

## 产品概述 GENERAL DESCRIPTION

BT151 单向可控硅采用穿通隔离台面结构, 复合玻璃钝化PN结表面保护工艺技术,  $dv/dt$ 高, 可靠性高, 适用于控温、调光、马达控制。

BT151 Thyristor is fabricated using separation diffusion processes ,the junction termination areas are passivated with glass. Thanks to highly  $dv/dt$  and reliability,the Triacs series is suitable for domestic lighting ,heating and motor speed controllers.

## 主要参数 MAIN CHARACTERISTICS

参数 Parameter	数值 Value	单位 Unit
$I_{T(RMS)}$	12	A
$V_{DRM}/V_{RRM}$	600	V
$I_{GT}$	8	mA



## 产品特性

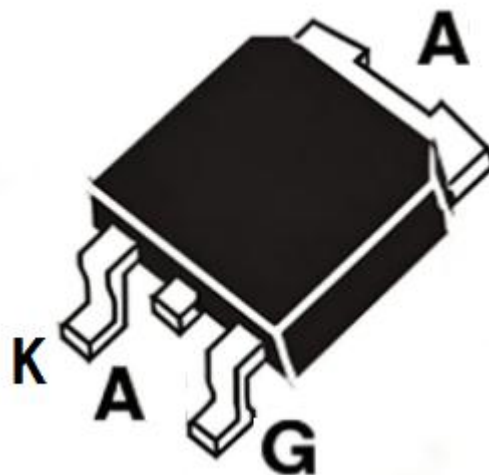
## FEATURES

- $dv/dt$ 高
- 通态压降低
- Rohs环保产品
- Highly  $dv/dt$
- Low on-state voltage
- Rohs Products

## 应用领域 APPLICATIONS

主要应用于调光、控温、马达控制。

domestic lighting ,heating and motor speed controllers.



**极限值(除非另有规定,  $T_j=25^\circ\text{C}$ ) ABSOLUTE RATINGS**

 ( $T_j=25^\circ\text{C}$ , unless otherwise specified)

符号 Symbol	参数 Parameter	数值 Value	单位 Unit
$I_{T(RMS)}$	RMS 通态电流 RMS on-state current (full sine wave)	$T_C=90^\circ\text{C}$ 12	A
$I_{TSM}$	通态峰值浪涌电流 Non repetitive surge peak on-state current	$F=50\text{Hz}, t=20\text{ms}$ 100	A
$I^2t$	$I^2t$ 耗散值 $I^2t$ value for fusing	$T_P=10\text{ms}$ 60	$\text{A}^2\text{s}$
di/dt	通态电流上升值 Critical rate of rise of on-state current	$F=120\text{Hz}, T_j=125^\circ\text{C}$ 50	$\text{A}/\mu\text{s}$
$I_{GM}$	门极峰值电流 Peak gate current	$T_P=20\mu\text{s}, T_j=125^\circ\text{C}$ 4	A
$P_{G(AV)}$	平均门极耗散功率 Average gate power dissipation	$T_j=125^\circ\text{C}$ 1	W
Tstg	贮存结温范围 Storage junction temperature range	-40+150	$^\circ\text{C}$
$T_j$	工作结温范围 Operating junction temperature range	-40+125	$^\circ\text{C}$

