

1、Description

Glass passivated high commutation triacs in a full pack, plastic envelope intended for use in circuits where high static and dynamic dV/dt and high dI/dt can occur. These devices will commute the full rated rms current at the maximum rated junction temperature, without the aid of a snubber.

2、Applications

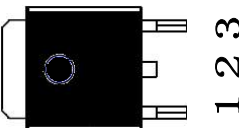

Typical applications include motor control, industrial and domestic lighting, heating and static switching.

- Heating regulation
- Motor control
- Phase control

3、Features

- Blocking voltage to 800 V
- On-state RMS current to 12A
- Ultra low gate trigger current
- Low cost package.

4、Pinning information

PIN	Description	Simplified outline	Symbol
1	main terminal 1 (T1)	 TO-252	
2	main terminal 2 (T2)		
3	gate (G)		
tab	main terminal2		

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	12	A
I_{TSM}	Non-repetitive peak on-state current	90	A

6、Thermal characteristics

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base	full cycle	-	-	1.5	K/W
		half cycle	-	-	2.0	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	in free air		60	-	K/W

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 sine wave; $T_{mb} \leq 102\text{ }^{\circ}\text{C}$	-	12	A
	Non-repetitive peak on-state current	full sine wave; $T_j = 25\text{ }^{\circ}\text{C}$	-	90	A
		prior to surge $t = 20\text{ ms}$ $t = 16.7\text{ ms}$	-	105	A
I^2t	I^2t for fusing	$t = 10\text{ ms}$	-	45	A^2s
di_T/dt	Repetitive rate of rise of on-state current after triggering	$I_{TM} = 12\text{ A}$; $I_G = 0.2\text{ A}$; $dI_G/dt = 0.2\text{ A/s}$			
		T2+ G+	-	100	$\text{A}/\mu\text{s}$
		T2+ G- T2- G-	-	100	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current		-	2	A
V_{GM}	Peak gate voltage		-	8	V
P_{GM}	Peak gate power		-	16	W
$P_{G(AV)}$	Average gate power	over any 20 ms period	-	0.35	W
T_{stg}	Storage temperature		-40	150	$^{\circ}\text{C}$
T_j	Junction temperature		-40	125	$^{\circ}\text{C}$

8、Characteristics

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

T _j = 25 °C unless otherwise stated							
SYMBOL	PARAMETER	CONDITIONS		MIN	TYP	MAX	UNIT
Static characteristics							
I _{GT}	Gate trigger current	V _D = 12 V; I _T = 0.1A	T2+ G+	-	-	10	mA
			T2+ G-	-	-	10	mA
			T2- G-	-	-	10	mA
			T2- G+	-	-	25	mA
I _L	Latching current	V _D = 12 V; I _{GT} = 0.1A	T2+ G+	-	-	20	mA
			T2+ G-	-	-	50	mA
			T2- G-	-	-	20	mA
			T2- G+	-	-	75	mA
I _H	Holding current	V _D = 12 V; I _{GT} = 0.15A	-	20	50	mA	
V _T	On-state voltage	I _T = 17A	-	-	1.85	V	
V _{GT}	Gate trigger voltage	V _D = 12 V; I _T = 0.1A	T2+ G+	0.5	0.80	1.5	V
			T2+ G-	0.5	0.78	1.5	V
			T2- G-	0.5	0.70	1.5	V
			T2- G+	-	-	-	V
Dynamic Characteristics							
dV _D /dt	Critical rate of rise of off-state voltage	V _{DM} = 67% V _{DRM(max)} ; T _j = 125 °C; Exponential wave form; gate open circuit		250	500	-	V/μs
dI _{com} /dt	Critical rate of change of commutating current	V _D = 400 V; T _j = 125 °C I _{T(RMS)} =4.4A; Commutating dv/dt = 18 V/ s, Without snubber; gate open circuit		6.5	-	-	A/ms
dI/dt	Repetitive Critical Rate of Rise of On-State Current	I _{PK} = 50 A; PW = 40 sec; di _G /dt = 200 mA/ sec; f = 60 Hz		-	-	10	A/μs

