

## 1、Description

Passivated triacs in a full pack plastic envelope, intended for use in applications requiring high bidirectional transient and blocking voltage capability and high thermal cycling performance. Typical applications include motor control, industrial and domestic lighting heating and static switching.

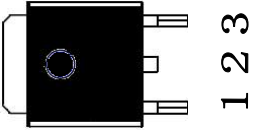

## 2、Applications

- Motor control
- Industrial and domestic lighting
- Heating
- Static switching

## 3、Features

- Blocking voltage to 800 V
- On-state RMS current to 4 A
- Ultra low gate trigger current
- Low cost package.

## 4、Pinning information

PIN	Description	Simplified outline	Symbol
1	main terminal 1(T1)		
2	main terminal 2(T2)		
3	gate (G)		
tab	main terminal		

## 5、Quick reference data

SYMBOL	PARAMETER	MAX	UNIT
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltages	800	V
$I_{T(RMS)}$	RMS on-state current	4	A
$I_{TSM}$	Non-repetitive peak on-state current	30	A

## 6、Thermal characteristics

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Thermal Resistance, Junction to Case	<i>in free air</i>	-	-	3.5	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	<i>in free air</i>	-	-	75	°C/W
$T_L$	Maximum Lead Temperature for Soldering Purposes for 10 Seconds	<i>in free air</i>	-	-	260	°C

## 7、Limiting value

Limiting values in accordance with the Maximum System(IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltages		-	800	V
$I_{T(RMS)}$	RMS on-state current	Full Cycle Sine Wave 50 to 60 Hz (TC = 85°C)	-	4	A
$I_{TSM}$	Non-repetitive peak Surge current	One Full cycle, 60 Hz, $T_J = +110^{\circ}\text{C}$	-	30	A
$I^2t$	$I^2t$ for fusing	$t = 8.3\text{ms}$	-	3.7	$\text{A}^2\text{s}$
$V_{GM}$	Peak gate voltage	Pulse Width $\leq 1.0 \mu\text{s}$ , TC = 85°C	-	5	V
$P_{GM}$	Peak gate power	Pulse Width $\leq 1.0 \mu\text{s}$ , TC = 85°C	-	10	W
$P_{G(AV)}$	Average gate power	Pulse Width $\leq 1.0 \mu\text{s}$ , TC = 85°C	-	0.5	W
$T_{stg}$	Storage temperature		-40	150	°C
$T_J$	Operating junction temperature		-40	110	°C

## 8、Characteristics

$T_J = 25^{\circ}\text{C}$  unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
<b>Static characteristics</b>						
$I_{GT}$	Gate trigger current	$V_D = 12 \text{ V}$ ; $I_T = 0.1 \text{ A}$	-	5	10	mA
		T2+ G+	-	5	10	mA
		T2+ G-	-	5	10	mA
		T2- G+	-	10	25	mA
$I_L$	Latching current	$V_D = 12 \text{ V}$ ; $I_{GT} = 0.1 \text{ A}$	-	5	10	mA
		T2+ G+	-	8	25	mA
		T2+ G-	-	5	10	mA
		T2- G+	-	10	30	mA
$I_H$	Holding current	Main Terminal Voltage = 12 Vdc, Gate Open, Initiating Current $\leq 1 \text{ Adc}$ $T_J = 25^{\circ}\text{C}$	-	-	15	mA
		$T_J = -40^{\circ}\text{C}$	-	-	30	mA
$V_{TM}$	On-state voltage	$I_{TM} = \pm 6 \text{ A Peak}$	-	1.4	2	V
$V_{GT}$	Gate trigger voltage (Continuous dc)	Main Terminal Voltage = 12 Vdc, $R_L = 100 \text{ Ohms}$ , $T_J = -40^{\circ}\text{C}$ All Quadrants	-	1.4	2.5	V
$V_{GD}$	Gate Non-Trigger Voltage	Main Terminal Voltage = 12 Vdc, $R_L = 100 \text{ Ohms}$ , $T_J = 110^{\circ}\text{C}$ All Quadrants	0.2	-	-	V
<b>Dynamic Characteristics</b>						
$dV/dt(c)$	Critical rate of rise of off-state voltage	$V_{DRM}$ , $T_J = 85^{\circ}\text{C}$ , Gate Open, $I_{TM} = 5.7 \text{ A}$ , Exponential Waveform, Commutating $di/dt = 2.0 \text{ A/ms}$	-	15	-	V/ $\mu\text{s}$
$t_{gt}$	Gate controlled turn-on time	$I_{TM} = 14 \text{ Adc}$ , $I_{GT} = 100 \text{ mAdc}$	-	1.5	-	$\mu\text{s}$