**电参数(除非另有规定,  $T_j=25^\circ\text{C}$ ) ELECTRICAL CHARACTERISTICS**

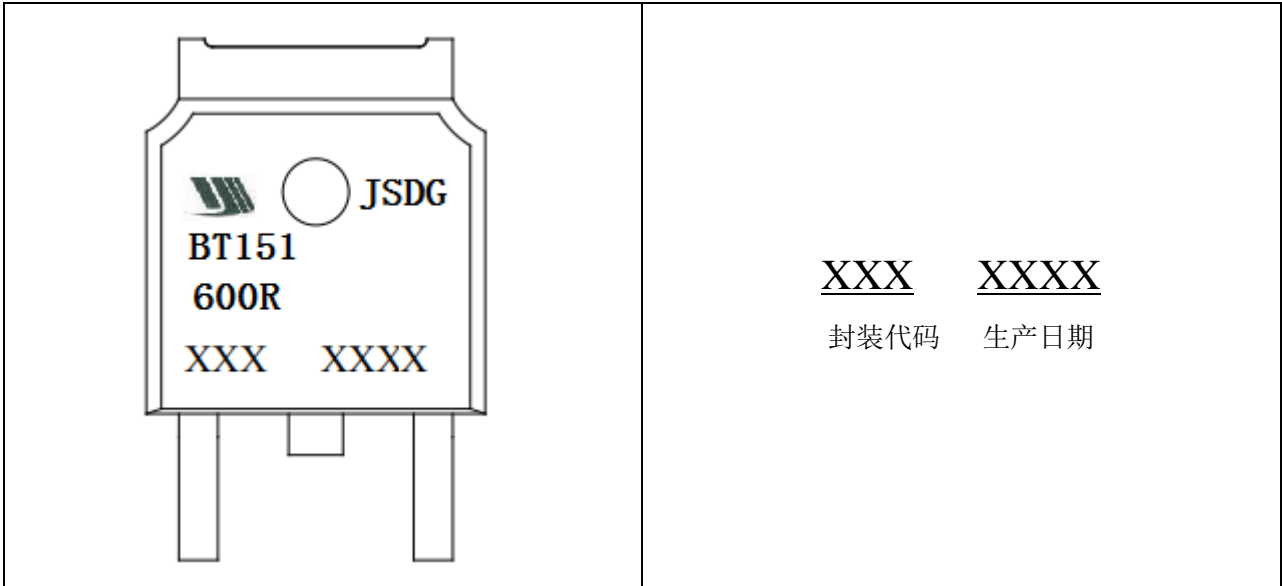
 ( $T_j=25^\circ\text{C}$ , unless otherwise specified)

参数 Parameter	符号 Symbol	规范值 Value			单位 Unit	测试条件 Test Conditions
		Min	Typ	Max		
触发电流 Gate trigger current	$I_{GT}$	3	-	8	mA	$V_D=12\text{V}, I_T=0.1\text{A}$
触发电压 Gate trigger voltage	$V_{GT}$	-	-	1.5	V	$V_D=12\text{V}, I_T=0.1\text{A}$
维持电流 Holding current	$I_H$	-	-	40	mA	$V_D=12\text{V}, I_T=0.1\text{A}$
电压上升率 Rise of off- state voltage	dv/dt	50	-	-	$\text{V}/\mu\text{S}$	$V_D=67\% V_{DRM}$
通态压降 Peak on-state voltage	$V_{TM}$	-	-	1.7	V	$I_T=24\text{A}$
断态漏电流 Peak repetitive forward blocking current	$I_{DRM}$	-	-	5	$\mu\text{A}$	$V_{RRM}=V_{DRM}, T_j=25^\circ\text{C}$
	$I_{RRM}$	-	-	2	mA	$V_{RRM}=V_{DRM}, T_j=125^\circ\text{C}$