9. Electrical Characteristics Curve

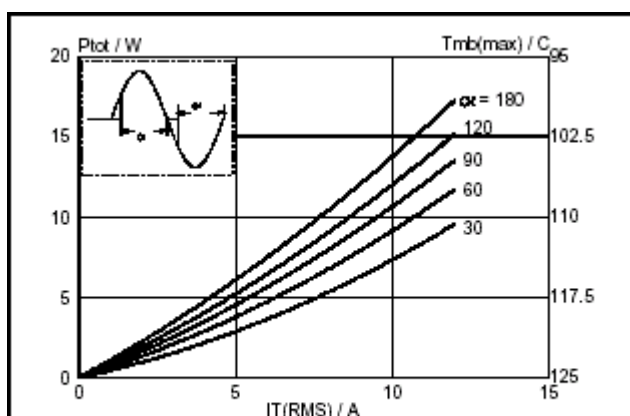


Fig. 1. Maximum on-state dissipation, P_{tot} , versus rms on-state current, $I_{T(RMS)}$, where α = conduction angle.

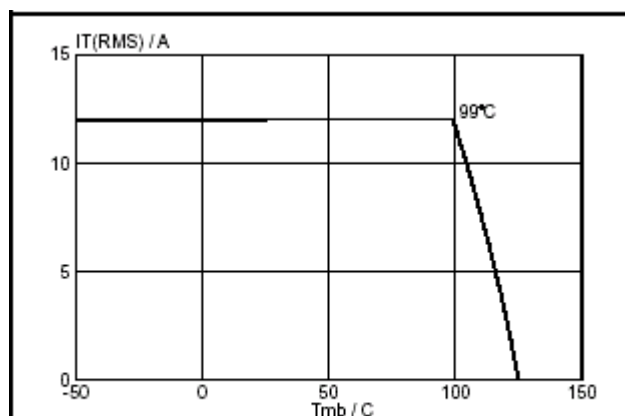


Fig. 4. Maximum permissible rms current $I_{T(RMS)}$, versus mounting base temperature T_{mb} .

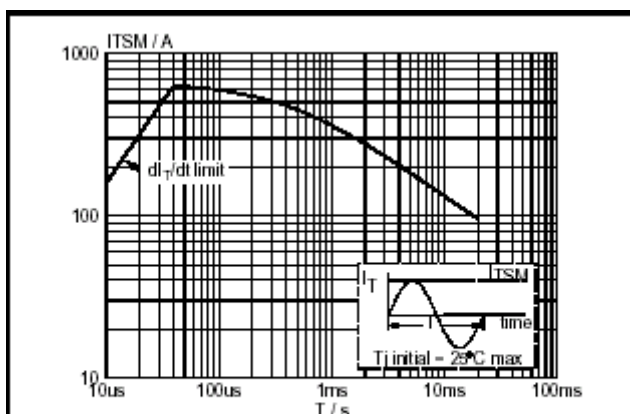


Fig. 2. Maximum permissible non-repetitive peak on-state current I_{TSM} , versus pulse width t_p , for sinusoidal currents, $t_p \leq 20\text{ms}$.

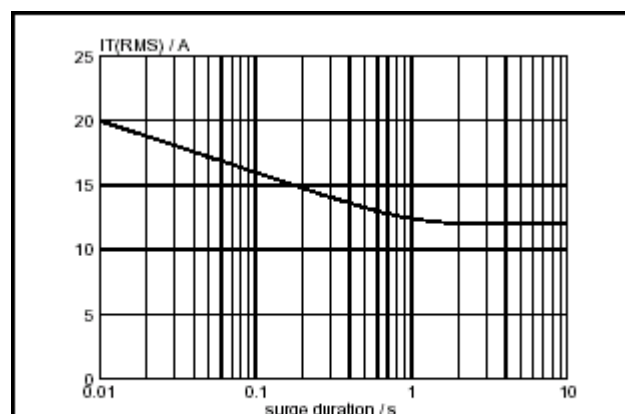


Fig. 5. Maximum permissible repetitive rms on-state current $I_{T(RMS)}$, versus surge duration, for sinusoidal currents, $f = 50\text{ Hz}$; $T_{mb} \leq 99^\circ\text{C}$.

