描述 / Descriptions

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

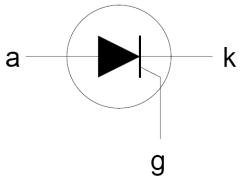
特征 / Features

芯片采用玻璃钝化和塑氧环脂封装。
Glass passivated thyristors in a plastic envelope.

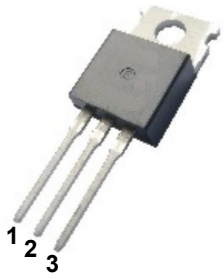
用途 / Applications

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.

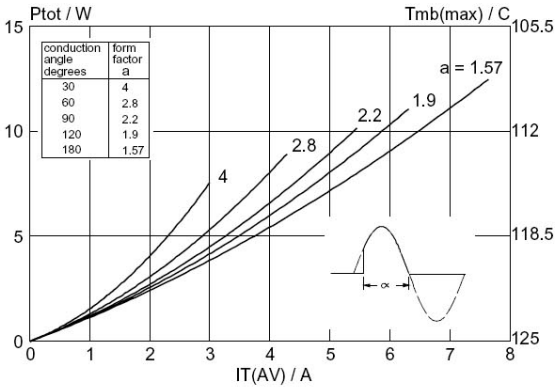
极限参数 / Absolute Maximum Ratings(Ta=25℃)

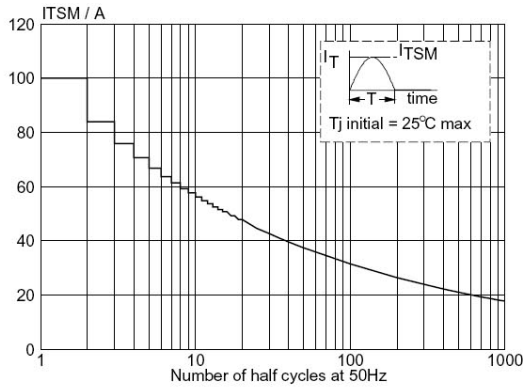
参数 Parameter	符号 Symbol	数值 Rating			单位 Unit
		-500R	-650R	-800R	
Repetitive peak off-state voltages	V_{DRM} V_{RRM}	500	650	800	V
Average on-state current	$I_{T(AV)}$	7.5			A
RMS on-state current	$I_{T(RMS)}$	12			A
Non-repetitive peak on-state current	$I_{TSM(t=10ms)}$	100			A
Non-repetitive peak on-state current	$I_{TSM(t=8.3ms)}$	110			A
I^2t for fusing	$I^2t_{(t=10ms)}$	50			A^2S
Repetitive rate of rise of on-state current after triggering	dI_T/dt	50			A/μs
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			℃
Storage Temperature Range	T_{stg}	-40～150			℃
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

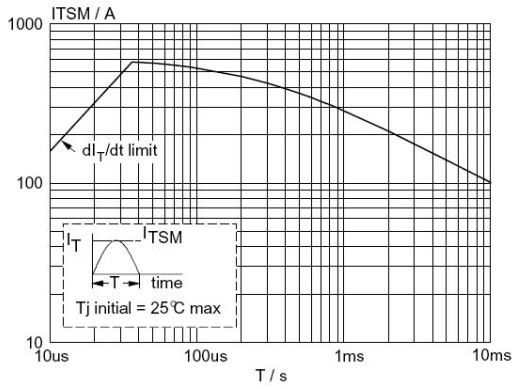
电性能参数 / Electrical Characteristics(Ta=25℃)

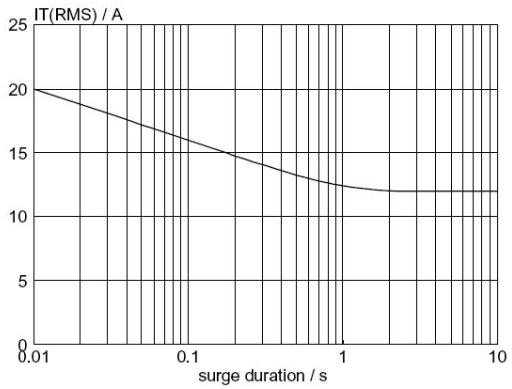
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Gate trigger current	I_{GT}	V_D=12V I_T=0.1A		2	15	mA
Latching current	I_L	V_D=12V I_{GT}=0.1A		10	40	mA
Holding current	I_H	V_D=12V I_{GT}=0.1A		7	20	mA
On-state voltage	V_T	I_T=23A		1.4	1.75	V
Gate trigger voltage	V_{GT}	V_D=12V I_T=0.1A		0.6	1.5	V
		V_D=$V_{DRM(max)}$ I_T=0.1A T_j=125℃	0.25	0.4		
Off-state leakage current	I_D,I_R	V_D=$V_{DRM(max)}$ V_R=$V_{RRM(max)}$ T_j=125℃		0.1	0.5	mA
Gate controlled turn-on time	t_{gt}	I_{TM}=40A V_D=V_{DRM} I_G=0.1A dI_g/dt=5A/μs		2		μs

