

**描述 / Descriptions**

TO-220F 塑封封装 单向可控硅。Thyristor in a TO-220F Plastic Package.

**特征 / Features**

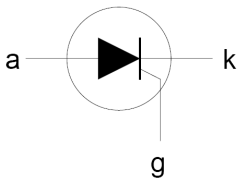
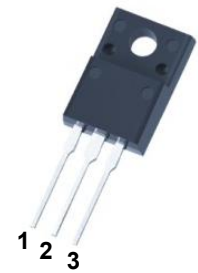
芯片采用玻璃钝化和塑氧环脂封装。

Glass passivated thyristors in a plastic envelope.

**用途 / Applications**

主要应用于要求双向高电压承受能力和高效热转换领域，其典型应用于马达控制、工业和家庭照明、加热和静电开关。

Use in applications requiring high bidirectional blocking voltage capability and high thermal cycling performance. Typical applications include motor control, industrial and domestic lighting, heating and static switching.

**内部等效电路 / Equivalent Circuit****引脚排列 / Pinning**

PIN1 : Cathode

PIN 2 : Anode

PIN 3 : Gate

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

见印章说明。See Marking Instructions.

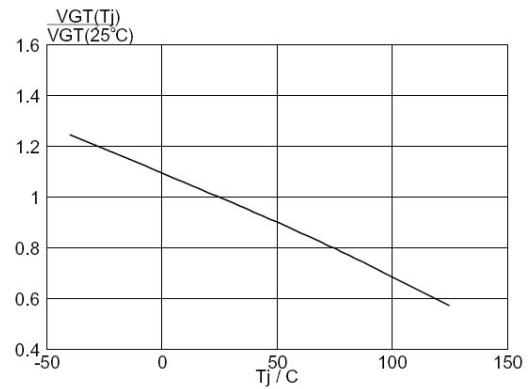
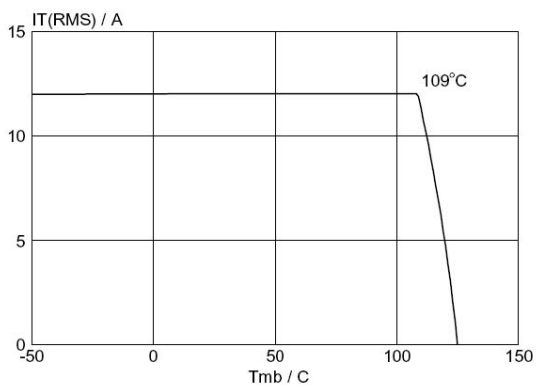
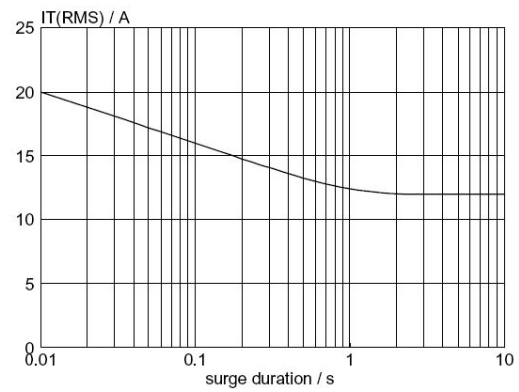
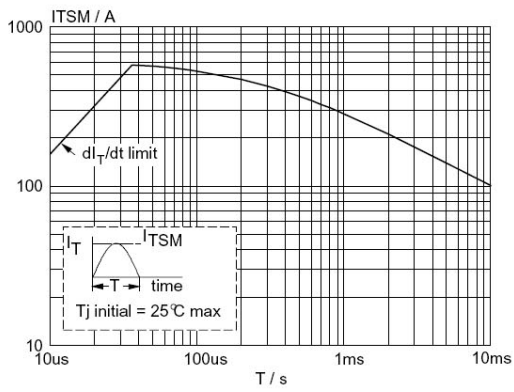
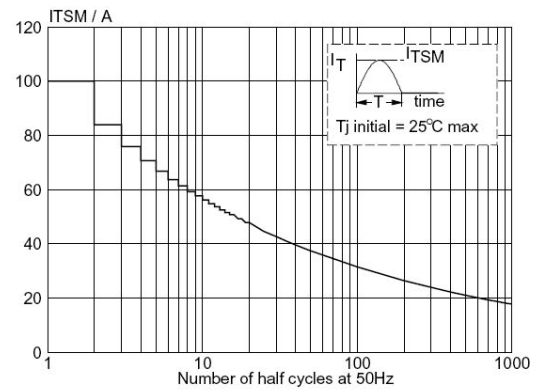
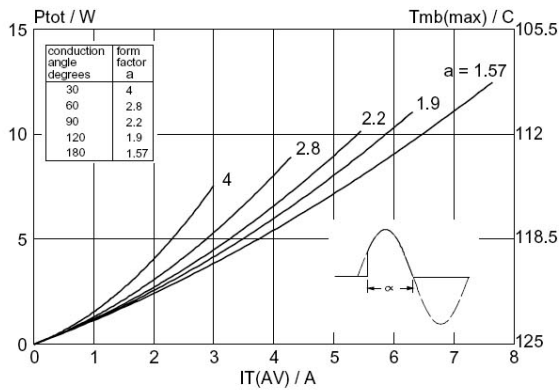
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating			单位 Unit
		-500R	-650R	-800R	
Repetitive peak off-state voltages	$V_{DRM}$ $V_{RRM}$	500	650	800	V
Average on-state current	$I_{T(AV)}$	7.5			A
RMS on-state current	$I_{T(RMS)}$	12			A
Non-repetitive peak on-state current	$I_{TSM(t=10ms)}$	100			A
Non-repetitive peak on-state current	$I_{TSM(t=8.3ms)}$	110			A
$I^2t$ for fusing	$I^2t_{(t=10ms)}$	50			A <sup>2</sup> S
Repetitive rate of rise of on-state current after triggering	$di_T/dt$	50			A/ $\mu$ s
Peak gate current	$I_{GM}$	2			A
Peak gate voltage	$V_{GM}$	5			V
Peak reverse gate voltage	$V_{RGM}$	5			V
Peak gate power	$P_{GM}$	5			W
Average gate power (Over any 20 ms period)	$P_{G(AV)}$	0.5			W
Operating Junction Temperature	$T_j$	125			°C
Storage Temperature Range	$T_{stg}$	-40~150			°C
Thermal resistance junction to ambient	$R_{th(j-a)}$	60			K/W
Thermal resistance junction to mounting base	$R_{th(j-mb)}$	1.3			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	$I_{GT}$	$V_D=12V$	$I_T=0.1A$		2	15	mA
Latching current	$I_L$	$V_D=12V$	$I_{GT}=0.1A$		10	40	mA
Holding current	$I_H$	$V_D=12V$	$I_{GT}=0.1A$		7	20	mA
On-state voltage	$V_T$	$I_T=23A$			1.4	1.75	V
Gate trigger voltage	$V_{GT}$	$V_D=12V$	$I_T=0.1A$		0.6	1.5	V
		$V_D=V_{DRM(max)}$ $T_j=125^\circ C$	$I_T=0.1A$	0.25	0.4		
Off-state leakage current	$I_{D,IR}$	$V_D=V_{DRM(max)}$ $T_j=125^\circ C$	$V_R=V_{RRM(max)}$		0.1	0.5	mA
Gate controlled turn-on time	$t_{gt}$	$I_{TM}=40A$ $di_g/dt=5A/\mu s$	$V_D=V_{DRM}$ $I_G=0.1A$		2		$\mu s$

