产 品 承 认 书
Product Approval Sheet

编号 NO.	BDH-A/2-T
日期 Date	2023.05.23

客户 (Customer)	
品名 (Product)	PTC
系列 (Series)	BDH series

料号 (Part No.)		规格描述 (Specification)	备注 (Remark)
贝特电子 Betterfuse			
客户 Customer			

环保符合性说明 (Instructions for HSF)
本产品符合：☑ RoHS 2.0 ☑ HF ☑ REACH ☑ LEAD FREE ☐ 其他备注

供应商-贝特 Supplier-Better fuse		确认合格章 (Confirm qualified Signet)	客 户 (Customer)	零件承认章 (Approval Signet)
制 作 Make	黄鸿坤	东莞市贝特电子科技股份有限公司 开发部		
审 核 Check	高飞			
确 认 Approval	项伟荣			

联络 (Contact)			
业务 (Sales)	电话 (Telephone)	手机 (Cellphone)	邮箱 (E-mail)
零件承认后敬请回签一份给我司留存，或将承认后的封面回传至我司邮箱，谢谢！ Please sign a copy of the parts for our company or fax the acknowledged cover to our E-mail. Thanks!			

变更履历 Modified Information

序号 (No.)	日期 (Date)	修订内容 (Modified Content)	页码 (Page)	版本 (Edition)	制定人 (Prepared by)	审核人 (Checked by)
1	2022.07.07	Draft	/	A/0	Hongkun Huang	Fei Gao
2	2023.02.20	Add BDH-1500,BDH-2000	4,5	A/1	Hongkun Huang	Fei Gao
3	2023.05.23	Add BDH-1200 and Update time-to-trip curve	4,5,7	A/2	Hongkun Huang	Fei Gao

目 录 (Table of contents)

1. Features

- ✧ Radial leaded devices.
- ✧ Over-current protection
- ✧ High voltage surge capabilities
- ✧ Flame retardant epoxy polymer insulating material meets UL94 V-0 requirement.
- ✧ Available in lead-free version.
- ✧ Meets MSL level 1, per J-STD-020
- ✧ Operating Temperature: -40℃~+85℃

2. Applications

- ✧ IT equipment
- ✧ Access network equipment
- ✧ Central office equipment
- ✧ ISDN and xDSL equipments
- ✧ Phone set and fax machine
- ✧ LAN/WAN and VOIP cards

