.120
BH30-160	1.60	3.20	30	40	1.00	8.00	10.0	0.030	0.105
BH30-185	1.85	3.70	30	40	1.00	9.25	10.0	0.030	0.090
BH30-200	2.00	4.00	30	40	1.50	10.0	12.0	0.030	0.085
BH30-250	2.50	5.50	30	40	1.20	12.5	10.3	0.020	0.060
BH30-300	3.00	6.00	30	40	2.00	15.0	10.8	0.020	0.075
BH30-400	4.00	8.00	30	40	2.50	20.0	12.7	0.010	0.045
BH30-500	5.00	10.0	30	40	3.00	25.0	14.5	0.010	0.045
BH30-600	6.00	12.0	30	40	3.50	30.0	16.0	0.005	0.030
BH30-700	7.00	14.0	30	40	3.80	35.0	17.5	0.005	0.030
BH30-800	8.00	16.0	30	40	4.00	40.0	18.8	0.005	0.030
BH30-900	9.00	18.0	30	40	4.20	40.0	30.0	0.005	0.015

## ➤ Vocabulary

**I<sub>hold</sub>** = Hold current: maximum current device will pass without tripping in 25°C still air.

**I<sub>trip</sub>** = Trip current: minimum current at which the device will trip in 25°C still air.

**V<sub>max</sub>** = Maximum voltage device can withstand without damage at rated current (**I<sub>max</sub>**).

**I<sub>max</sub>** = Maximum fault current device can withstand without damage at rated voltage (**V<sub>max</sub>**).

**P<sub>d typ.</sub>** = Typical power dissipated from device when in the tripped state at 25°C still air.

**R<sub>min</sub>** = Minimum resistance of device in initial (un-soldered) state.

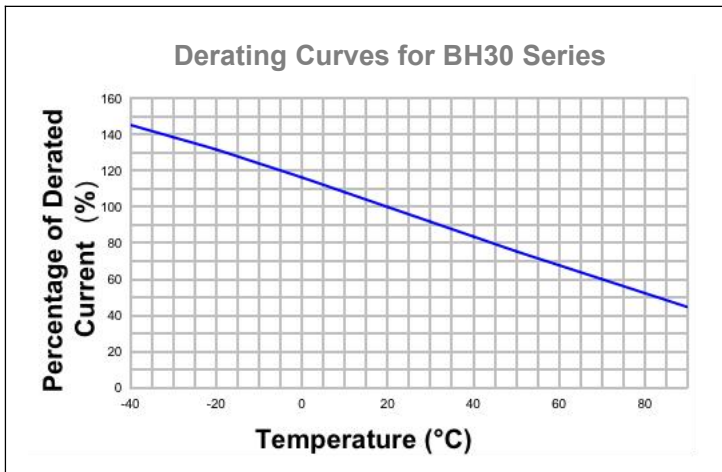
**R<sub>1max</sub>** = Maximum resistance of device at 25°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.

