

## FEATURES

High current triac  
Low thermal resistance with clip bonding  
High commutation (4 quadrant) or very high commutation (3 quadrant) capability

## VOLTAGE RANGE

600/800 Volts

## CURRENT

8 Ampere

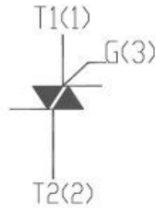
GK XXX  
BT137S 600/800x

LOGO

GK

XXX

CODE



Schematic Diagram



TO-252 top view

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

### Absolute Maximum Ratings

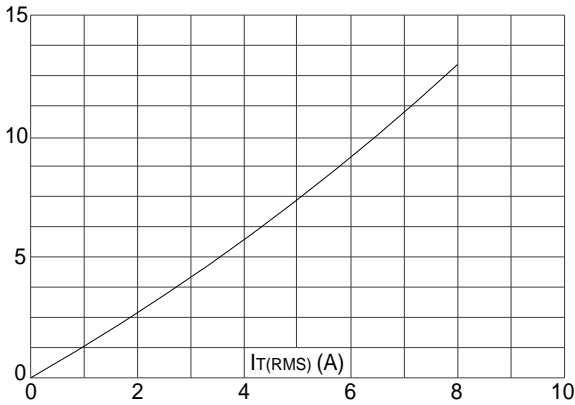
Symbol	Parameter	Conditions	Ratings	Unit
VDRM VRRM	Repetitive Peak Off-State Voltage	BT137-600	600	V
		BT137-800	800	V
IT(RMS)	R.M.S On-State Current	T <sub>c</sub> =110°C	8	A
ITSM	Surge On-State Current	tp=16.7ms/tp=10ms	80/84	A
I <sup>2</sup> t	I <sup>2</sup> t for fusing	Tp=10ms	30	A <sup>2</sup> s
PG(AV)	Average Gate Power Dissipation	T <sub>j</sub> =125°C	1	W
IGM	Peak Gate Current	T <sub>j</sub> =125°C	4	A
T <sub>j</sub>	Operating Junction Temperature		~40~125	°C
TSTG	Storage Temperature		~40~150	°C

Electrical characteristics ( $T_J=25^\circ\text{C}$  unless otherwise noted)

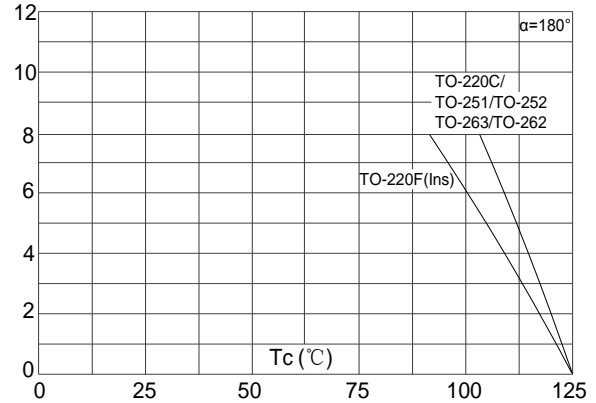
Symbol	Parameter	Test Conditions	Value				Unit
			D	E	F	G	
IDRM	Repetitive Peak Off-State Current	$T_J=25^\circ\text{C}$	$\leq 5$				$\mu\text{A}$
		$T_J=125^\circ\text{C}$	$\leq 1$				$\text{mA}$
IRRM	Repetitive Peak Reverse Current	$T_J=25^\circ\text{C}$	$\leq 5$				$\mu\text{A}$
		$T_J=125^\circ\text{C}$	$\leq 1$				$\text{mA}$
V <sub>TM</sub>	Forward "on" voltage	$I_T=12\text{A } t_p=380\mu\text{s}$	$\leq 1.55$				V
V <sub>GT</sub>	Gate trigger voltage	$V_D=12\text{V}, R_L=30\Omega$	$\leq 1.3$				V
di/dt	Critical-rate of rise of commutation current.	I,II,III IV $V_D=12\text{V } I_{GT}=0.1\text{A}$	$\geq 50$				A / $\mu\text{s}$
			$\geq 10$				A / $\mu\text{s}$
I <sub>GT</sub>	Gate trigger current	I,II,III IV $V_D=12\text{V } R_L=30\Omega$	$\leq 5$	$\leq 10$	$\leq 25$	$\leq 50$	$\text{mA}$
			$\leq 10$	$\leq 25$	$\leq 70$	$\leq 100$	$\text{mA}$
I <sub>H</sub>	Holding current	$I_T=0.2\text{A}$	$\leq 10$	$\leq 25$	$\leq 30$	$\leq 60$	$\text{mA}$
V <sub>GD</sub>	Gate non-trigger voltage	ALL $V_D=V_{DRM}$ $T_J=125^\circ\text{C}, R_L=3.3\text{K}\Omega$	$\geq 0.2$				V
dv/dt	Critical-rate of rise of commutation voltage	$T_J=125^\circ\text{C}$ $V_D=2/3V_{DRM}$ Gate	$\geq 5$	$\geq 10$	$\geq 50$	$\geq 200$	V/ $\mu\text{s}$