3. Agency Approval

Agency	Agency File Number	Ampere/Voltage Range
c UL us	E345393	

4. Size

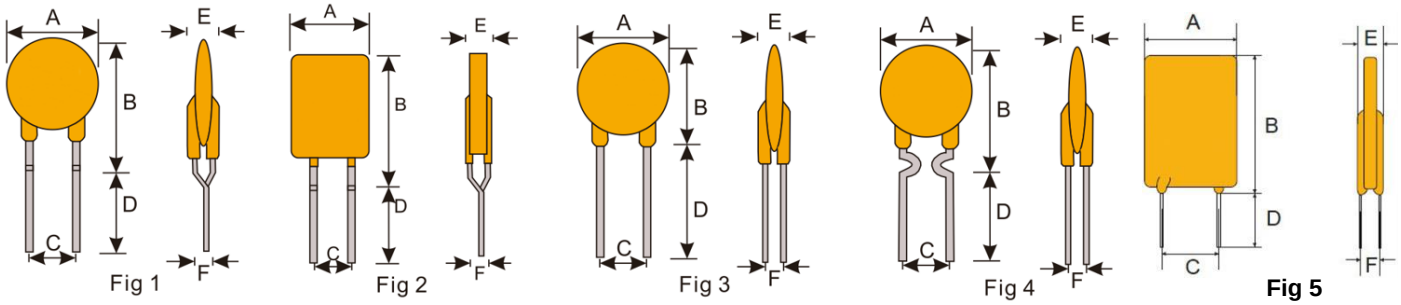


Fig 1 Fig 2 Fig 3 Fig 4 **Fig 5**

Part Number	Style	A	B	C	D	E	F	leda
		MAX	MAX	Typ	MIN	MAX	Typ	Φ
BDH-030	1	7.0	12.0	5.1	7.6	4.4	/	0.60
BDH-040	1	7.0	12.0	5.1	7.6	4.4	/	0.60
BDH-050	1	7.0	12.0	5.1	7.6	4.4	/	0.60
BDH-060	1	7.0	12.0	5.1	7.6	4.4	/	0.60
BDH-080	1	7.0	12.0	5.1	7.6	4.4	/	0.60
BDH-090	1	7.0	12.0	5.1	7.6	4.4	/	0.60
BDH-110	2	7.0	13.0	5.1	7.6	4.4	/	0.60
BDH-120	2	7.0	13.0	5.1	7.6	4.4	/	0.60
BDH-145	2	7.0	13.0	5.1	7.6	4.4	/	0.60
BDH-180	1	9.0	15.5	5.1	7.6	4.4	/	0.60
BDH-200	1	9.0	15.5	5.1	7.6	4.4	/	0.60
BDH-300	1	9.0	15.5	5.1	7.6	4.4	/	0.60
BDH-350	1	9.5	15.5	5.1	7.6	4.4	1.5	0.60
BDH-400	4	10.0	16.0	5.1	7.6	4.4	1.5	0.60
BDH-500	3	11.0	15.8	5.1	7.6	4.4	1.5	0.80
BDH-600	3	11.0	15.8	5.1	7.6	4.4	1.5	0.80
BDH-800	3	11.0	15.8	5.1	7.6	4.4	1.5	0.80
BDH-1000	3	14.0	19.1	5.1	7.6	4.4	1.5	0.80
BDH-1200	3	16.0	21.0	5.1	7.6	4.4	2.2	0.80
BDH-1500	5	14.7	26.7	5.1	7.6	4.4	2.2	0.80
BDH-2000	5	21.0	25.0	10.2	7.6	4.4	2.2	0.80

5. Electrical Characteristics

Part Number	Vmax	Imax	Ihold	Itrip	Pdmax	Max Time Tirp		Resistance	
	(V)	(A)	(A)	(A)	(W)	(A)	(s)	Rmin(Ω)	R1max (Ω)
BDH-030	250/265	3	0.03	0.06	1.0	0.15	10.0	40.00	135.00
BDH-040	250/265	3	0.04	0.08	1.0	0.20	10.0	33.00	97.50
BDH-050	250/265	3	0.05	0.10	1.0	0.75	10.0	24.00	90.00
BDH-060	250/265	3	0.06	0.12	1.0	0.30	10.0	22.00	48.00
BDH-080	250/265	3	0.08	0.16	1.0	0.40	10.0	14.00	33.00
BDH-090	250/265	3	0.09	0.18	1.0	0.45	10.0	10.00	30.00
BDH-110	250/265	3	0.11	0.22	1.0	0.55	15.0	7.00	16.50
BDH-120	250/265	3	0.12	0.24	1.0	0.60	15.0	8.00	18.00
BDH-145	250/265	3	0.145	0.29	1.0	0.725	15.0	3.50	9.75
BDH-180	250/265	3	0.18	0.50	1.0	1.00	15.0	0.80	3.00
BDH-200	250/265	3	0.20	0.40	1.5	1.00	15.0	1.50	4.80
BDH-300	250/265	3	0.30	0.60	1.5	1.50	15.0	1.00	3.75
BDH-350	250/265	3	0.35	0.70	1.5	1.75	10.0	0.80	2.25
BDH-400	250/265	3	0.40	0.80	2.5	2.00	10.0	0.75	1.65
BDH-500	250/265	5	0.50	1.00	2.5	2.50	15.0	0.50	1.20
BDH-600	250/265	5	0.60	1.20	3.0	3.00	10.0	0.50	1.13
BDH-800	250/265	5	0.80	1.60	3.5	4.00	10.0	0.45	1.05
BDH-1000	250/265	5	1.00	2.00	4.0	5.00	10.0	0.28	0.77
BDH-1200	250	10	1.20	2.40	4.2	6.00	15.0	0.17	0.42
BDH-1500	250	10	1.50	3.00	5.0	7.50	25.0	0.13	0.375
BDH-2000	250	10	2.00	4.00	5.0	10.0	25.0	0.12	0.285