## 9. Electrical Characteristics Curve

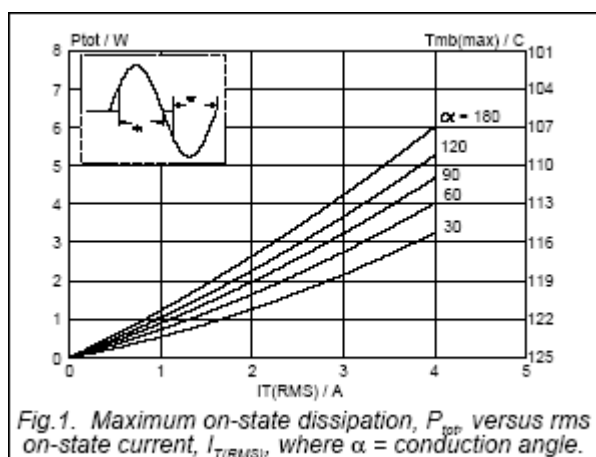


Fig.1. Maximum on-state dissipation,  $P_{tot}$ , versus rms on-state current,  $I_{T(RMS)}$ , where  $\alpha$  = conduction angle.

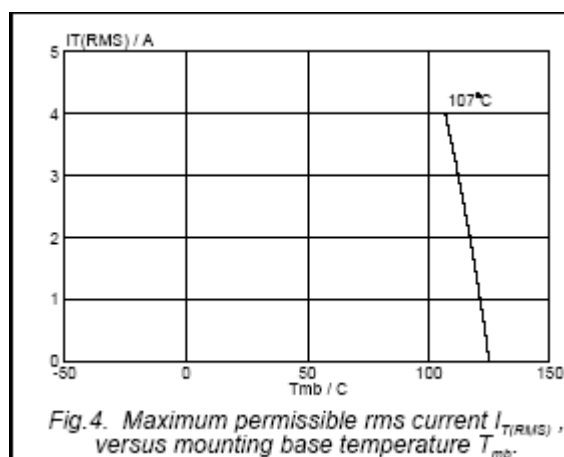


Fig.4. Maximum permissible rms current  $I_{T(RMS)}$ , versus mounting base temperature  $T_{mb}$ .

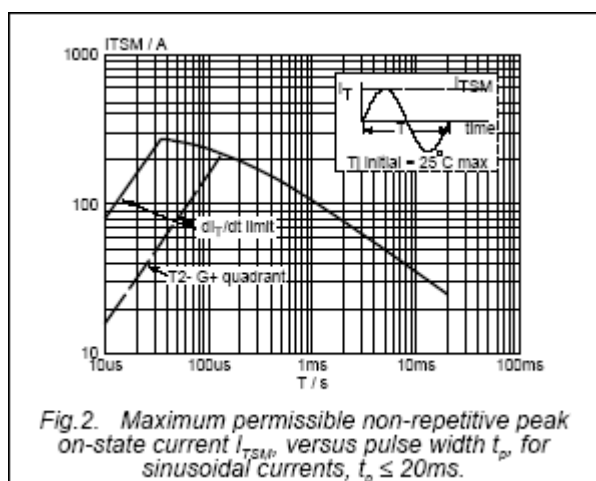


Fig.2. Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus pulse width  $t_p$ , for sinusoidal currents,  $t_p \leq 20\text{ms}$ .

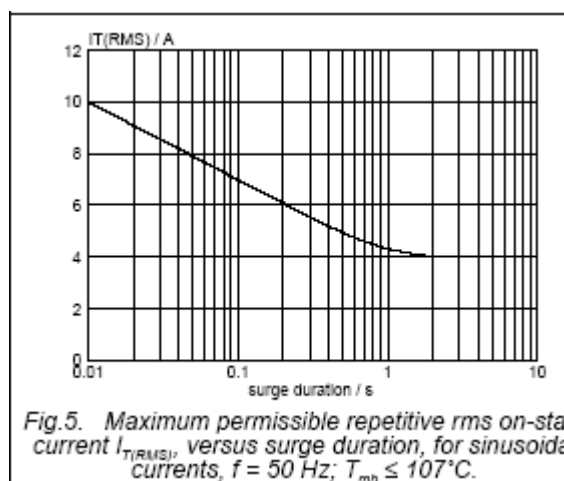


Fig.5. Maximum permissible repetitive rms on-state current  $I_{T(RMS)}$ , versus surge duration, for sinusoidal currents,  $f = 50\text{ Hz}$ ;  $T_{mb} \leq 107^\circ\text{C}$ .

