

# BRBT1608CWFA

Rev.A Jan.-2024

## 描述 / Descriptions

TO-220F 塑封封装 双向可控硅。

Triac in a TO-220F Plastic Package.

## 特征 / Features

中电流可控硅，低通态压降，高可靠性和稳定性，热敏电阻特性低。

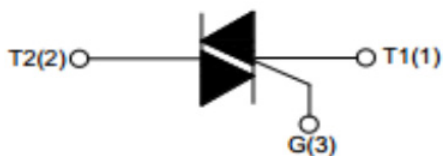
Medium current triac, Low on state voltage drop, High reliability and stability, Low thermal resistance.

## 用途 / Applications

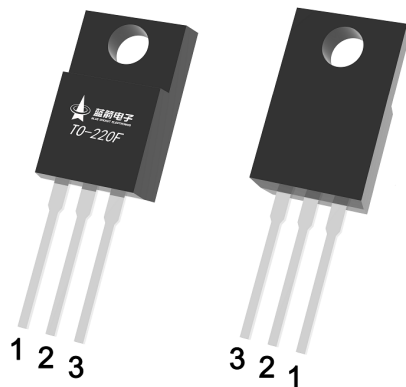
适用于一般用途交流开关。如固态继电器、加热调节、异步电动机起动电路、电机速度控制器等。

Suitable for general purpose AC switching .Such as static relays, heating regulation, induction motor starting circuits, motor speed controllers, etc.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN1 : Main Terminal 1    PIN 2 : Main Terminal 2    PIN 3: Gate

## 印章代码 / Marking

见印章说明。

See Marking Instructions.

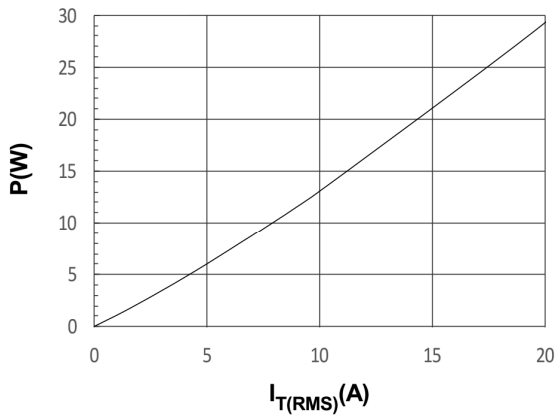
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Repetitive peak off-state/reverse voltages(T <sub>j</sub> =25°C)	V <sub>DRM</sub> /V <sub>RPM</sub>	800	V
RMS on-state current(T <sub>C</sub> ≤73°C)	I <sub>T(RMS)</sub>	16	A
Non repetitive surge peak on-state current(full cycle, T <sub>j</sub> =25°C)	I <sub>TSM(t=20ms)</sub>	160	A
I <sup>2</sup> t value for fusing(T <sub>j</sub> =25°C)	I <sup>2</sup> t <sub>(tp=10ms)</sub>	128	A <sup>2</sup> s
Critical rate of rise of on-state current (I <sub>G</sub> =2I <sub>GT</sub> , f=120Hz T <sub>j</sub> =125°C)	dI/dt I-II-III	50	A/μs
Peak gate current(t <sub>p</sub> =20μs T <sub>j</sub> =125°C)	I <sub>GM</sub>	4	A
Average gate power dissipation(T <sub>j</sub> =125°C)	P <sub>G(AV)</sub>	0.5	W
Operating junction temperature range	T <sub>j</sub>	-40~125	°C
Storage junction temperature range	T <sub>stg</sub>	-40~150	°C
Junction to ambient(AC)	R <sub>th(j-a)</sub>	60	°C/W
Junction to case for(AC)	R <sub>th(j-c)</sub>	2.3	

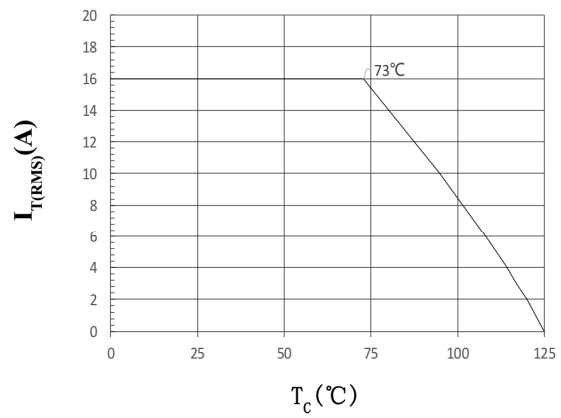
**电性能参数 / Electrical Characteristics(Tj=25°C)**
**免缓冲器和逻辑电平 ( 3象限 ) / Snubberless and logic level ( 3 quadrants)**