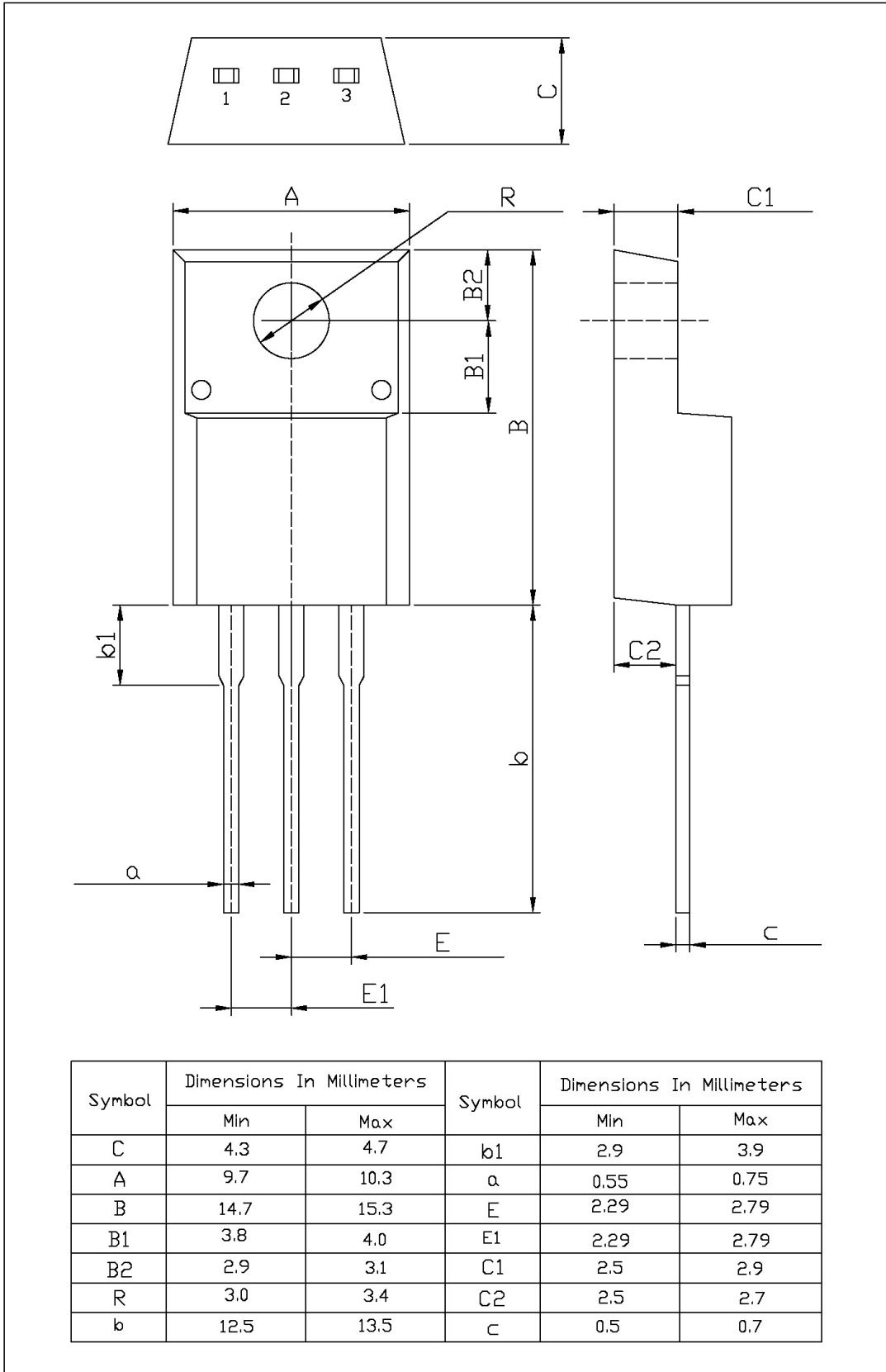
**电参数曲线图 / Electrical Characteristic Curve**