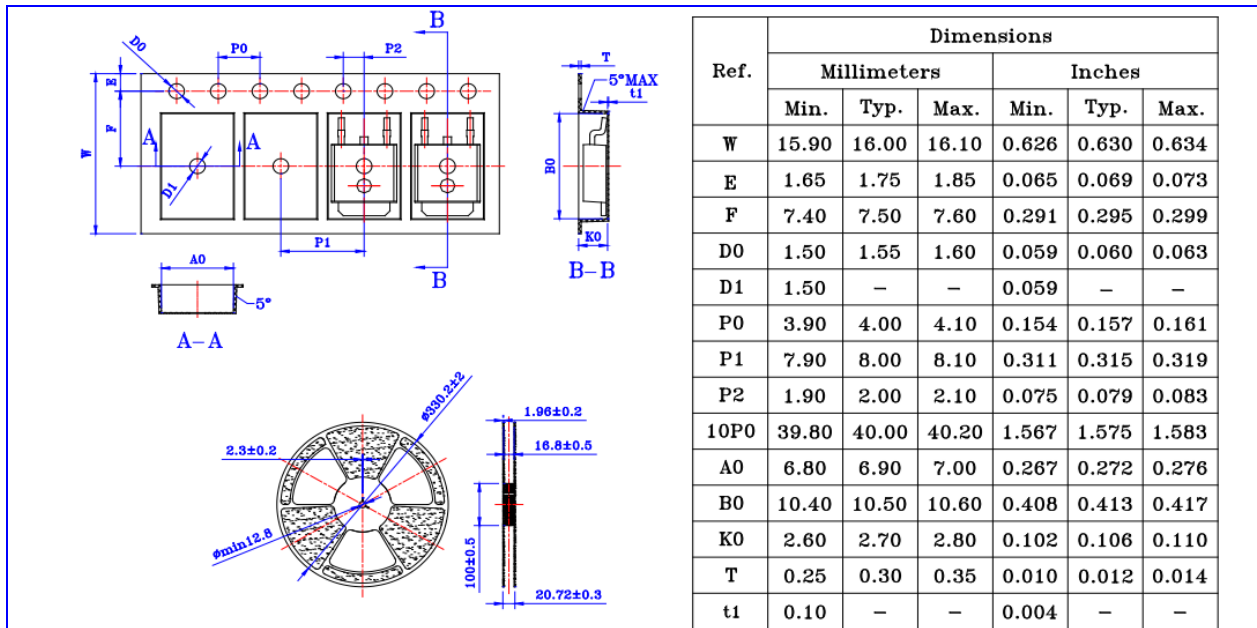
**热特性 THERMAL RESISTANCES**

符号 Symbol	参数 Parameter	数值 Value	单位 Unit
Rth(j-c)	Junction to case(AC)	0.8	K/W
Rth(j-a)	Junction to ambient	45	K/W

印章说明MARKING



配送方式 DELIVERY MODE



PACKAGE	OUTLINE	REEL(PCS)	PER CARTON (PCS)	TAPE&REEL
TO-252	TAPING	2500	25000	13inch

特征曲线 ELECTRICAL CHARACTERISTICS (CURVES)

图1 最大耗散功率与RMS通态电流关系

Fig.1.Maximum Power Dissipation Versus on-state current

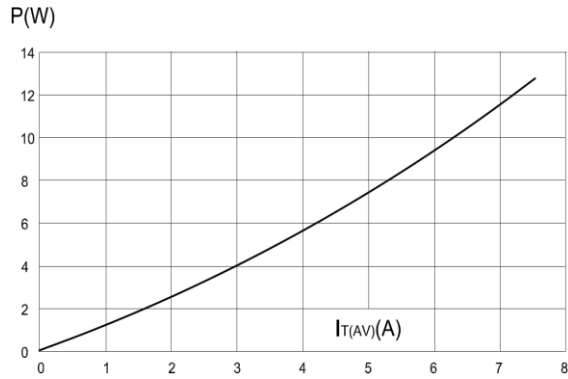


图3 通态特性

Fig.3.On-State Characteristics

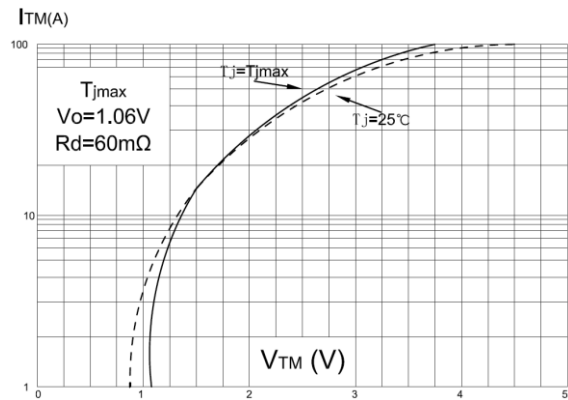


图5 IGT、IH、IL相对值（相对于25°C）与结温关系

Fig.5.Relative Variation Of Gate Trigger Current

, Holding Current And Latching Current Versus Junction Temperature (Typical Value)

