BAOZHU
ELECTRIC APPLIANCE
宝珠电器

TB11 型热保护器
技术规格书

TECHNICAL SPECIFICATION
FOR THERMAL PROTECTOR TB11

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TB11型热保护器技术规格书

Technical Specification Of TB11 Thermal Protector

1 产品用途 Usage

TB11 型热保护器具有体积小、外壳绝缘、动作灵敏、寿命长等特点，广泛适用于风扇电机、洗衣机电机。TB11 既可直接连接绕组，也可以通过夹紧或插入方式安装在树脂密封的电机外部。它可直接切断电路。TB11 内部可嵌入 PTC，即增加了自持功能，因此可降低搅拌机等旋转类设备因自动复位而突然重新启动的风险。

TB11 thermal protector has the characteristics of small volume, insulation, sensitive action and long life, which is widely used in fan motor and washing machine motor. TB11 can be directly connected to the winding, or can be clamped or inserted outside the resin sealed motor. It can cut off the circuit directly. The PTC can be embedded in TB11, that is to say, the self-supporting function is added, so the risk of sudden restart of rotating equipment such as mixer due to automatic reset can be reduced.

2 外形和结构: Appearance and structure：

塑壳尺寸 Plastic Shell Size	18.9mm (L) *7.Omm (W) *3.7mm (H)
铁壳尺寸 Metal Shell Size	19.3mm (L) *6.5mm (W) *3.7mm (H)
陶瓷外壳尺寸 Ceramic Shell Size	19.4mm (L) *8.2mm (W) *5.0mm (H)

3 性能 PRODUCT PERFORMANCE

3.1 额定电流：RATED CURRENT

3.1.1 普通型 Common type

17A/DC12V、15A/DC24V、13A/AC115V、11A/AC250V

3.1.2 自持型 Self sustaining type

（产品动作后，自动保持触点断开状态；只有切断电源后冷却到室温时，触点恢复到闭合状态）

(after the product acts, the contact will automatically keep open; only when the power is cut off and cooled to room temperature, the contact will return to the closed state)

3.1.2.1 高压型 High pressure type

13A/AC115V、11A/AC250V

3.1.1.2 低压型 Low pressure type

17A/DC12V、15A/DC24V、8A/DC60V

3.2 温度特性：Temperature characteristics:

3.2.1 普通型 Common type

动作温度 Operating temperature：30℃～160℃　　复位温度 Reset temperature20℃～115℃(See Table 1)

3.2.2 自持型 Self sustaining type

动作温度 Operating temperature：45℃～130℃　　复位温度 Reset temperature20℃～65℃(See Table 1)

3.3 抗拉力试验:产品的引线端应能承受大于或等于 20N 拉力,导线无断裂、滑出。

TENSION TEST: Lead wire can bear over 20N tension without any cracking or sliding out.

3.4 绝缘电压:Insulation voltage:

3.4.1 普通型 Common type

a.产品在断开时的引线之间应能承受 AC500V,历时 1min 而无击穿闪络现象

a.When the product is disconnected, the lead wires should be able to withstand AC500V for 1min without breakdown and flashover

b.产品引线与绝缘外壳之间能承受 AC1800V,历时 1S 而无击穿闪络现象;

b.The product lead and insulation shell can withstand AC1800V for 1s without breakdown and flashover;

3.4.2 自持型 Self sustaining type

3.4.2.1 高压型 High pressure type

a.产品在断开时的引线之间应能承受 AC500V,历时 1min 而无击穿闪络现象;

a.When the product is disconnected, the lead wires should be able to withstand AC500V for 1min without breakdown and flashover

b.产品引线与绝缘外壳之间能承受 AC1800V,历时 1S 而无击穿闪络现象;

b.The product lead and insulation shell can withstand AC1800V for 1s without breakdown and flashover;

3.4.2.2 低压型 Low pressure type

a.产品在断开时的引线之间应能承受 AC250V,历时 1min 而无击穿闪络现象;

a.When the product is disconnected, the lead wires should be able to withstand AC250V for 1min without breakdown and flashover

b.产品引线与绝缘外壳之间能承受 AC1800V,历时 1S 而无击穿闪络现象;

b.The product lead and insulation shell can withstand AC1800V for 1s without breakdown and flashover;

3.5 绝缘电阻:在正常条件下,引线与绝缘外壳之间的绝缘电阻在 100MΩ以上。(所用表计为 DC500V 兆欧表)

INSULATION RESISTANCE ≥ 100M Ω (between lead wire and insulation shell in normal condition) (DC500Vmegohmmeter)

3.6 接触电阻:产品的接触电阻应不大于 50mΩ。

CONTACT RESISTANCE≤50mΩ

3.7 耐高温试验:产品置于高于额定动作温度 20℃的空气环境中保持 96h。

HIGH TEMPERATURE TEST:96h in the air environment 20℃ more than rated action temperature.