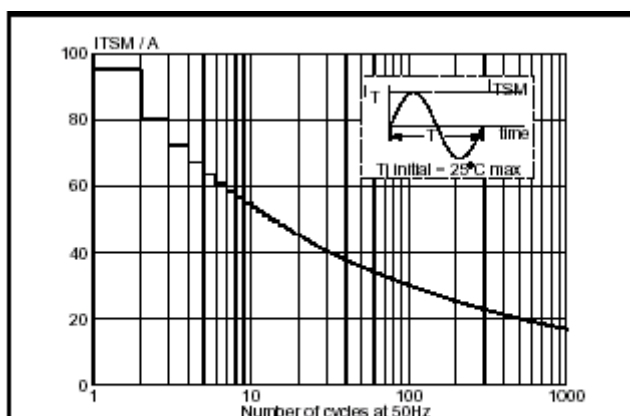


Fig. 3. Maximum permissible non-repetitive peak on-state current I_{TSM} , versus number of cycles, for sinusoidal currents, $f = 50\text{ Hz}$.

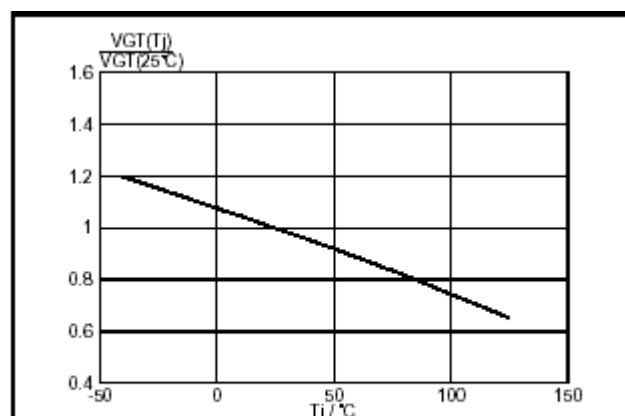


Fig. 6. Normalised gate trigger voltage $V_{GT}(T_j)/V_{GT}(25^\circ\text{C})$, versus junction temperature T_j .

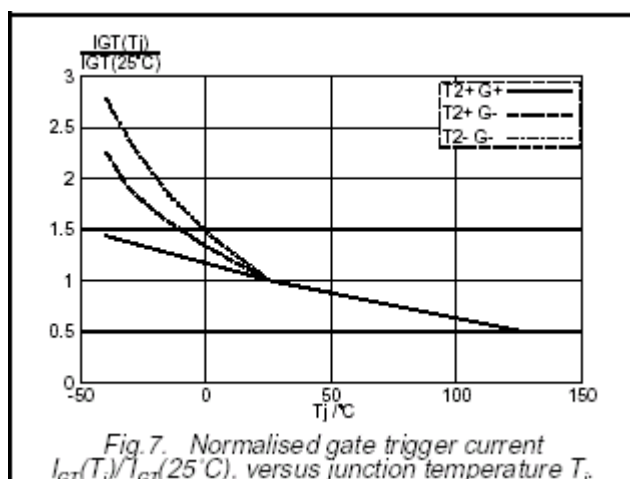


Fig. 7. Normalised gate trigger current $I_{GT}(T_J) / I_{GT}(25^\circ\text{C})$, versus junction temperature T_J .

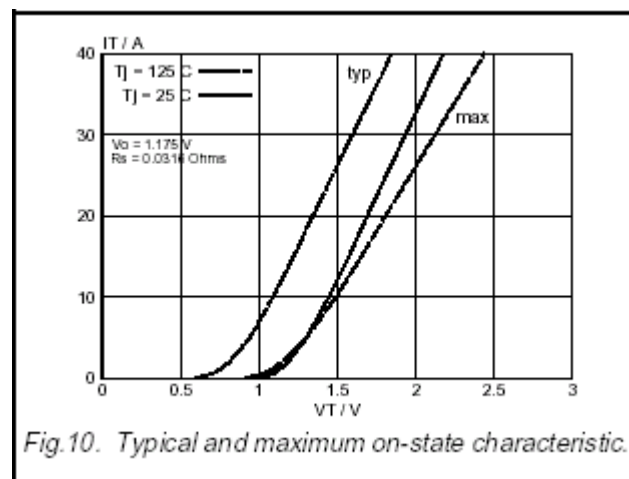


Fig. 10. Typical and maximum on-state characteristic.