符号 Symbol	测试条件 Test Conditions	信号区 Quadrant	数值 Value		单位 Unit
I <sub>GT</sub>	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	I-II-III	Max.	35	mA
V <sub>GT</sub>	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	I-II-III	Max.	1.3	V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3KΩ T <sub>j</sub> =125°C	I-II-III	Min.	0.2	V
I <sub>L</sub>	I <sub>G</sub> =1.2I <sub>GT</sub>	I-III	Max.	50	mA
		II		70	
I <sub>H</sub>	I <sub>T</sub> =500mA		Max.	50	mA
(dV/dt)	V <sub>D</sub> =67% V <sub>DRM</sub> Gate Open	T <sub>j</sub> =125°C	Min.	1000	V/μs
V <sub>TM</sub>	I <sub>TM</sub> =23A t <sub>p</sub> =380μs	T <sub>j</sub> =25°C	Max.	1.55	V
I <sub>DRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> V <sub>R</sub> =V <sub>RPM</sub>	T <sub>j</sub> =25°C		10	μA
I <sub>RPM</sub>		T <sub>j</sub> =125°C		1	mA

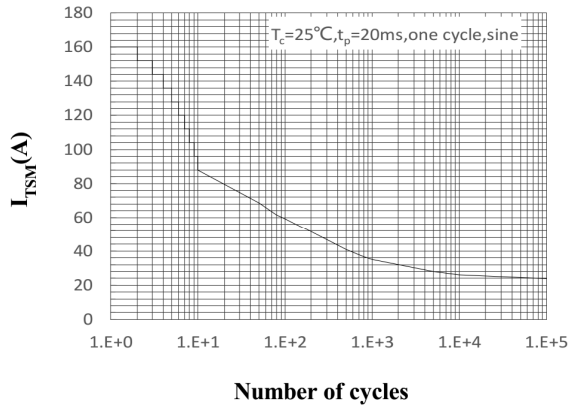
## 电参数曲线图 / Electrical Characteristic Curve



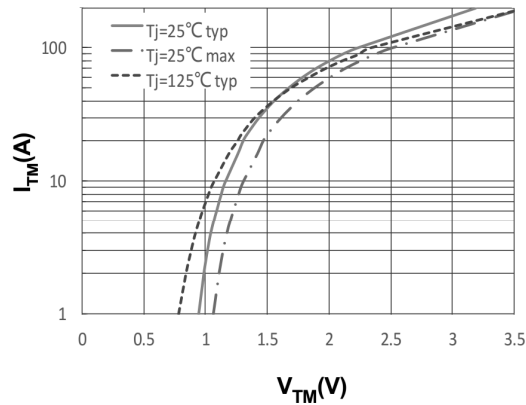
**FIG.1** Maximum power dissipation versus RMS on-state current



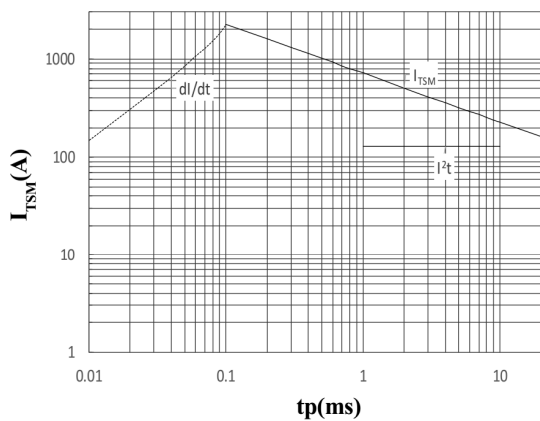
**FIG.2:** RMS on-state current versus case temperature



