



汕头华汕电子器件有限公司

Silicon Controlled Rectifier
HBT151
对应国外型号
BT151

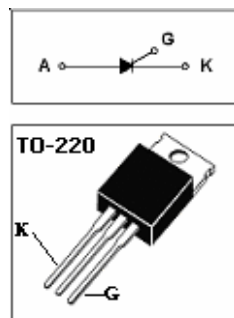
主要用途

单向可控硅，用于过压保护、马达控制、限流电路、加热控制等。

极限值 ($T_j=25$)

T_{stg}	——贮存温度		-40~150
T_j	——结温		125
V_{DRM}	——重复峰值断态电压		600V
I_T (RMS)	——RMS 通态电流 (均方值)		12A
$I_{T(AV)}$	——平均通态电流 (半正弦波, $T_c=109$)		7.5A
I_{TSM}	——浪涌通态电流(1/2 周期,50Hz, 正弦波,不重复)		100A
V_{RGM}	——反向峰值门极电压		5V
I_{FGM}	——正向峰值门极电流		2.0A
P_{GM}	——峰值门极功耗.....		5.0W

外形图及引脚排列



电参数 ($T_c=25$)

参数符号	符 号 说 明	最小值	典型值	最大值	单 位	测 试 条 件
I_{DRM}	重复峰值断态电流			20 500	μA μA	$V_{AK}=V_{DRM}$ $T_c=25$ $T_c=125$
V_{TM}	峰值通态电压(1)			1.75	V	$I_{TM}=23A$, $t_p=380\mu s$
I_{GT}	门极触发电流(2)			15	mA	$V_{AK}=12V$ (DC), $R_L=10\ ohm$ $T_c=25$
V_{GT}	门极触发电压(2)			1.5	V	$V_{AK}=12V$ (DC), $R_L=10\ ohm$ $T_c=25$
V_{GD}	门极不触发电压(1)	0.2			V	$V_{AK}=12V$, $R_L=100\ ohm$ $T_c=125$
I_H	维持电流			20	mA	$I_T=100mA$, 栅极开路 $T_c=25$
$(dv/dt)_c$	最低电压上升率	50			V/ μs	线性倾斜上升至 $V_D=V_{DRM}$ 67%, 栅极开路, $T_j=125$
$R_{th(j-c)}$	热阻			1.3	/W	结到外壳
$R_{th(j-a)}$	热阻		60		/W	结到环境



特性曲线

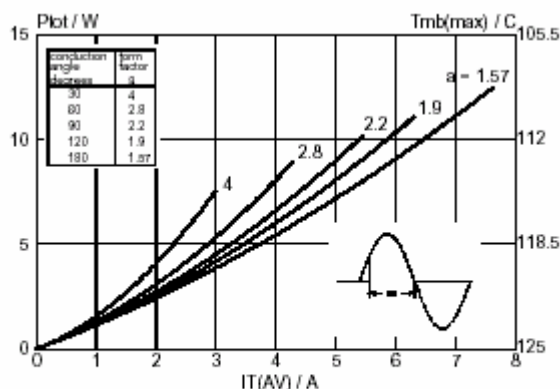


Fig. 1. Maximum on-state dissipation, P_{tot} , versus average on-state current, $I_T(AV)$, where $a = \text{form factor} = I_{T(RMS)} / I_{T(AV)}$.

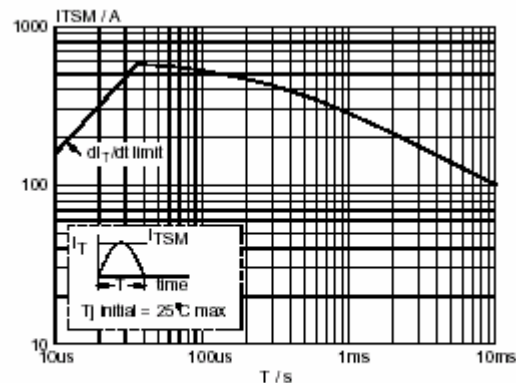


Fig. 2. Maximum permissible non-repetitive peak on-state current I_{TSM} versus pulse width t_p for sinusoidal currents, $t_p \leq 10\text{ms}$.