**Caution: Operation beyond the specified ratings may result in damage and possible arcing and flame.**

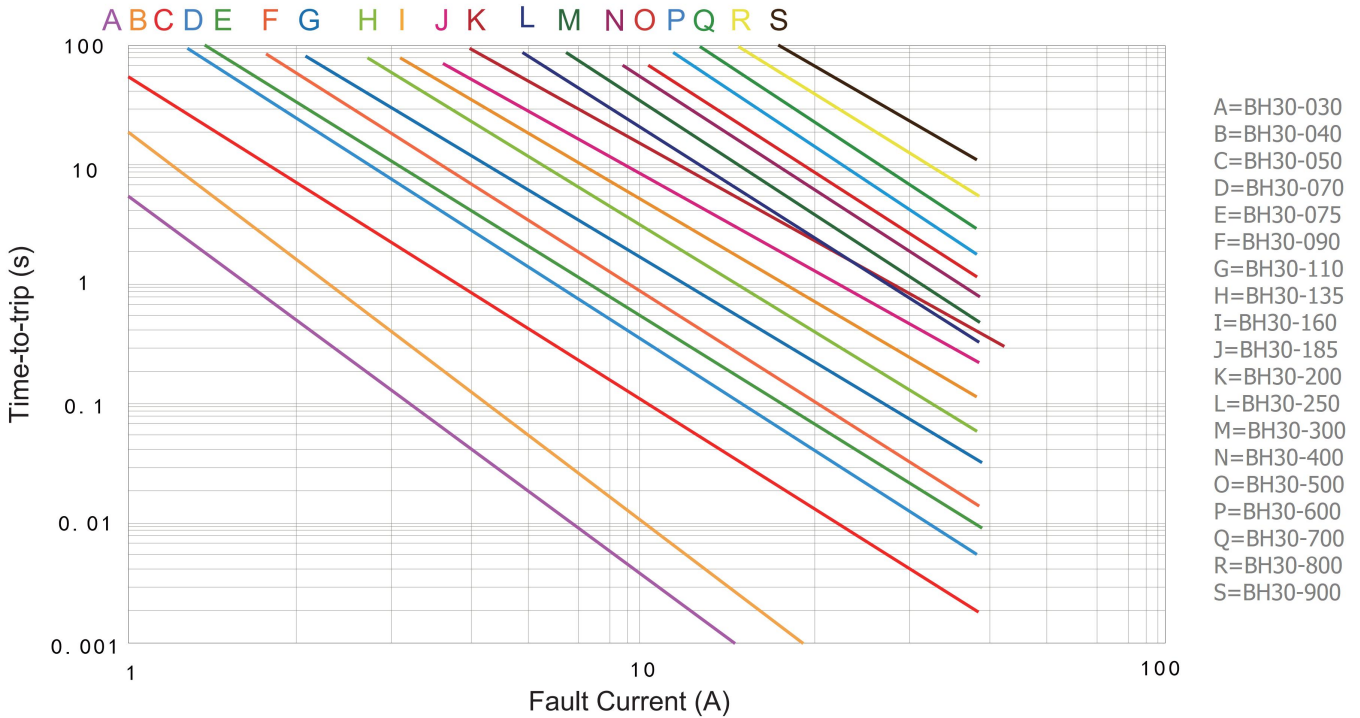
## ➤ Warning

- Users shall independently assess the suitability of these devices for each of their applications.
- Operation of these devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire.
- These devices are intended to protect against the effects of temporary over-current or over-temperature conditions and are not intended to perform as protective devices where such conditions are expected to be repetitive or prolonged in duration.
- Exposure to silicon-based oils, solvents, electrolytes, acids, and similar materials can adversely affect the prolonged of these PPTC devices.
- These devices undergo thermal expansion under fault conditions, and thus shall be provided with adequate space and be protected against mechanical stresses.
- Circuits with inductance may generate a voltage ( $L di/dt$ ) above the rated voltage of the PPTC device.

