

# BT138

Rev.G Jul.-2018

## 描述 / Descriptions

TO-220 塑封封装 双向可控硅。 Triac in a TO-220 Plastic Package.

## 特征 / Features

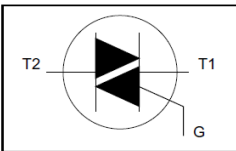
采用玻璃钝化技术，采用环氧塑脂塑料封装，四个信号区都可以满足高灵敏度需要。  
glass passivated, sensitive gate triacs in a plastic envelope, where high sensitivity is required in all four quadrants.

## 用途 / Applications

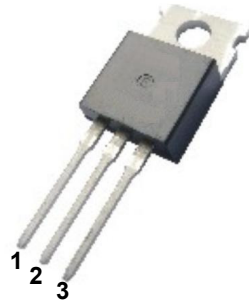
用于一般双向开关和相位控制。

Use in general purpose bidirectional switching and phase control applications.

## 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

## 放大及印章代码 / $h_{FE}$ Classifications & Marking

见印章说明。 See Marking Instructions.

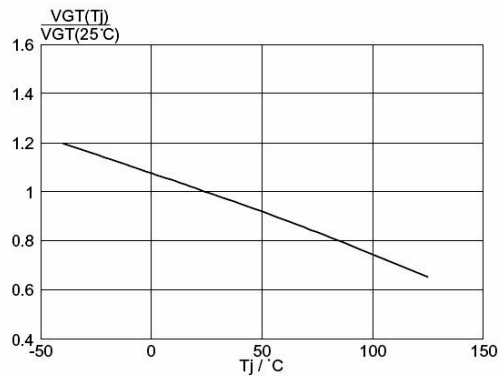
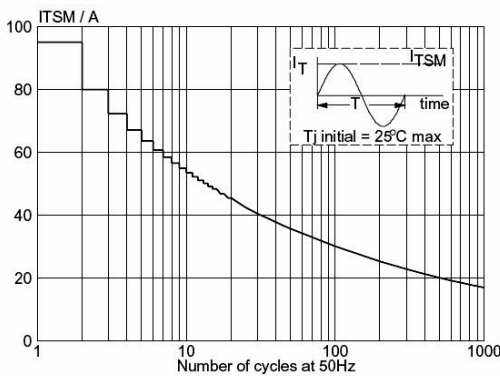
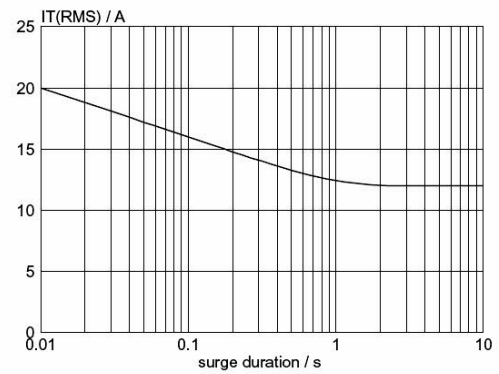
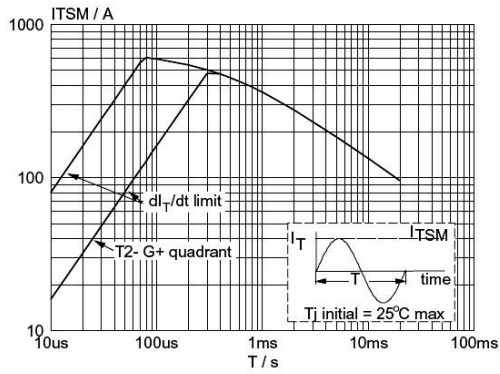
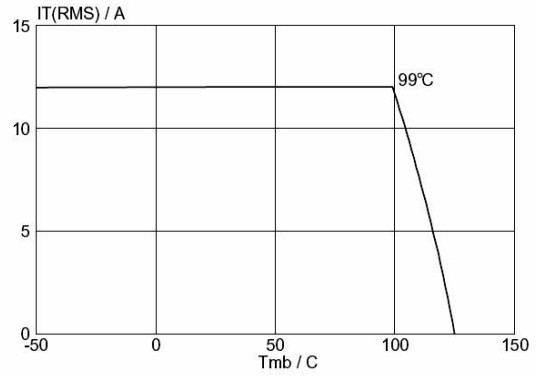
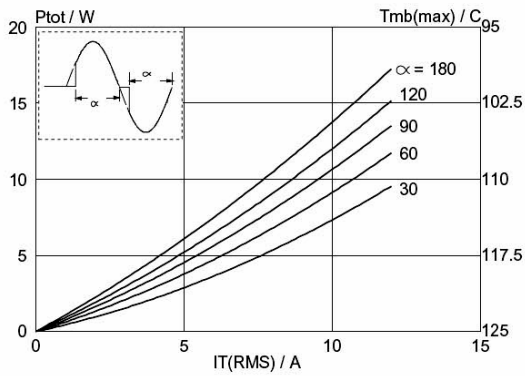
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating		单位 Unit
		600E	800E	
Repetitive peak off-state voltages	$V_{DRM}$ (T <sub>J</sub> =25°C)	600	800	V
RMS on-state current	$I_{T(RMS)}$	12		A
Non-repetitive peak on-state current	$I_{TSM}(t=20ms)$	95		A
Non-repetitive peak on-state current	$I_{TSM}(t=16.7ms)$	105		A
I <sup>2</sup> <sub>t</sub> for fusing	$I^2t_{(t=10ms)}$	45		A <sup>2</sup> S
Repetitive rate of rise of on-state current after triggering	I <sub>TM</sub> =12A I <sub>G</sub> =0.2A dI <sub>G</sub> /dt=0.2A/μs	T2+G+	50	A/μS
		T2+G-	50	A/μS
		T2-G-	50	A/μS
		T2-G+	10	A/μS
Peak gate current	I <sub>GM</sub>	2.0		A
Peak gate voltages	V <sub>GM</sub>	5.0		V
Peak gate power	P <sub>GM</sub>	5.0		W
Average gate power (Over any 20 ms period)	P <sub>G(AV)</sub>	0.5		W
Junction Temperature	T <sub>j</sub>	125		°C
Storage Temperature Range	T <sub>stg</sub>	-40~150		°C
Thermal resistance junction to ambient	R <sub>th(j-a)</sub>	60		K/W
Thermal resistance junction to mounting base	R <sub>th(j-b)</sub>	1.5		K/W