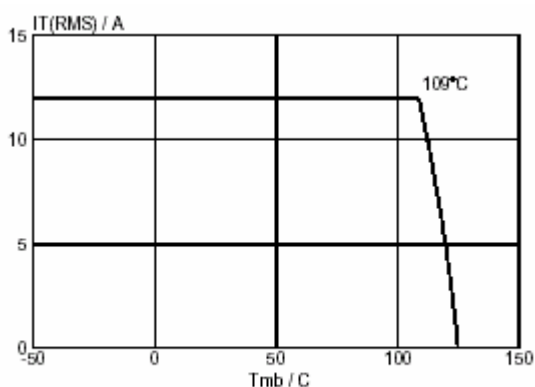


Fig. 3. Maximum permissible rms current $I_{T(RMS)}$ versus mounting base temperature T_{mb} .

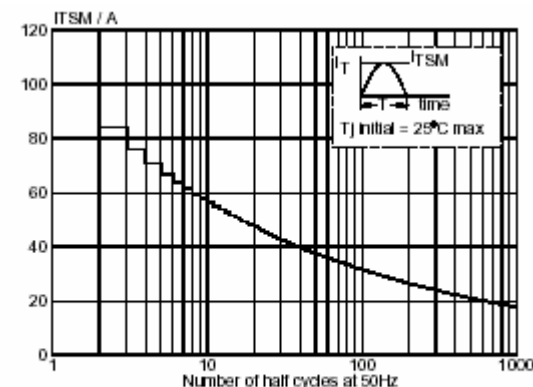


Fig. 4. Maximum permissible non-repetitive peak on-state current I_{TSM} versus number of cycles, for sinusoidal currents, $f = 50\text{Hz}$.

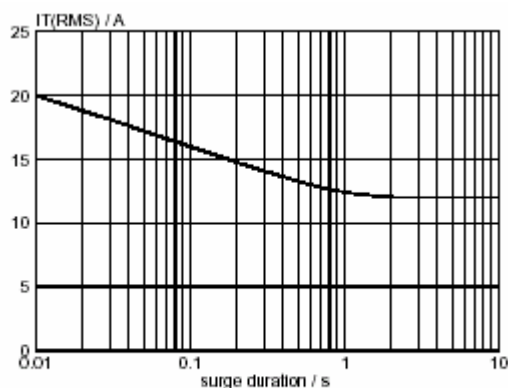


Fig. 5. Maximum permissible repetitive rms on-state current $I_{T(RMS)}$ versus surge duration, for sinusoidal currents, $f = 50\text{Hz}$; $T_{mb} \leq 109^\circ\text{C}$.

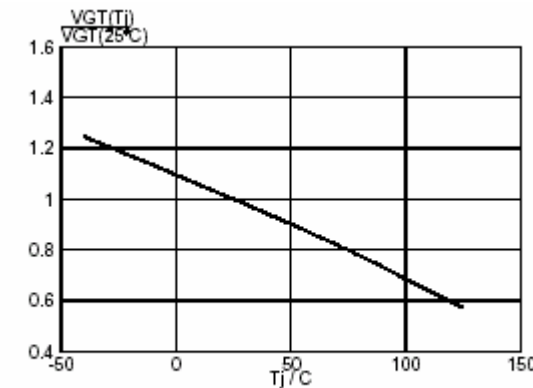


Fig. 6. Normalised gate trigger voltage $V_{GT}(T_J) / V_{GT}(25^\circ\text{C})$, versus junction temperature T_J .



特性曲线

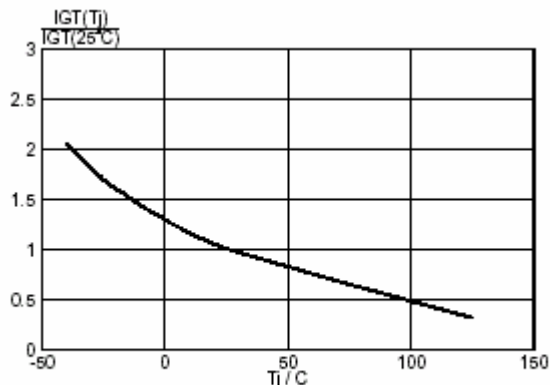


Fig. 7. Normalised gate trigger current $I_{GT}(T_j) / I_{GT}(25^\circ\text{C})$, versus junction temperature T_j .