➤ Thermal Derating Curve



➤ Average Time-Current Curve



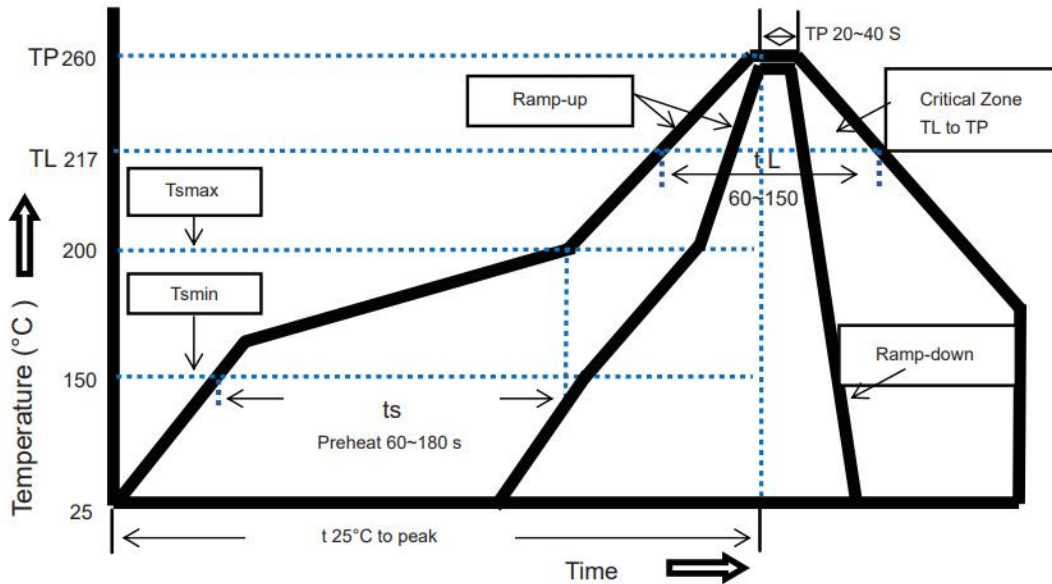
## ➤ Thermal Derating Chart

Part Number	Ambient operating temperature hold current( $I_{hold}$ )								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
BH30-030	0.435	0.402	0.348	0.300	0.252	0.228	0.210	0.183	0.150
BH30-040	0.580	0.536	0.464	0.400	0.336	0.304	0.280	0.244	0.200
BH30-050	0.725	0.650	0.575	0.500	0.420	0.380	0.350	0.305	0.250
BH30-070	1.015	0.910	0.805	0.700	0.588	0.532	0.490	0.427	0.350
BH30-075	1.088	0.975	0.863	0.750	0.630	0.570	0.525	0.458	0.375
BH30-090	1.305	1.170	1.035	0.900	0.756	0.684	0.630	0.549	0.450
BH30-110	1.595	1.430	1.265	1.100	0.924	0.836	0.770	0.671	0.550
BH30-135	1.958	1.755	1.553	1.350	1.134	1.026	0.945	0.824	0.675
BH30-160	2.320	2.080	1.840	1.600	1.344	1.216	1.120	0.976	0.800
BH30-185	2.683	2.405	2.128	1.850	1.554	1.406	1.295	1.129	0.925
BH30-200	2.900	2.680	2.320	2.000	1.680	1.520	1.400	1.220	1.000
BH30-250	3.625	3.250	2.875	2.500	2.100	1.900	1.750	1.525	1.250
BH30-300	4.350	3.900	3.450	3.000	2.520	2.280	2.100	1.830	1.500
BH30-400	5.800	5.200	4.600	4.000	3.360	3.040	2.800	2.440	2.000
BH30-500	7.250	6.500	5.750	5.000	4.200	3.800	3.500	3.050	2.500
BH30-600	8.700	7.800	6.900	6.000	5.040	4.560	4.200	3.660	3.000
BH30-700	10.15	9.100	8.050	7.000	5.880	5.320	4.900	4.270	3.500
BH30-800	11.60	10.40	9.200	8.000	6.720	6.080	5.600	4.880	4.000
BH30-900	13.05	11.70	10.35	9.000	7.560	6.840	6.300	5.490	4.500

## ➤ Environmental Specifications

Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hours	±5% typical
Humidity aging	+85°C, 85% R.H. , 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent	MIL-STD-202,Method 215	No change
Vibration	MIL-STD-202,Method 201	No change
Ambient operating conditions : - 40 °C to +85 °C		
Maximum surface temperature of the device in the tripped state is 125 °C		