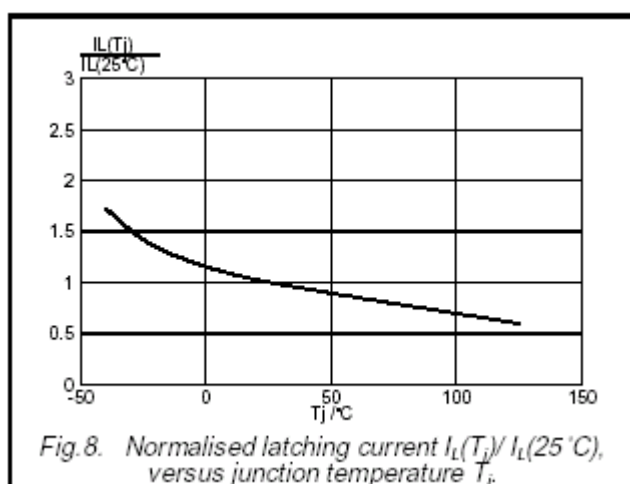


Fig. 8. Normalised latching current $I_L(T_J) / I_L(25^\circ\text{C})$, versus junction temperature T_J .

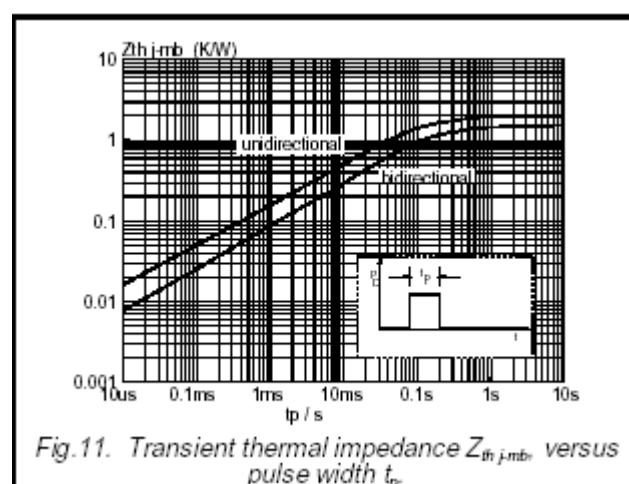


Fig. 11. Transient thermal impedance $Z_{th(j,mb)}$ versus pulse width t_p .

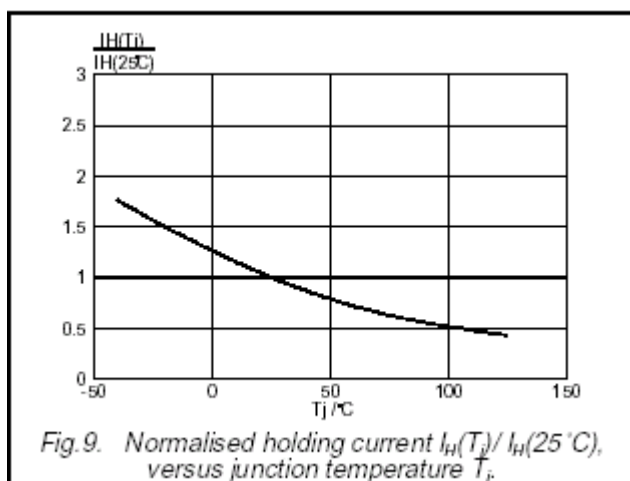


Fig. 9. Normalised holding current $I_H(T_J) / I_H(25^\circ\text{C})$, versus junction temperature T_J .