RATING AND CHARACTERISTIC CURVES

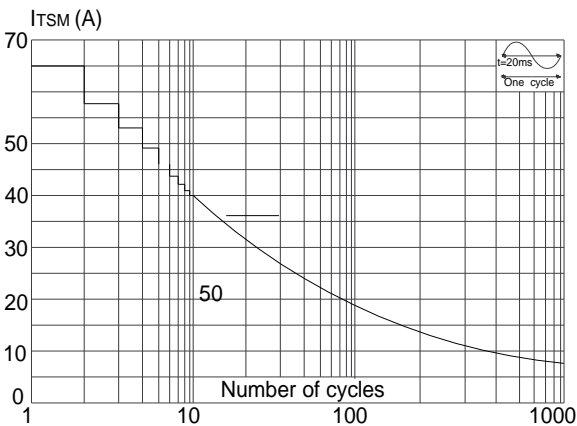
**FIG.1:** Maximum power dissipation versus RMS on-state current



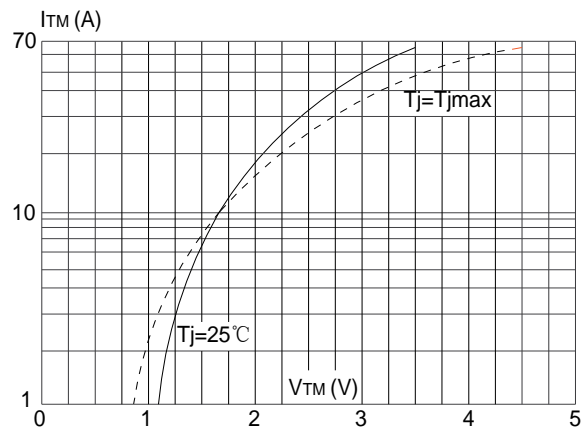
**FIG.2:** RMS on-state current versus case temperature



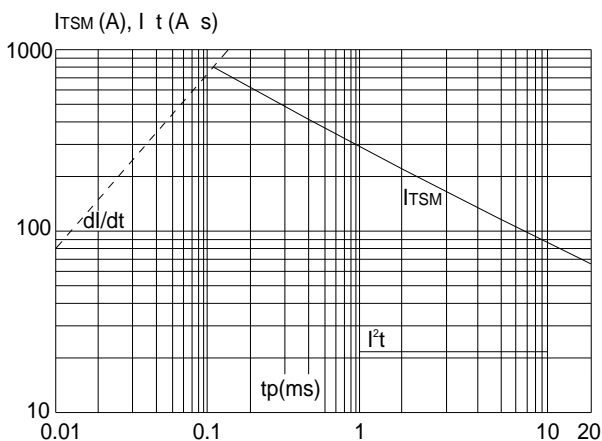
**FIG.3:** Surge peak on-state current versus number of cycles



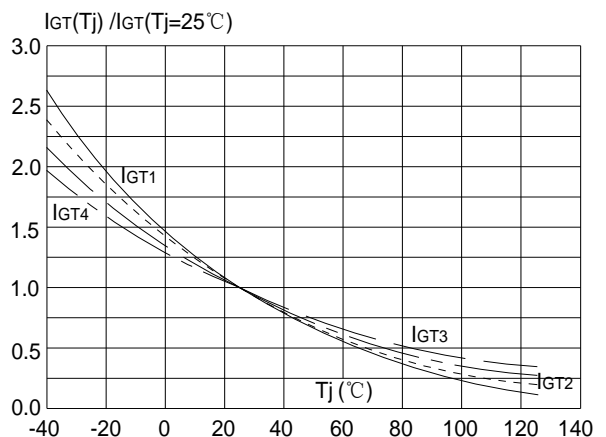
**FIG.4:** On-state characteristics (maximum values)