6. Parameter interpretation

- ✧ IH = Hold current: maximum current device will pass without tripping in 25˚C still air.
- ✧ IT = Trip current: minimum current at which the device will trip in 25˚C still air.
- ✧ VMAX = Maximum voltage device can withstand without damage at rated current.
- ✧ IMAX = Maximum fault current device can withstand without damage at rated voltage.
- ✧ RMAX = Maximum resistance of device in initial (un-soldered) state.
- ✧ RMIN = Minimum resistance of device in initial (un-soldered) state.
- ✧ Pd typ. = Typical power dissipation from device when in the tripped state at 25˚C still air.

7. Polymeric PTC selecting guide

- ✧ Determine the following operating parameters for the circuits:
  - Normal operating current (Ihold)
  - Maximum interrupt current (Imax)
  - Maximum circuit voltage (Vmax)
  - Normal operating temperature surrounding device (min°C/max°C)
- ✧ Select the device from factor and dimension suitable for the application
- ✧ Compare the maximum rating for Vmax and Imax of the PPTC device with the circuit in application and make sure the circuit's requirement does not exceed the device rating.
- ✧ Check that PPTC device's trip time (time-to-trip) will protect the circuit.
- ✧ Verify that the circuit operating temperature is within the PPTC device's normal operating temperature range.
- ✧ Verify that performance and suitability of the chosen PPTC device in the application.

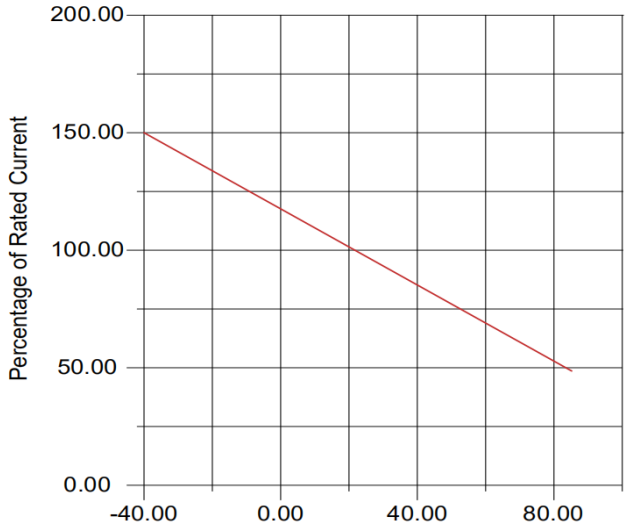
8. Warning

- ✧ Mechanical Stress
  - PPTC devices will undergo a thermal expansion during fault condition. If PPTC devices are installed or placed in an application where the space between PPTC devices and the surrounding materials (e.g., covering materials, packaging materials, encapsulate materials and the like) is insufficient, it will cause an inhibiting effect upon the thermal expansion. Pressing, twisting, bending and other kinds of mechanical stress will also adversely affect the performance of the PPTC devices, and shall not be used or applied.
- ✧ Chemical Pollutants
  - Silicone-based oils, oils, solvents, gels, electrolytes, fuels, acids, and the like will adversely affect the properties of PPTC devices, and shall not be used or applied.
- ✧ Electronic and Thermal Effect
  - PPTC devices are secondary protection devices and are used solely for sporadic, accidental over-current or over-temperature error condition, and shall NOT be used if or when constant or repeated fault conditions (such fault conditions may be caused by, among others, incorrect pin-connection of a connector) or over-extensive trip events may occur.
  - PPTC devices are different from fuses and, when a fault condition occurs, will go into high-resistance state and do not open circuit, in which case the voltage at such PPTC devices may reach a hazardous level.
  - Operation over the maximum rating or other forms of improper use may cause failure, arcing, flame and/or other damage to the PPTC devices.
  - Conductive material contamination, such as metal particle, may induce shortage, flame or arcing.
  - Due to the inductance, the operation circuits may generate a circuit voltage (Ldi/dt) above the rated voltage of PPTC devices, which shall not be used under such circumstances.
- ✧ General
  - Customers shall evaluate and test the properties of PPTC devices independently to verify and ensure that their individual applications will be met.
  - The performance of PPTC devices will be adversely affected if they are improperly used under electronic, thermal