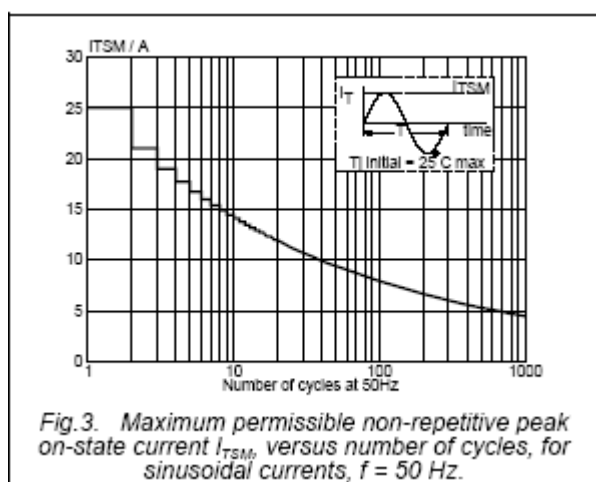


Fig.3. Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus number of cycles, for sinusoidal currents,  $f = 50\text{ Hz}$ .

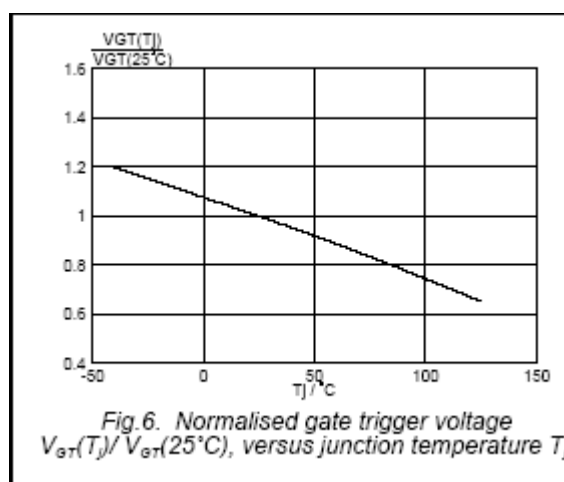


Fig.6. Normalised gate trigger voltage  $V_{GT}(T_J) / V_{GT}(25^\circ\text{C})$ , versus junction temperature  $T_J$ .

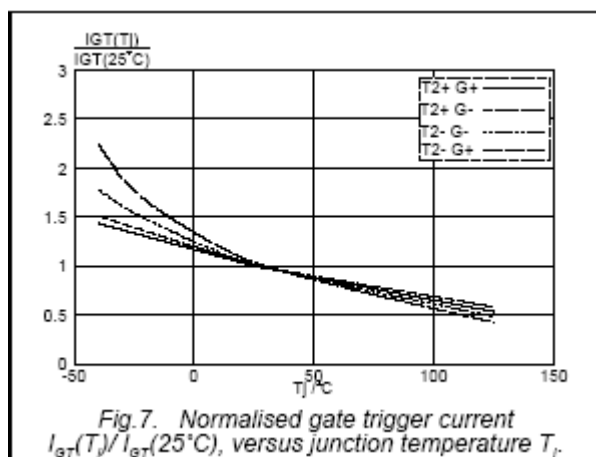


Fig. 7. Normalised gate trigger current  $I_{GT}(T_J)/I_{GT}(25^\circ\text{C})$ , versus junction temperature  $T_J$ .

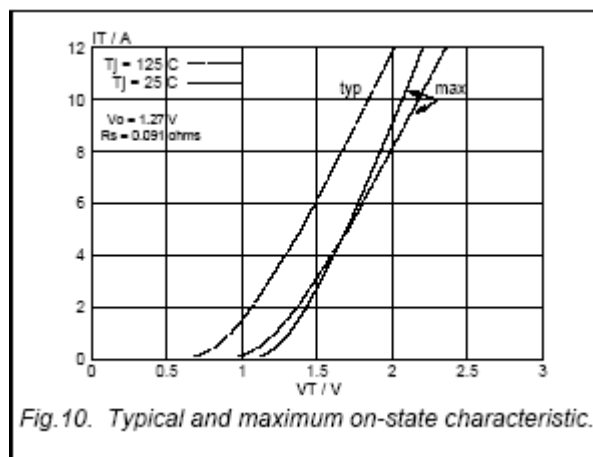


Fig. 10. Typical and maximum on-state characteristic.