**电性能参数 / Electrical Characteristics(Ta=25°C)**

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Gate trigger current	I <sub>GT</sub>	V <sub>D</sub> =12V I <sub>T</sub> =0.1A	T2+G+	2.5	10	mA
			T2+G-	4	10	
			T2-G-	5	10	
			T2-G+	11	25	
Latching current	I <sub>L</sub>	V <sub>D</sub> =12V I <sub>G</sub> =0.1A	T2+G+		30	mA
			T2+G-		40	
			T2-G-		30	
			T2-G+		40	
Holding current	I <sub>H</sub>	V <sub>D</sub> =12V I <sub>G</sub> =0.1A			30	mA
On-state voltage	V <sub>T</sub>	I <sub>T</sub> =15A		1.4	1.65	V
Gate trigger voltage	V <sub>GT</sub>	V <sub>D</sub> =12V I <sub>T</sub> =0.1A		0.7	1.5	V
		V <sub>D</sub> =400V I <sub>T</sub> =0.1A, T <sub>J</sub> =125°C	0.25	0.4		
Off-state leakage current	I <sub>D</sub>	V <sub>D</sub> =V <sub>DRM(max)</sub> T <sub>J</sub> =125°C		0.1	0.5	mA
Critical rate of rise of off-state current	t <sub>gt</sub>	I <sub>TM</sub> =16A V <sub>D</sub> =V <sub>DRM(max)</sub> I <sub>G</sub> =0.1A dI <sub>G</sub> /dt=5A/μs		2.0		μs
Repetitive peak off-state current	dV <sub>D</sub> /dt	V <sub>DM</sub> =67% V <sub>DRM(MAX)</sub> T <sub>J</sub> =125°C		150		V/μs