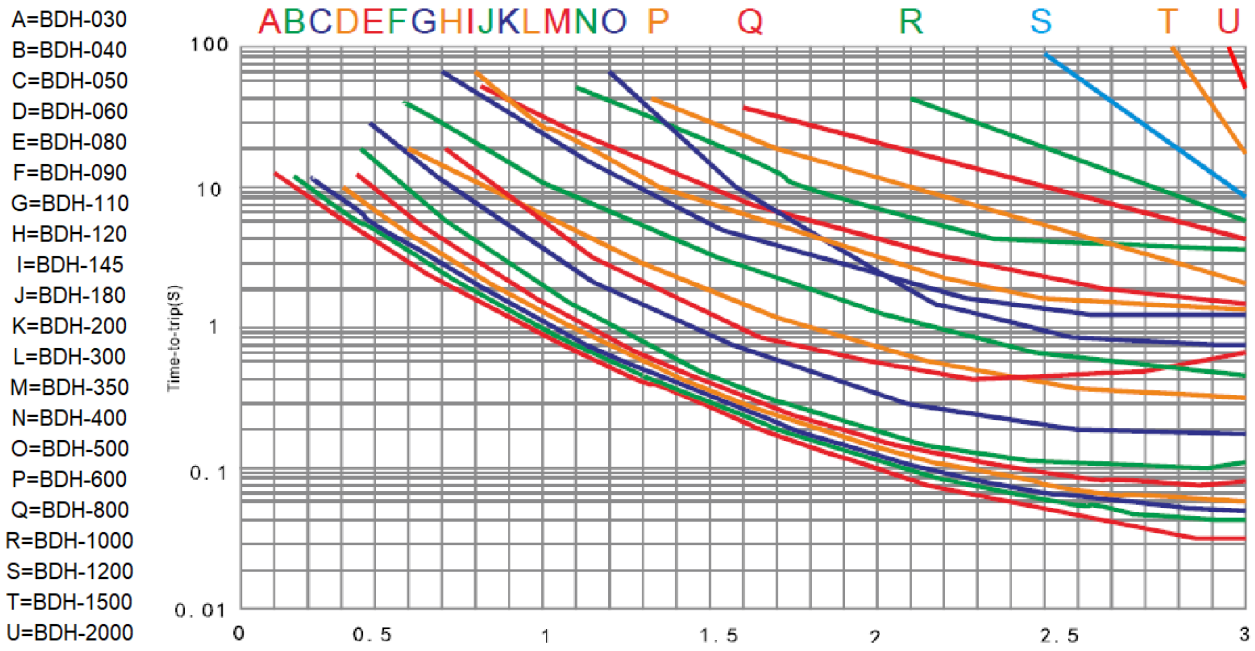
and/or mechanical procedures and/or conditions non-conformant to those recommended by manufacturer.

- Customers shall be responsible for determining whether it is necessary to have back-up, failsafe and/or fool-proof protection to avoid or minimize damage that may result from extra-ordinary, irregular function or failure of PPTC devices.
- Any and all responsibilities and liabilities are disclaimed if any item under this notice of warning is not complied with.

9. Thermal derating curve



10. Typical time-to-trip at 25℃±2℃



11. Storage recommendations

- ✧ Storage Temperature: -10˚C~+40˚C
- ✧ Relative Humidity: ≤80%RH
- ✧ Keep away from corrosive atmosphere and sunlight.
- ✧ Period of Storage: 1 year.