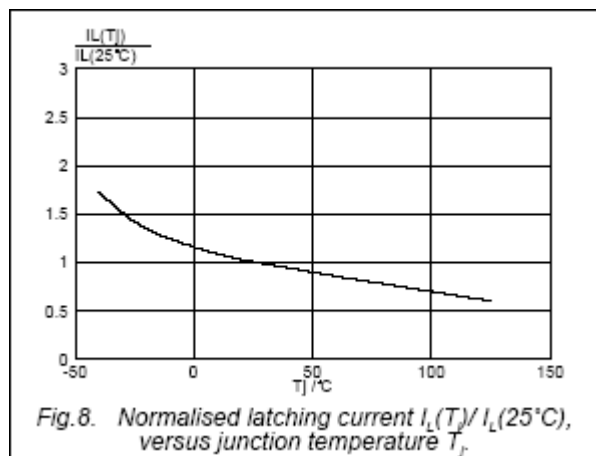


Fig. 8. Normalised latching current  $I_L(T_J)/I_L(25^\circ\text{C})$ , versus junction temperature  $T_J$ .

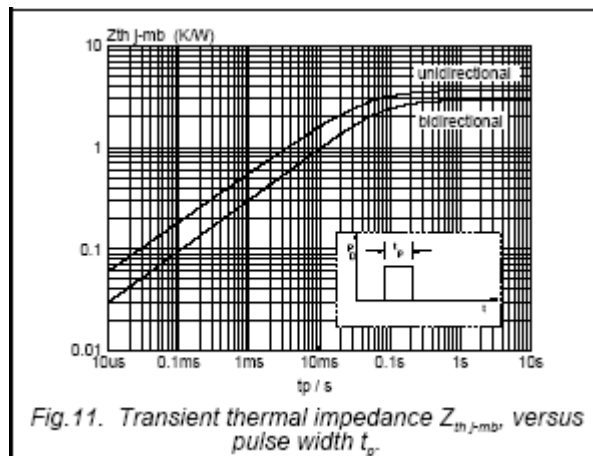


Fig. 11. Transient thermal impedance  $Z_{th j-mb}$ , versus pulse width  $t_p$ .

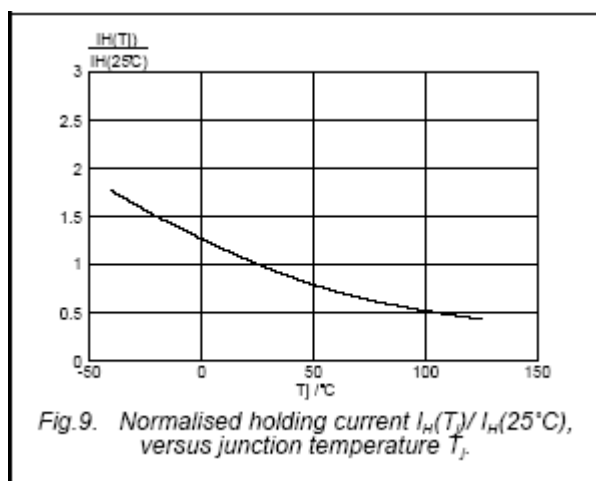


Fig. 9. Normalised holding current  $I_H(T_J)/I_H(25^\circ\text{C})$ , versus junction temperature  $T_J$ .

