

**Product Summary**

Symbol	Value	Unit
$I_{T(RMS)}$	8.0	A
$V_{DRM} V_{RRM}$	800	V
$V_{TM}$	1.55	V

**Feature**

With high ability to withstand the shock loading of large current, With high commutation performances, 4 quadrants products especially recommended for use on inductive load.

**Application**

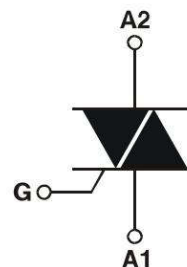
Washing machine, vacuums, massager, solid state relay, AC Motor speed regulation and so on.

**Package**

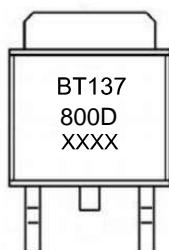


TO-252

**Circuit diagram**



**Marking**



### Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit	
Repetitive peak off-state voltage	$V_{DRM}$	800	V	
Repetitive peak reverse voltage	$V_{RRM}$	800	V	
RMS on-state current	$I_{T(RMS)}$	8	A	
Non repetitive surge peak on-state current (full cycle, F=50Hz)	$I_{TSM}$	65	A	
$I^2t$ value for fusing (tp=10ms)	$I^2t$	21	A <sup>2</sup> s	
Critical rate of rise of on-state current ( $I_G = 2 \times I_{GT}$ )	$di_T/dt$	I - II - III	50	A/ $\mu$ s
		IV	10	
Peak gate current	$I_{GM}$	2	A	
Average gate power dissipation	$P_{G(AV)}$	0.5	W	
Junction Temperature	$T_J$	-40 ~ +125	°C	
Storage Temperature	$T_{STG}$	-40 ~ +150	°C	

### Electrical characteristics (TA=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Value	Unit		
Gate trigger current	$I_{GT}$	$V_D = 12V I_T = 0.1A$ $T_J = 25^\circ C$	I - II - III	MAX.	5	mA
			IV		10	
Gate trigger voltage	$V_{GT}$	I - II - III - IV	MAX.	1.5	V	
Gate non-trigger voltage	$V_{GD}$	$V_D = V_{DRM} T_J = 125^\circ C$	MIN.	0.2	V	
latching current	$I_L$	$V_D = 12V I_{GT} = 0.1A$ $T_J = 25^\circ C$	I - III - IV	MAX.	15	mA
			II		20	
Holding current	$I_H$	I - II - III - IV	MAX.	10	mA	
Critical-rate of rise of commutation voltage	$dV_D/dt$	$V_D = 2/3 V_{DRM}$ Gate Open $T_J = 125^\circ C$	MIN.	10	V/ $\mu$ s	
<b>STATIC CHARACTERISTICS</b>						
Forward "on" voltage	$V_{TM}$	$I_{TM} = 10A$ tp=380 $\mu$ s	MAX.	1.55	V	
Repetitive Peak Off-State Current	$I_{DRM}$	$V_D = V_{DRM} V_R = V_{RRM}$	MAX.	5	$\mu$ A	
Repetitive Peak Reverse Current	$I_{RRM}$					$T_J = 125^\circ C$
<b>THERMAL RESISTANCES</b>						
Thermal resistance	Rth(j-c)	Junction to case(AC)	TYP.	1.6	°C/W	
	Rth(j-a)	Junction to ambient	TYP.	70	°C/W	

**Typical Characteristics**

FIG.1: Maximum power dissipation versus RMS on-state current (full cycle)

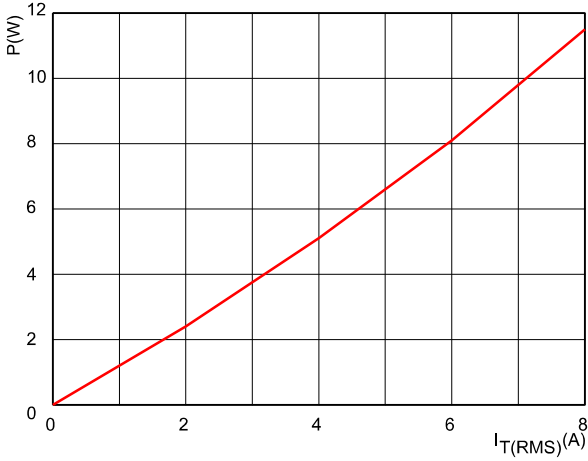


FIG.2: RMS on-state current versus case temperature (full cycle)