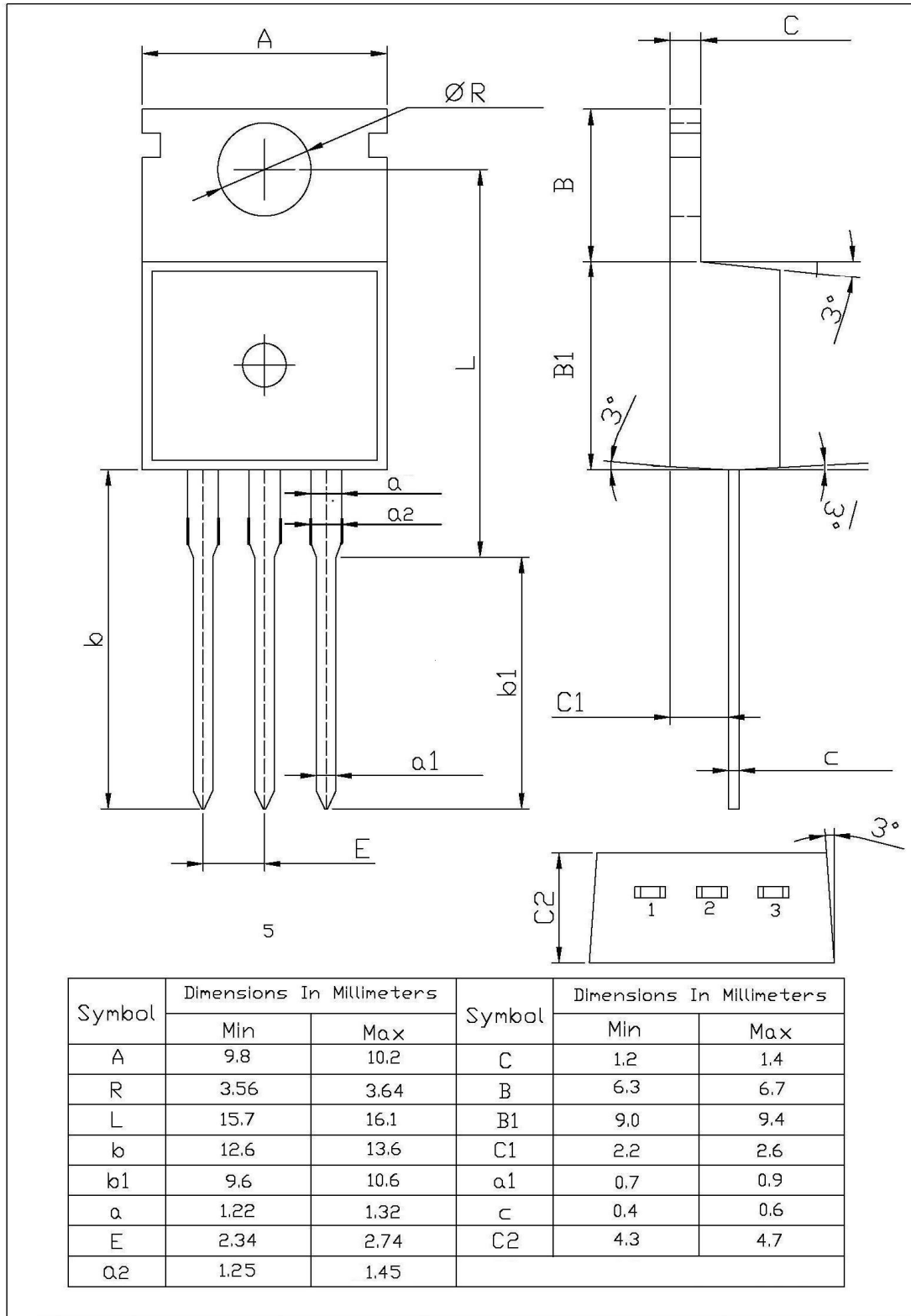
电参数曲线图 / Electrical Characteristic Curve



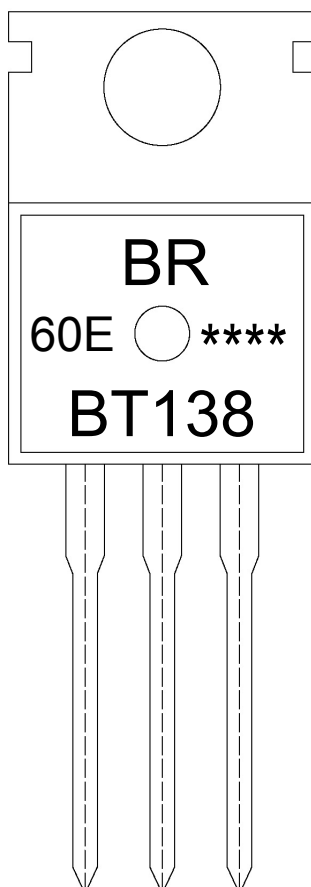
外形尺寸图 / Package Dimensions

TO-220

单位: mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

BT138： 为产品型号

60E： 为耐压分档

\*\*\*\*： 为生产批号代码，随生产批号变化。

Note:

BR: Company Code

BT138: Product Type.

60E: Withstand Voltage Symbol.

\*\*\*\*: 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**