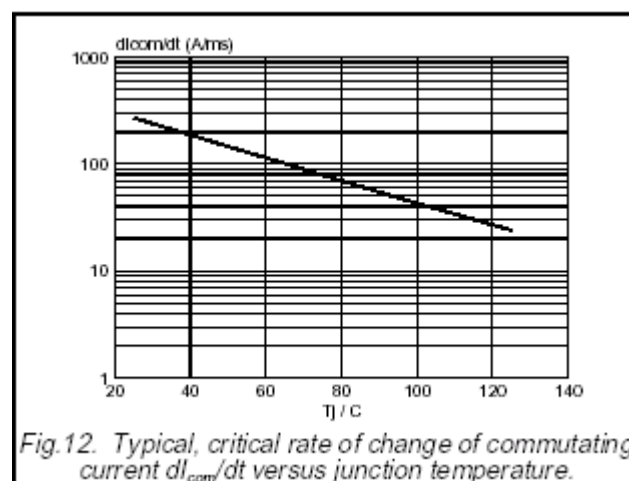
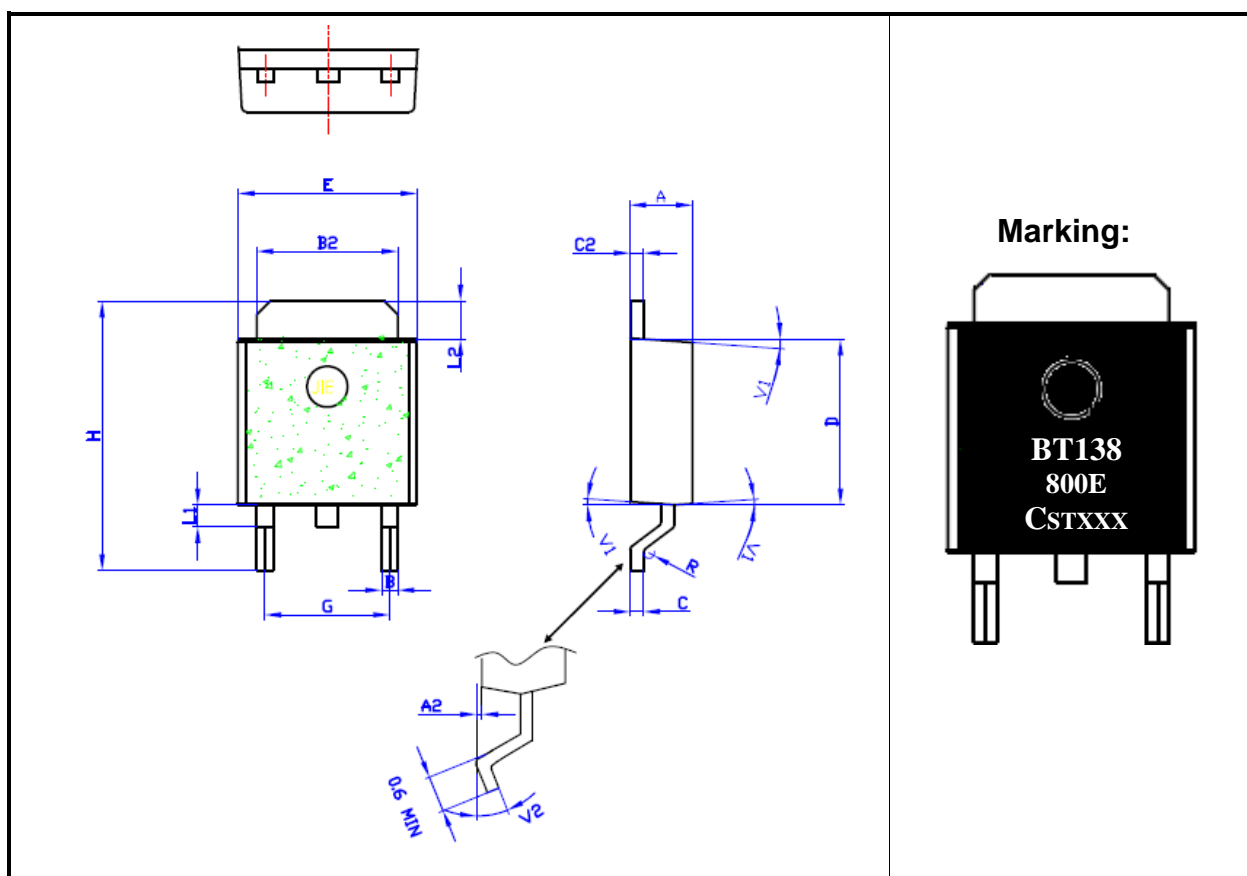


Fig. 12. Typical, critical rate of change of commutating current di_{com}/dt versus junction temperature.

10、Pac ackage 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°