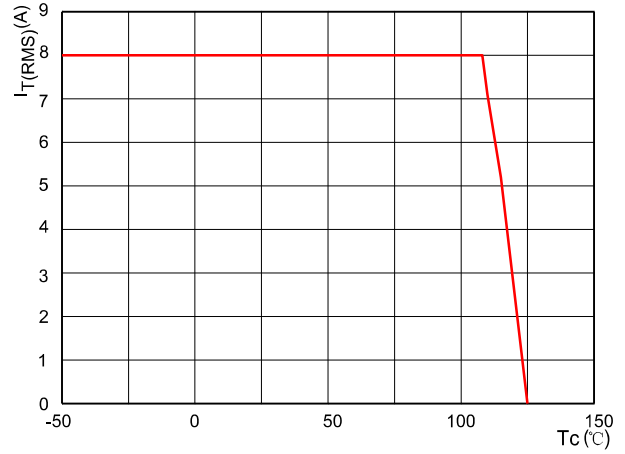


FIG.3: Surge peak on-state current versus number of cycles

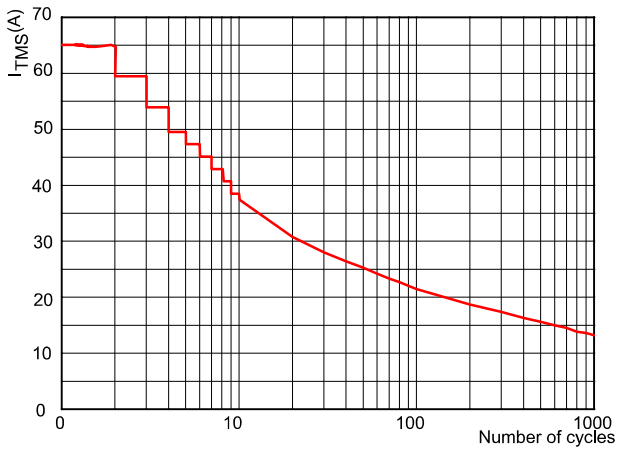


FIG.4: On-state characteristics (maximum values)