**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 100\text{A}/\mu\text{s}$ )

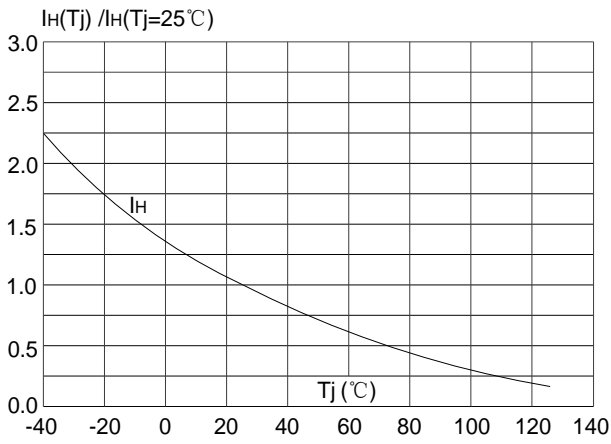


**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature

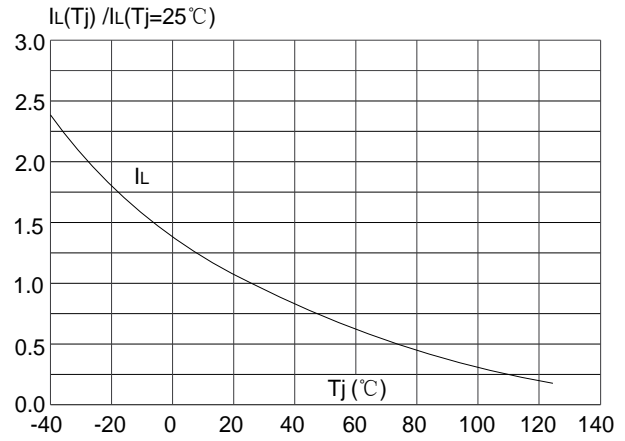


RATING AND CHARACTERISTIC CURVES

**FIG.7:** Relative variations of holding current versus junction temperature



**FIG.8:** Relative variations of latching current versus junction temperature



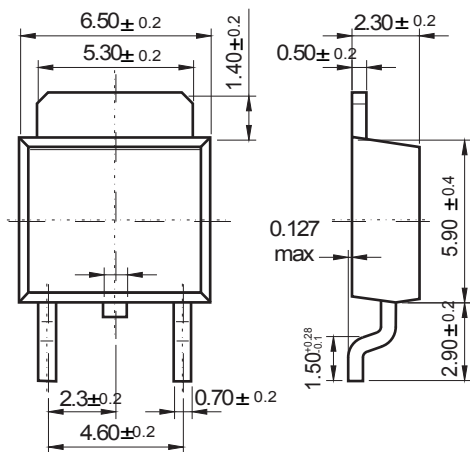
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150 °C
	-Temperature Max ( $T_{s(max)}$ )	+200 °C
	-Time (Min to Max) ( $t_s$ )	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3 °C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature ( $T_L$ ) (Liquid us)	+217 °C
	-Temperature ( $t_L$ )	60-150 secs.
Peak Temp ( $T_P$ )		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp ( $t_p$ )		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp ( $T_P$ )		8 min. Max
Do not exceed		+260 °C

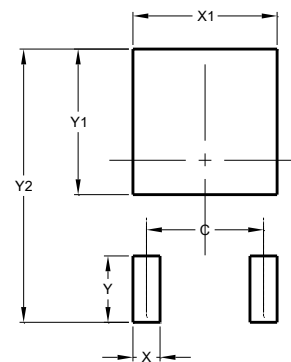


Package Dimensions & Suggested Pad Layout

TO-252



Dimensions in inches and (millimeters)



Dimensions	Value (in mm)
C	4.55
X	1.50
X1	5.80
Y	2.70
Y1	6.00
Y2	10.90

Tape & reel specification

Tape		Symbol	Dimension (mm)
		P0	4.00±0.20
		P1	8.00±0.20
		P2	2.00±0.20
		D0	1.55±0.15
		D1	1.55±0.20
		E	1.75±0.20
		F	7.50±0.20
		W	16.00±0.20
		A0	7.10±0.20
		B0	10.50±0.20
		K0	2.70±0.20
		T	0.30±0.10
		D2	330.0±5.0
		D3	100.0±4.0
		W1	20.0±5.0
W2	25.0±5.0		
I	13.0±2.0		
Quantity: 2500PCS			