3.8 耐低温试验:产品置于-40℃空气环境中保持 96h（不适合自持型）。

LOW TEMPERATURE TEST: 96h in the air environment of -40℃.(not suitable for self sustained type)

3.9 抗振试验: 热保护器应能承受振幅 1.5mm,频率变化 10～55Hz，扫描变化周期 3～5 次/min，振动方向 X、Y、Z，每个方向各连续振动 2h。

ANTI VIBRATION TEST: amplitude: 1.5mm, frequency variation:10～55Hz，scan cycle: 3～5times/min，direction of vibration: 2h from X, 2h from Y and 2h from Z separately.

3.10 跌落试验:产品自 0.7m 高度自由落下 1 次，动作/复位温度无明显漂移。

DROP TEST: Products drop from 0.7m height 1 time without obvious action/reset temperature drift.

3.11 抗压试验:产品应能承受 100N 静压力 1min。

COMPRESSION TEST: 100N static pressure for 1min.

3.7,3.8,3.9,3.10,3.11 项试验后应满足下列条件:

Following conditions must be met after test 3.7,3.8,3.9,3.10,3.11:

a.断开温度变化应在初期值的+7℃以内;

a.Open temperature tolerance should be less than +7℃.

b.接触电阻应在 100mΩ以下;

b.Contact resistance≤100mΩ

c.外形应无明显变形;

c.No obvious deformation.

d.导线无开裂损伤。

d. Lead wire without any cracking or damage.

4 寿命 Endurance

产品在额定电压、电流、功率因数为 0.7 的条件下,外加热源使其动作 6000 次,应满足下面条件:

In the conditions of rated voltage/current and 0.7 of power factor, after 6000 times action cycle by external heating, following conditions should be met:

a.断开温度变化应在初始值的±5℃以内;

a.Open temperature tolerance should be less than +5℃

b.接触电阻应在 100mΩ以下;

b. Contact resistance≤100mΩ

继续试验至 10000 次后能动作。

Endurance＞ 10000 times

其它事项:Others:

断开温度检测的升温速率应控制为 1℃/1min;

Temperature ramp should be controlled at 1℃/1min during open temperature test.

使用过程中产品不能承受强烈冲击力及压迫力;

Strong Shocking or pressing is forbidden during application.

环境温度 Environment temperature:

自持型 ambient temperature: self sustaining type

高压型使用环境温度：环境温度不得低于-20℃；

High pressure environment temperature: the ambient temperature shall not be lower than - 20 ℃;

低压型使用环境温度：环境温度不得低于-10℃。

Low pressure environment temperature: the ambient temperature shall not be lower than - 10 ℃

5. 型号规格说明:model specification:

- 普通型
  - 常闭型
    - 塑壳/陶瓷 TB11-BB5D-XXXX℃ (XXXX℃—额定断开温度)
    - 铁壳 TB11-BB1D-XXXX℃ (XXXX℃—额定断开温度)
  - 常开型
    - 塑壳 TB11-KA5D-XXXX℃ (XXXX℃—额定闭合温度)
    - 铁壳 TB11-KA1D-XXXX℃ (XXXX℃—额定闭合温度)
- 自持型
  - 高压型常闭型
    - 塑壳 TB11-BY5D-XXXX℃ (XXXX℃—额定断开温度)
    - 铁壳 TB11-BY1D-XXXX℃ (XXXX℃—额定断开温度)
  - 低压型常闭型 TB11-BY5L-XXXX℃ (XXXX℃—额定断开温度)

- Common type
  - NC type
    - Plastic shell / ceramic TB11-BB5D-XXXX℃ (XXXX℃—Rated breaking temperature)
    - Metal shell TB11-BB1D-XXXX℃ (XXXX℃—Rated breaking temperature)
  - NO type
    - Plastic shell TB11-KA5D-XXXX℃ (XXXX℃—Rated closing temperature)
    - Metal shell TB11-KA1D-XXXX℃ (XXXX℃—Rated closing temperature)
- Self sustaining type
  - High pressure type normally closed type
    - Plastic shell TB11-BY5D-XXXX℃ (XXXX℃—Rated breaking temperature)
    - Metal shell TB11-BY1D-XXXX℃ (XXXX℃—Rated breaking temperature)
  - Low pressure type normally closed type TB11-BY5L-XXXX℃(XXXX℃—Rated breaking temperature)

6.获取证书:Certificate

VDE Certificate no.：40039391
CQC Certificate no：CQC12002086117
TUV Certificate no.：B1082010001
ISO9001 Certificate no：00120Q34918R5M/3200
UL Certificate no：E305764
CB Certificate no.：CN43082
KC Certificate no.：ZU02062-18001