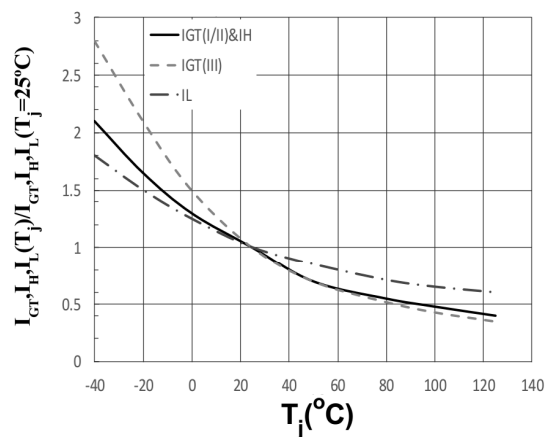
**FIG.3:** Surge peak on-state current versus number of cycles



**FIG.4:** On-state characteristics



**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 100\text{A}/\mu\text{s}$ )

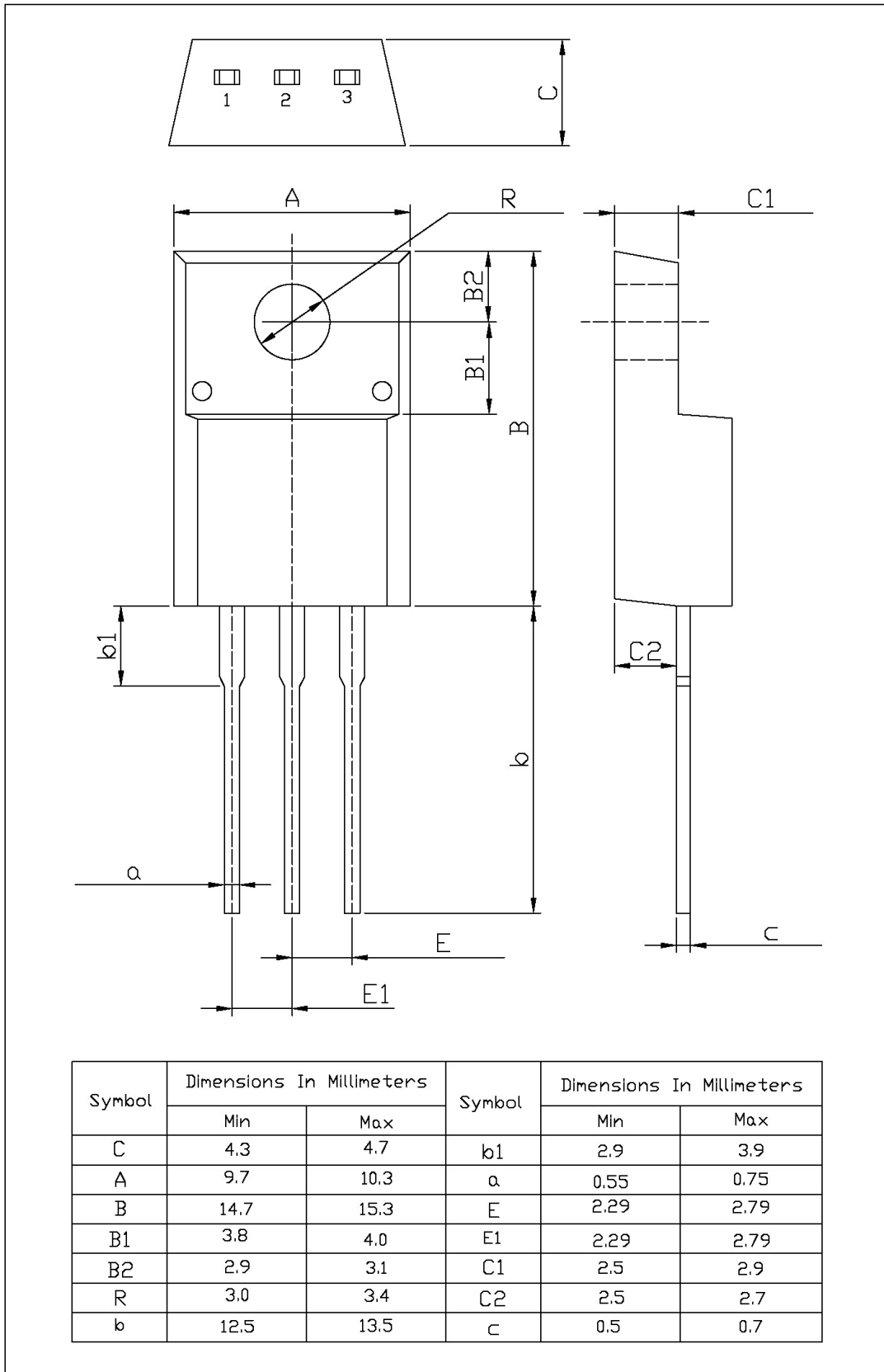


**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature

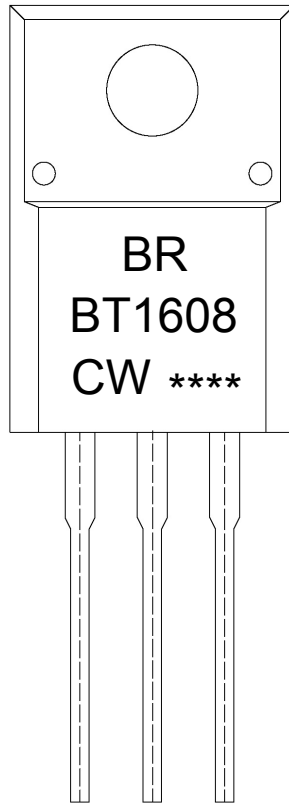
外形尺寸图 / Package Dimensions

TO-220F

单位: mm



## 印章说明 / Marking Instructions



说明：

BR： 为公司代码

BT1608： 为型号代码

CW： 为 I<sub>GT</sub> 分档代码

\*\*\*\*： 为生产批号代码，随生产批号变化

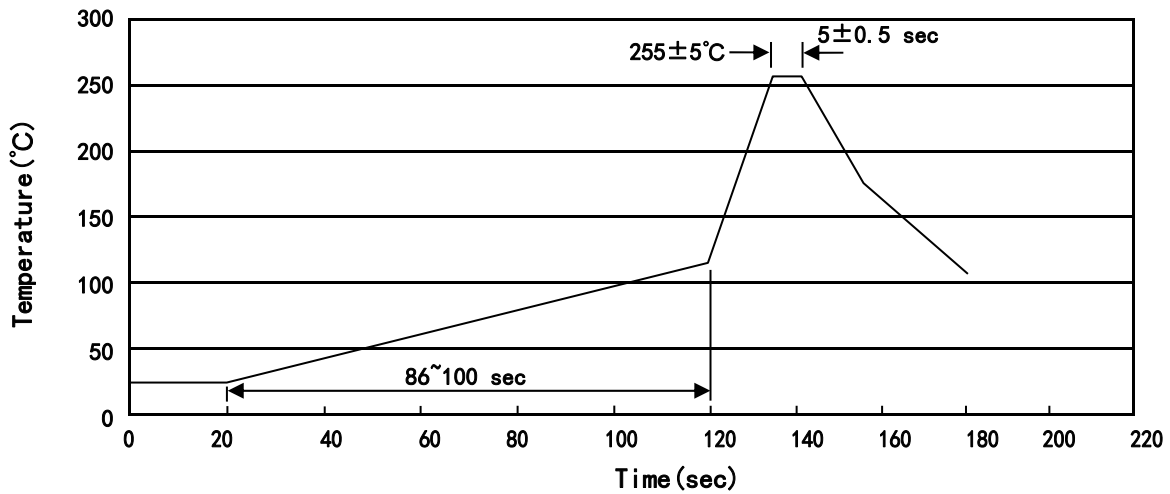
Note:

BR: Company Code

BT1608: Product Type Code

CW: I<sub>GT</sub> Bracket code

\*\*\*\*: Lot No. Code, code change with Lot No

**波峰焊温度曲线图(无铅) / Temperature Profile for Dip Soldering(Pb-Free)**


说明：

- 1、预热温度 25~150°C，时间 60~90sec;
- 2、峰值温度 255±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

- 1.Preheating:25~150°C, Time:60~90sec.
- 2.Peak Temp.:255±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

**耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions**

温度：270±5°C

时间：10±1 sec.

Temp.:270±5°C

Time:10±1 sec

**包装规格 / Packaging SPEC.**

散件包装 / BULK

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Bag 只/袋	Bags/Inner Box 袋/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Bag 袋	Inner Box 盒	Outer Box 箱
TO-220/F	200	10	2,000	5	10,000	135×190	237×172×102	560×245×195

套管包装 / TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-220/F	50	20	1,000	5	5,000	532×31.4×5.5	555×164×50	575×290×180

**使用说明 / Notices**