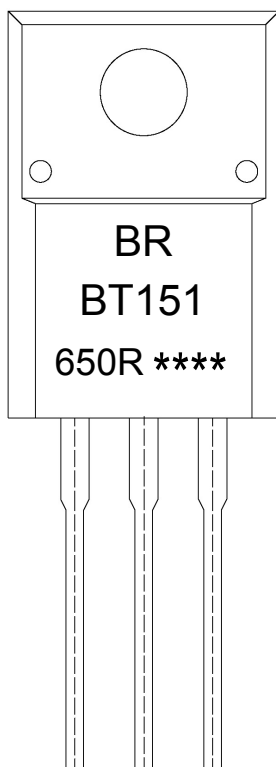
外形尺寸图 / Package Dimensions

TO-220F

单位: mm



## 印章说明 / Marking Instructions



说明：

BR： 为公司代码

BT151： 为产品型号

650R： 为耐压分档

\*\*\*\*： 为生产批号代码，随生产批号变化。

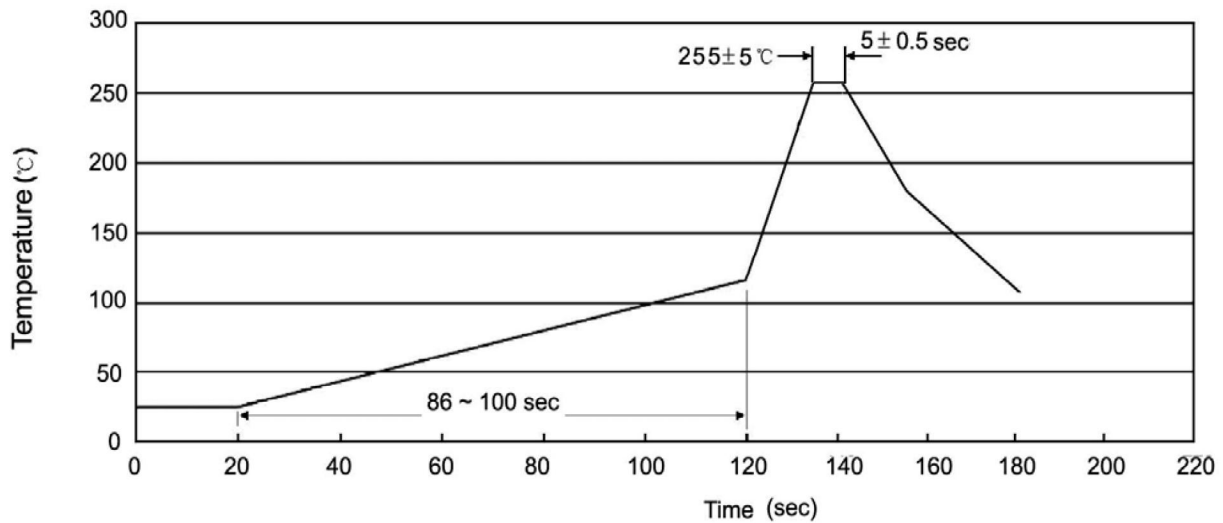
Note:

BR: Company Code

BT151: Product Type.

650R: 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**