表格 1(适用普通型）
Table 1 (for ordinary type)

序号 No.	断开温度 open temperature	闭合温度 closed temperature	序号 No.	断开温度 open temperature	闭合温度 closed temperature
30	30±4℃	≥20℃	95	95±5℃	70±15℃
35	35±4℃	≥25℃	100	100±5℃	70±15℃
40	40±4℃	≥30℃	105	105±5℃	75±15℃
45	45±4.5℃	≥33℃	110	110±5℃	75±15℃
50	50±5℃	≥35℃	115	115±5℃	80±15℃
55	55±5℃	42±6℃	120	120±5℃	85±15℃
60	60±5℃	45±8℃	125	125±5℃	85±15℃
65	65±5℃	48±10℃	130	130±5℃	90±15℃
70	70±5℃	50±12℃	135	135±5℃	95±15℃
75	75±5℃	53±14℃	140	140±5℃	100±15℃
80	80±5℃	55±15℃	145	145±5℃	100±15℃
85	85±5℃	60±15℃	150	150±5℃	105±15℃
90	90±5℃	65±15℃	155	155±5℃	110±15℃

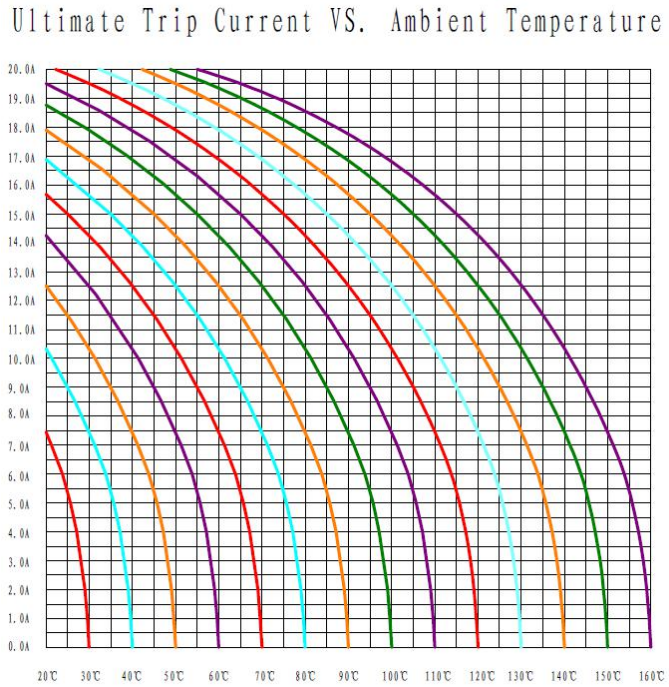
表格 2(适用自持高压型--电机保护
Table 2 (Suitable for self supporting high pressure type-- motor protection)

序号 No.	断开温度 open temperature	闭合温度 closed temperature	序号 No.	断开温度 open temperature	闭合温度 closed temperature
30	30±3℃	≥20℃	90	90±5℃	45±15℃
35	35±3.5℃	≥25℃	95	95±5℃	45±15℃
40	40±4℃	≥30℃	100	100±5℃	45±15℃
45	45±4.5℃	≥33℃	105	105±5℃	45±15℃
50	50±5℃	≥35℃	110	110±5℃	45±15℃
55	55±5℃	42±6℃	115	115±5℃	45±15℃
60	60±5℃	45±8℃	120	120±5℃	45±15℃
65	65±5℃	45±10℃	125	125±5℃	45±15℃
70	70±5℃	45±12℃	130	130±5℃	45±15℃
75	75±5℃	45±14℃	135	135±5℃	45±15℃
80	80±5℃	45±15℃	140	140±5℃	45±15℃
85	85±5℃	45±15℃			

表格 3(适用自持低压型---电池保护）
Table 3 (Suitable for self sustained low voltage type--Battery protection)

序号 No.	断开温度 open temperature	闭合温度 closed temperature	序号 No.	断开温度 open temperature	闭合温度 closed temperature
30	30±3℃	≥20℃	70	70±5℃	45±12℃
35	35±3.5℃	≥25℃	75	75±5℃	45±14℃
40	40±4℃	≥30℃	80	80±5℃	45±15℃
45	45±4.5℃	≥33℃	85	85±5℃	45±15℃
50	50±5℃	≥35℃	90	90±5℃	45±15℃
55	55±5℃	42±6℃	95	95±5℃	45±15℃
60	60±5℃	45±8℃	100	100±5℃	45±15℃
65	65±5℃	45±10℃			

TB11 with AWG#18 wire leads/U.T.C



Short Time Trip-TB11