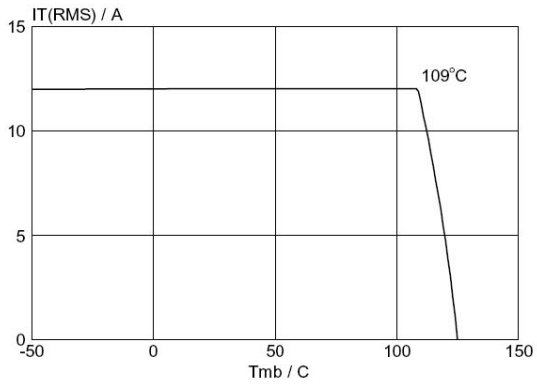
电参数曲线图 / Electrical Characteristic Curve

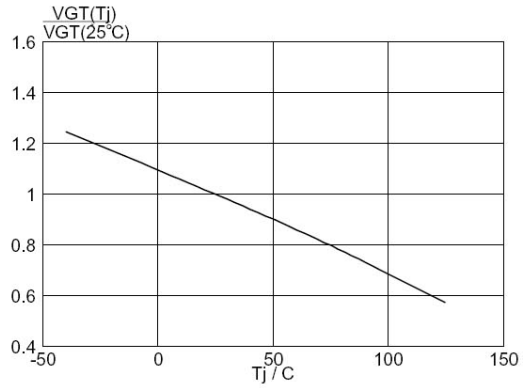






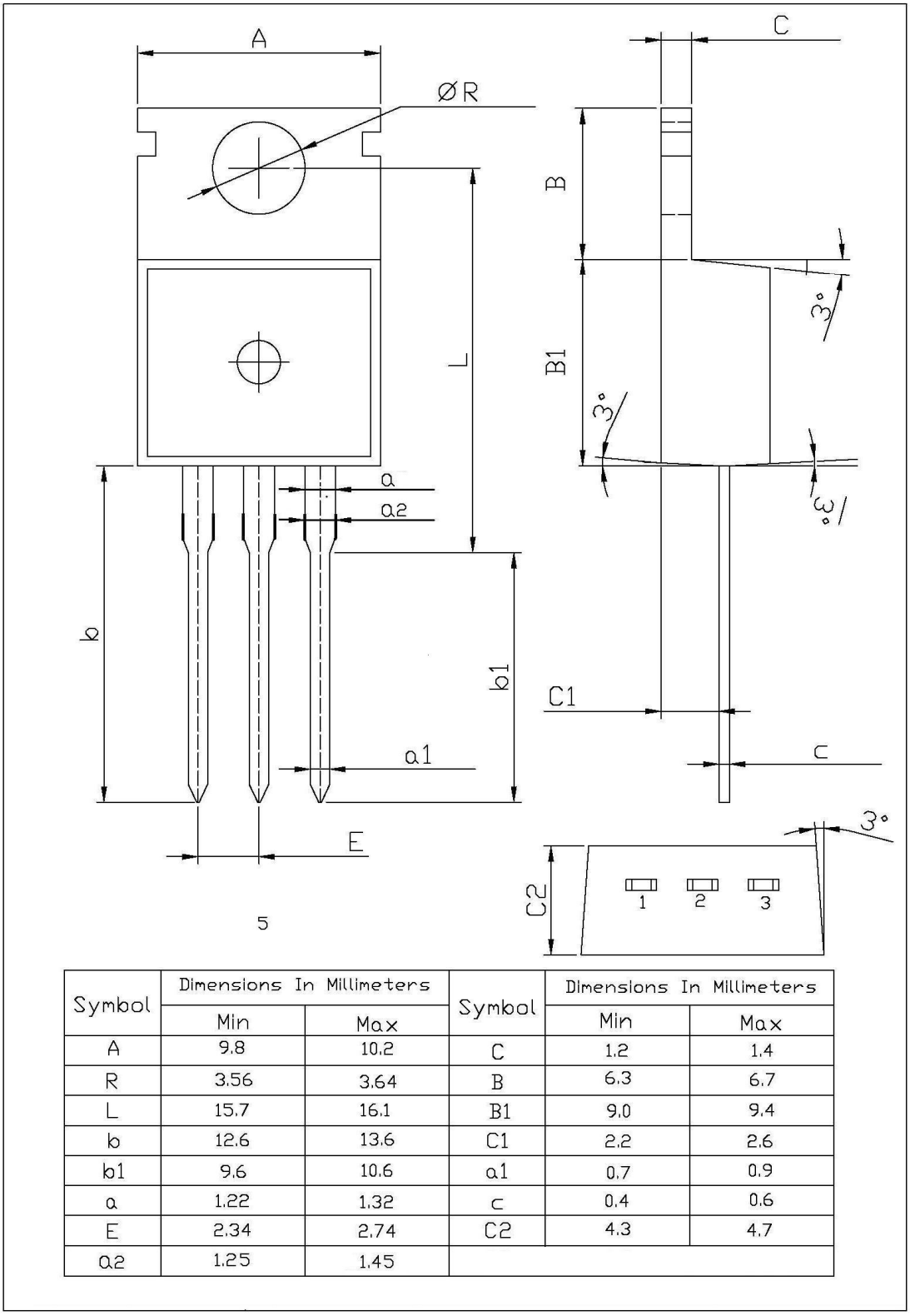






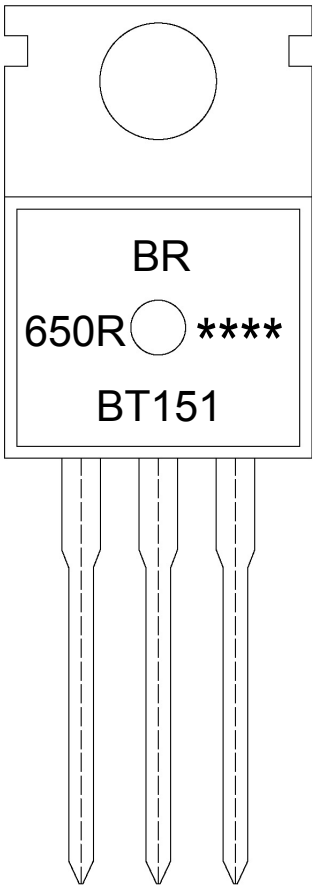
外形尺寸图 / Package Dimensions

TO-220 单位：mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	9.8	10.2	C	1.2	1.4
R	3.56	3.64	B	6.3	6.7
L	15.7	16.1	B1	9.0	9.4
b	12.6	13.6	C1	2.2	2.6
b1	9.6	10.6	a1	0.7	0.9
a	1.22	1.32	c	0.4	0.6
E	2.34	2.74	C2	4.3	4.7
a2	1.25	1.45			

印章说明 / Marking Instructions