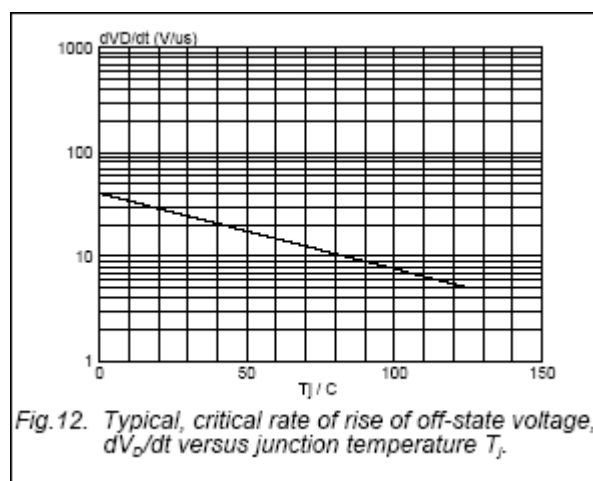
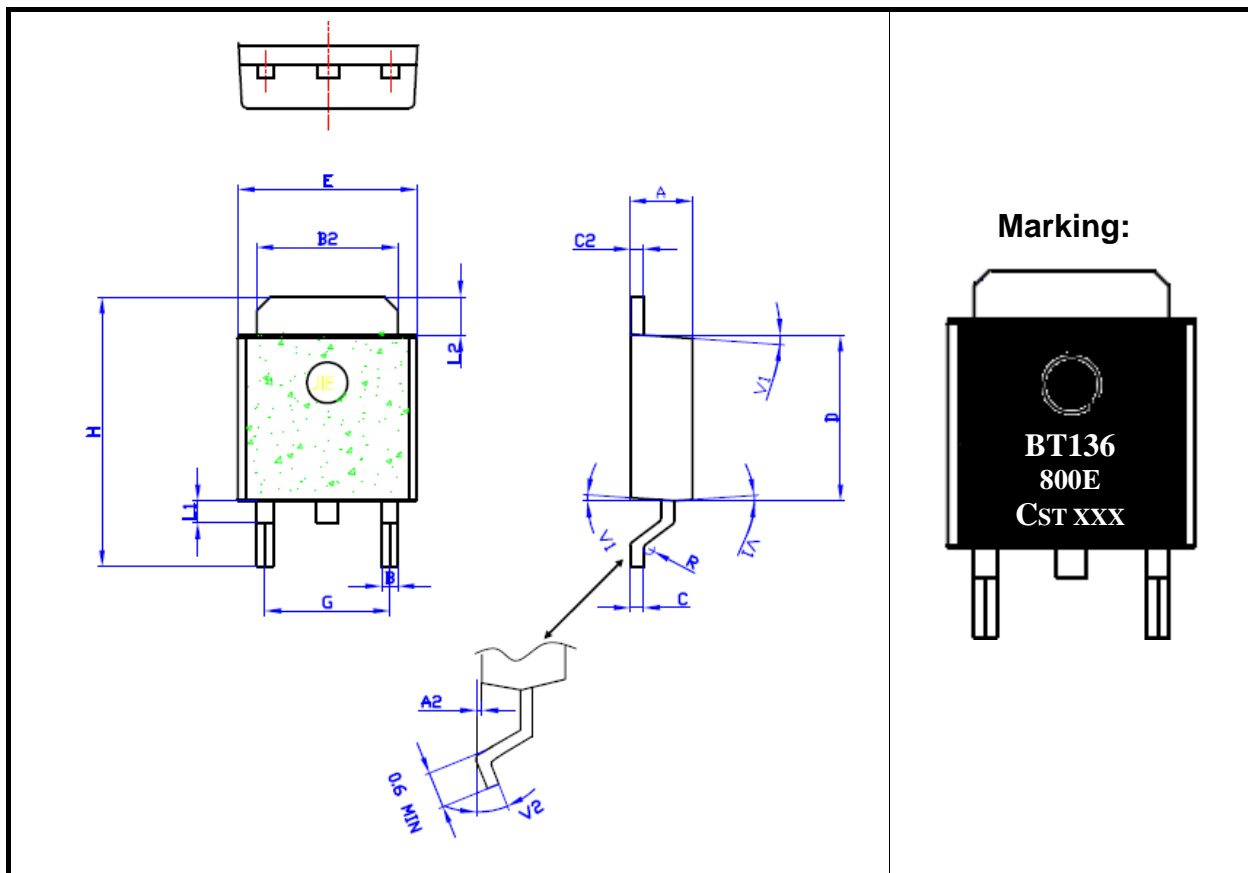


Fig. 12. Typical, critical rate of rise of off-state voltage,  $dV_D/dt$  versus junction temperature  $T_J$ .

## 10、Package outline(TO-252)



DIM	Inches			Millimeters		
	Min	Type	Max	Min	Type	Max
A	0.087	-	0.094	2.20	-	2.40
A2	0.001	-	0.009	0.03	-	0.23
B	0.022	-	0.026	0.55	-	0.65
B2	0.205	-	0.213	5.20	-	5.40
B3	0.030	-	0.033	0.76	-	0.85
B4	-	0.013	-	-	0.32	-
C	0.018	-	0.024	0.45	-	0.62
C2	0.016	-	0.021	0.40	-	0.54
D	0.236	-	0.244	6.00	-	6.20
E	0.252	-	0.260	6.40	-	6.60
G	0.173	-	0.181	4.40	-	4.60
H	0.384	-	0.419	9.75	-	10.65
L1	-	0.031	-	-	0.8	-
L2	0.071	-	0.075	1.80	-	1.90
V1	-	4°	-	-	4°	-
V2	0°	-	8°	0°	-	8°