➤ **Soldering Parameters**



Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate( $T_{s_{max}}$ to $T_p$ )	3°C/second max
Preheat	
-Temperature Min( $T_{s_{min}}$ )	150°C
-Temperature Max( $T_{s_{max}}$ )	200°C
-Time( $T_{s_{min}}$ to $T_{s_{max}}$ )	60~180 seconds
Time maintained above:	
-Temperature( $T_L$ )	217°C
-Time( $t_L$ )	60~150 seconds
Peak Temperature( $T_p$ )	260°C
Ramp-Down Rate	6°C/second max
Time 25°C to Peak Temperature	8 minutes max
Storage Condition	0°C~30°C,30%-60%RH

- Recommended reflow methods: IR, vapor phase oven, hot air oven, N<sub>2</sub> environment for lead-free.
- Recommended maximum paste thickness is 0.25mm.
- Devices can be cleaned using standard industry methods and solvents.

**Note 1:** All temperature refer to topside of the package, measured on the package body surface.

**Note 2:** If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

➤ **Physical Dimensions & Recommended Pad Layout (mm)**

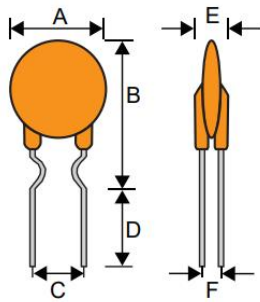


FIG 1

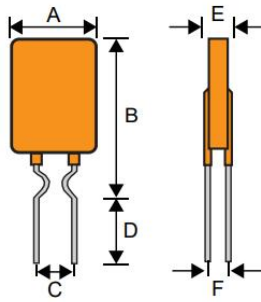


FIG 2

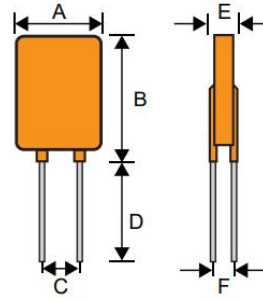


FIG 3

Part Number	Quantity	A	B	C	D	E	F	Lead	
		Max	Max	Typ	Min	Max	Typ	φ	FIG
BH30-030	500	7.0	12.8	5.1±0.5	7.6	4.4	1.0	0.6	1
BH30-040	500	7.0	12.8	5.1±0.5	7.6	4.4	1.0	0.6	1
BH30-050	500	7.4	14.0	5.1±0.5	7.6	3.0	1.0	0.5	1
BH30-070	500	7.4	15.0	5.1±0.5	7.6	3.0	1.0	0.5	2
BH30-075	500	7.4	15.0	5.1±0.5	7.6	3.0	1.0	0.5	2
BH30-090	500	7.4	16.5	5.1±0.5	7.6	3.0	1.0	0.5	2
BH30-110	500	7.4	16.5	5.1±0.5	7.6	3.0	1.0	0.5	2
BH30-135	500	8.9	15.5	5.1±0.5	7.6	3.0	1.1	0.6	2
BH30-160	500	8.9	17.3	5.1±0.5	7.6	3.0	1.1	0.6	2
BH30-185	500	10.2	18.2	5.1±0.5	7.6	3.0	1.1	0.6	2
BH30-200	500	9.0	15.5	5.1±0.5	7.6	4.4	1.1	0.6	2
BH30-250	500	11.4	20.4	5.1±0.5	7.6	3.0	1.1	0.6	2
BH30-300	500	11.4	17.3	5.1±0.5	7.6	3.0	1.3	0.8	3
BH30-400	500	14.0	20.2	5.1±0.5	7.6	3.0	1.3	0.8	3
BH30-500	500	14.0	25.0	10.2±0.5	7.6	3.0	1.3	0.8	3
BH30-600	500	16.5	25.1	10.2±0.5	7.6	3.0	1.3	0.8	3
BH30-700	500	19.1	27.8	10.2±0.5	7.6	3.0	1.3	0.8	3
BH30-800	500	21.6	29.9	10.2±0.5	7.6	3.0	1.3	0.8	3
BH30-900	500	25.5	29.9	10.2±0.5	7.6	3.0	1.3	0.8	3

➤ **Contact information**

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