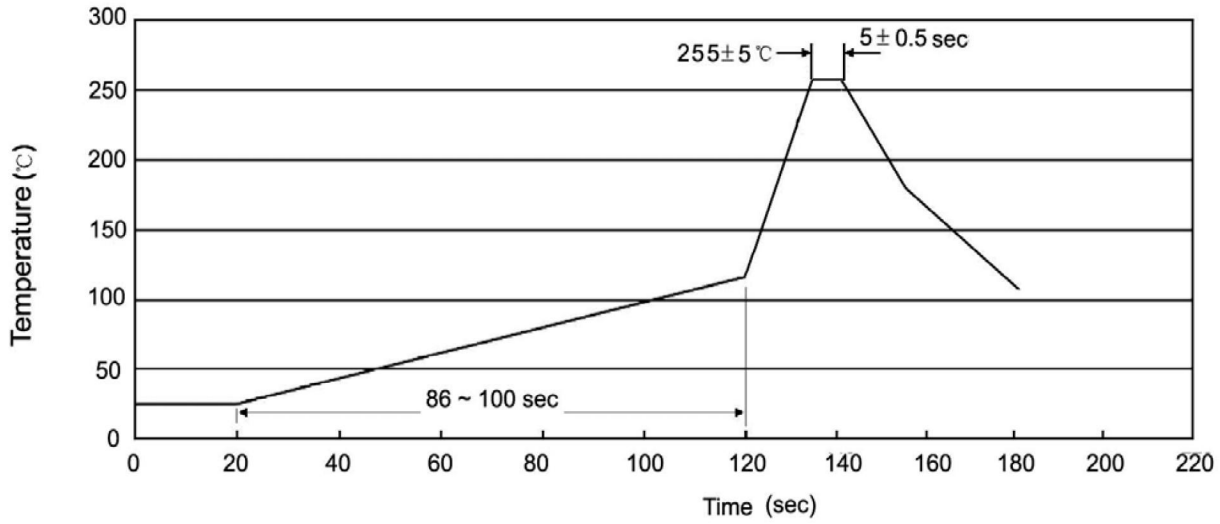
说明：

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℃，时间 60～90sec;

2、峰值温度 255±5℃，时间持续为 5±0.5sec;

3、焊接制程冷却速度为 2～10℃/sec.

Note:

1.Preheating:25~150℃, Time:60~90sec.

2.Peak Temp.:255±5℃, Duration:5±0.5sec.

3. Cooling Speed: 2~10℃/sec.

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

温度：270±5℃　　时间：10±1 sec.　　Temp.:270±5℃　　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^3)		
	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^3)		
	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