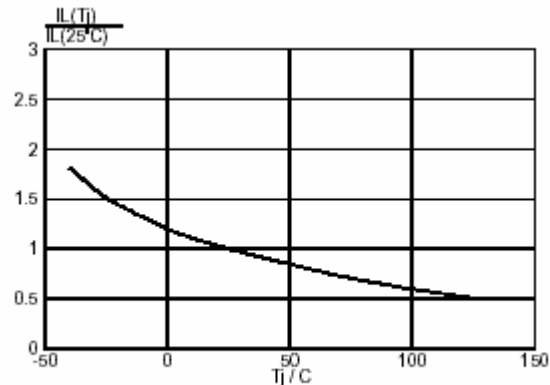


Fig. 8. Normalised latching current $I_L(T_j) / I_L(25^\circ\text{C})$, versus junction temperature T_j .

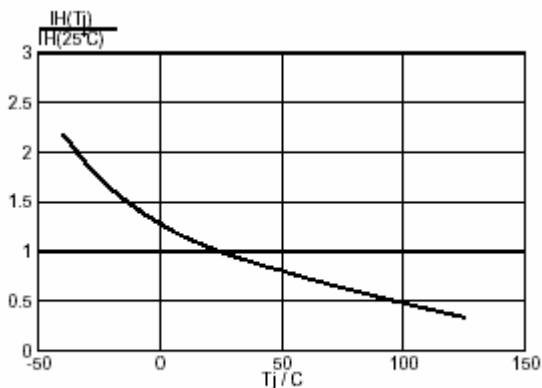


Fig. 9. Normalised holding current $I_H(T_j) / I_H(25^\circ\text{C})$, versus junction temperature T_j .

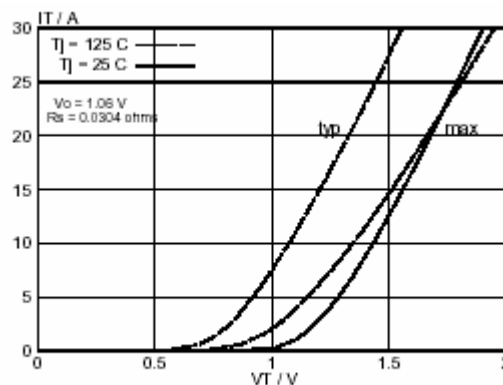


Fig. 10. Typical and maximum on-state characteristic.

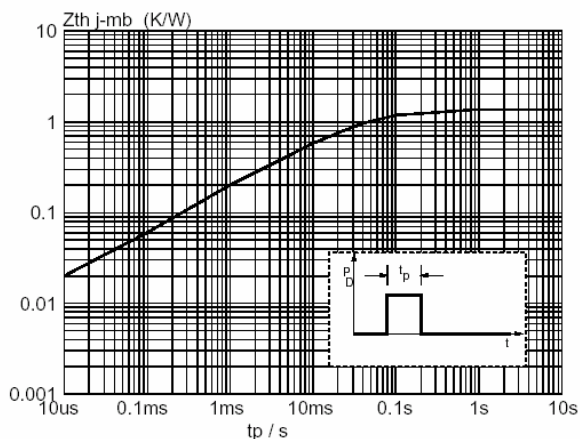


Fig. 11. Transient thermal impedance Z_{thj-mb} versus pulse width t_p .

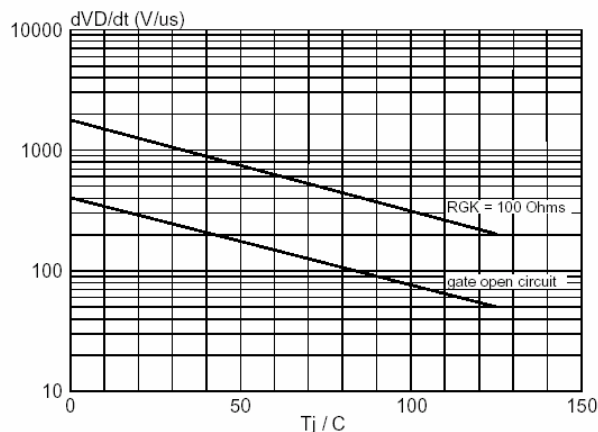


Fig. 12. Typical, critical rate of rise of off-state voltage, dV_D/dt versus junction temperature T_j .

注：1、脉冲宽度等于 1.0ms，占空因数小于等于 1%

2、测量时不包括 R_{GK} 电流