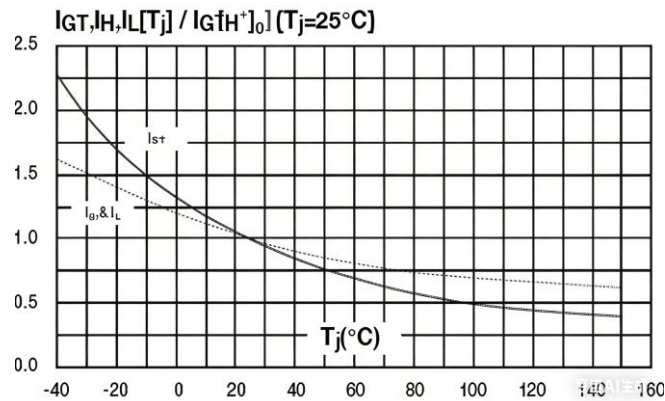


图2 RMS通态电流与Tc温度关系

Fig.2. RMS On-state Current Versus TL

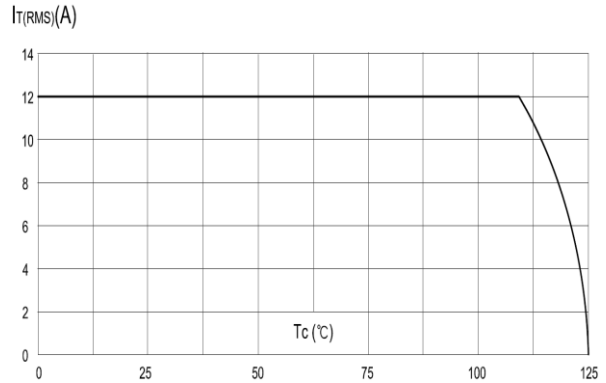
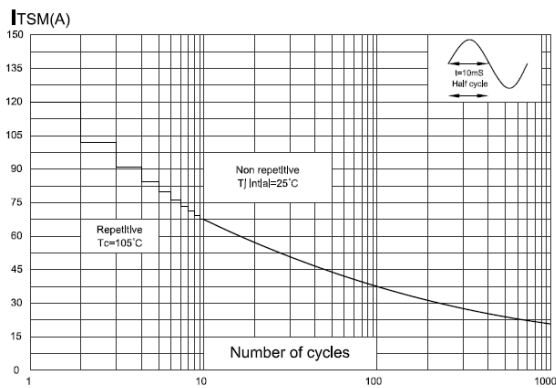


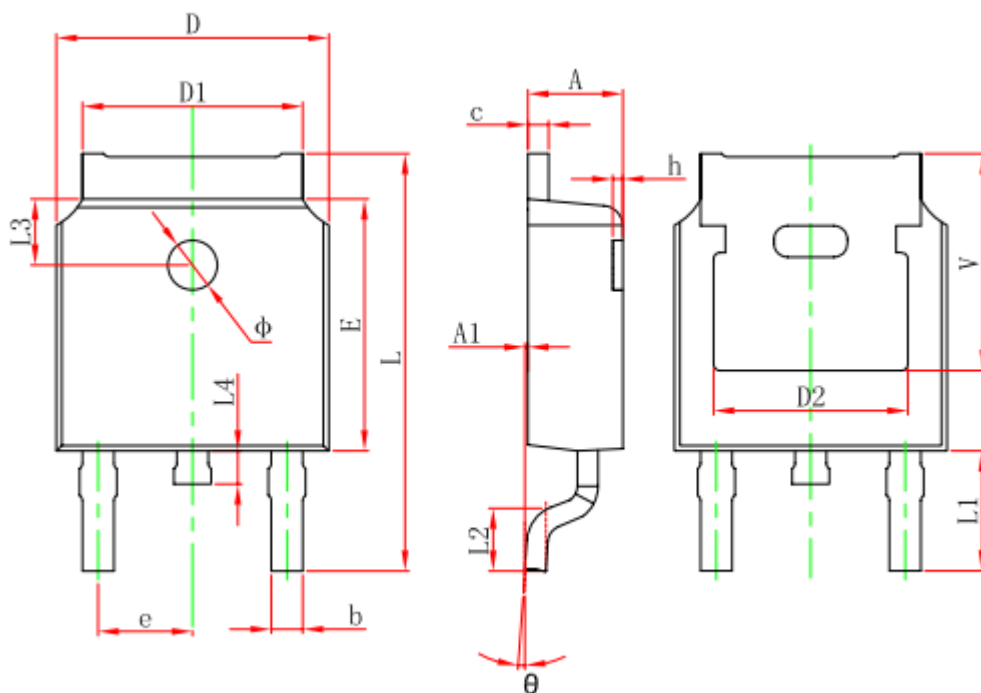
图4 通态浪涌峰值电流与周期数关系

Fig.4.Surge Peak On-state Current Versus Number Cycles



封装尺寸 PACKAGE MECHANICAL DATA

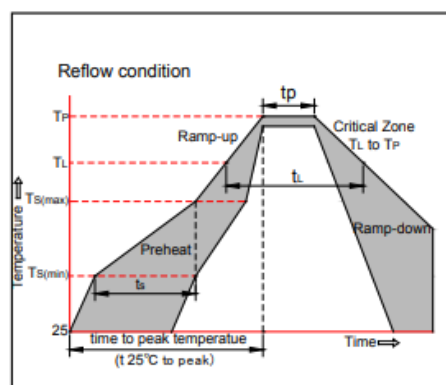
TO-252



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	

## 焊接参数 SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature( $T_L$ ) (Liquidus)	+217°C
	-Temperature( $t_L$ )	60-150 secs.
Peak Temp ( $T_p$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_p$ )		8 min. Max
Do not exceed		+260°C



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