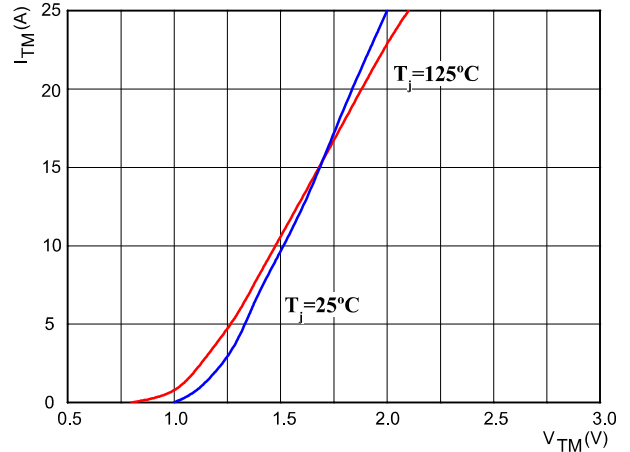


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$

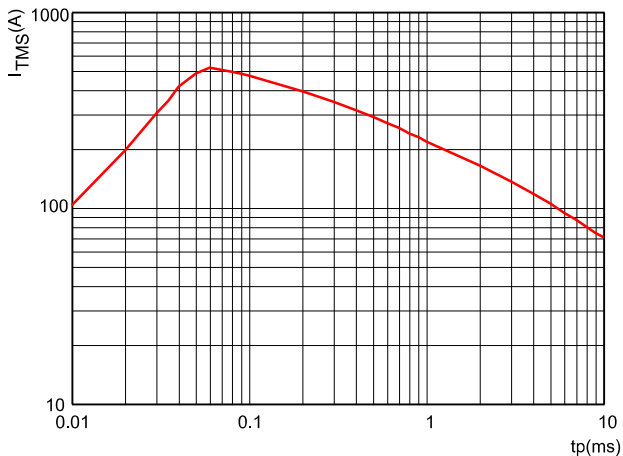
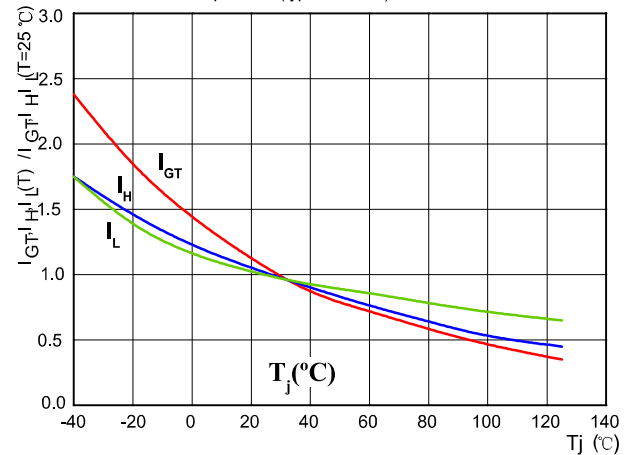
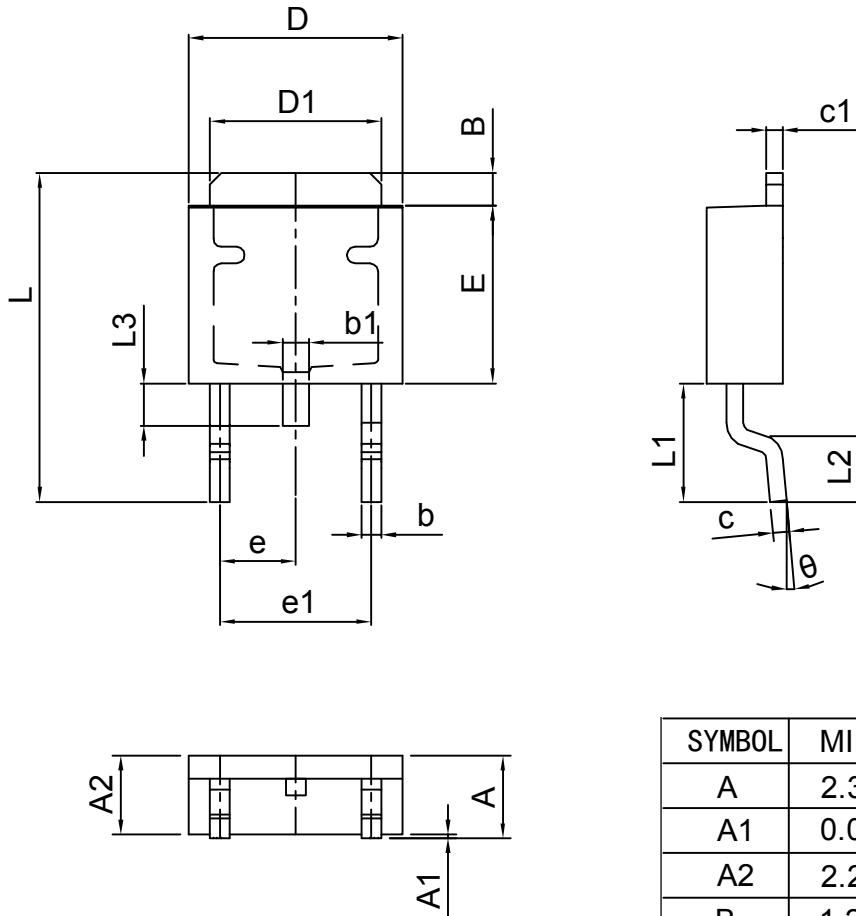


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



**TO-252 Package Information**



SYMBOL	MIN.	TYP	MAX.
A	2.30	2.40	2.50
A1	0.00	0.05	0.12
A2	2.25	2.35	2.40
B	1.20	1.40	1.60
b	0.50	0.60	0.70
b1	0.70	0.80	0.90
c	0.40	0.50	0.60
c1	0.40	0.50	0.60
D	6.20	6.30	6.50
D1	5.20	5.30	5.50
E	5.40	5.50	5.70
e	2.20	2.30	2.40
e1	4.40	4.60	4.80
L	9.60	10.00	10.40
L1	2.90	3.10	3.30
L2	1.40	1.55	1.70
L3	0.70	0.80	1.00
θ		4°	