

Description

Passivated, sensitive gate triacs in a plastic envelope, intended for use in general purpose bidirectional switching and phase control applications, where high sensitivity is required in all four quadrants.

Symbol	Simplified outline
	 TO-220
Pin	Description
1	Main terminal 1 (T1)
2	Main terminal 2 (T2)
3	gate (G)
TAB	Main terminal 2 (T2)

Applications:

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

Features

- ◆ Blocking voltage to 600 V
- ◆ On-state RMS current to 8 A

SYMBOL	PARAMETER	Value	Unit
V_{DRM}	Repetitive peak off-state voltages	600	V
$I_T \text{ (RMS)}$	RMS on-state current	8	A
I_{TSM}	Non-repetitive peak on-state current	65	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{th,j-mb}$	Thermal resistance Junction to mounting base	Full cycle	-	-	2.0	K/W
		Half cycle	-	-	2.4	K/W
$R_{th,j-a}$	Thermal resistance Junction to ambient	In free air	-	60	-	K/W



BT137-600E

Sensitive Gate Triacs

Limiting values in accordance with the Maximum system(IEC 134)

SYMBOL	PARAMETER	CONDITIONS	MIN	Value	UNIT
V_{DRM}	Repetitive peak off-state Voltages		-	600	V
$I_{T(RMS)}$	RMS on-state current	Full sine wave; $T_{mb} \leq 102^\circ C$	-	8	A
I_{TSM}	Non-repetitive surge peak on-state current	full sine wave; $T_J=25^\circ C$ prior to surge	t=20ms t=16.7ms	65 71	A
I^2t	I^2t for fusing	$T=10ms$	-	21	A^2s
dI_T/dt	Repetitive rate of rise of on-state current after triggering	$I_{TM}=12A$; $I_G=0.2A$; $DI_G/dt=0.2A/\mu s$	T2+G+	-	$A/\mu s$
			T2+G-	-	$A/\mu s$
			T2-G-	-	$A/\mu s$
			T2-G+	-	$A/\mu s$
			-	10	$A/\mu s$
I_{GM}	Peak gate current		-	2	A
V_{GM}	Peak gate voltage		-	5	V
P_{GM}	Peak gate power		-	5	W
$P_{G(AV)}$	Average gate power	Over any 20 ms period	-	0.5	W
T_{stg}	Storage temperature		-40	150	$^\circ C$
T_j	Operating junction Temperature		-	125	$^\circ C$

$T_J=25^\circ C$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT	
Static characteristics							
I_{GT1}	Gate trigger current	$V_D=12V$; $I_T=0.1A$	T2+G+ T2+G- T2-G- T2-G+	- - - -	2.5 4.0 5.0 11	10 10 10 25	mA mA mA mA
I_L	Latching current	$V_D=12V$; $I_{GT}=0.1A$	T2+G+ T2+G- T2-G- T2-G+	- - - -	3.0 14 3.0 4.0	25 35 25 35	mA mA mA mA
I_H	Holding current	$V_D=12V$; $I_{GT}=0.1A$	-	-	2.5	20	mA
V_T	On-state voltage	$I_T=10A$	-	-	1.3	1.65	V
V_{GT}	Gate trigger voltage	$V_D=12V$; $I_T=0.1A$ $V_D=400V$; $I_T=0.1A$; $T_J=125^\circ C$	- 0.25	- 0.4	0.7 1.5	-	V V
I_D	Off-state leakage current	$V_D=V_{DRM(max)}$; $T_J=125^\circ C$	-	-	0.1	0.5	mA

Dynamic Characteristics

dV_D/dt	Critical rate of rise of Off-state voltage	$V_{DM}=67\% V_{DRM(max)}$; $T_J=125^\circ C$; Exponential wave form; gate open circuit	-	50	-	$V/\mu s$
t_{gt}	Gate controlled turn-on time	$I_{TM}=12A$; $V_D=V_{DRM(max)}$; $I_G=0.1A$; $DI_G/dt=5A/\mu s$	-	2	-	μs

Description

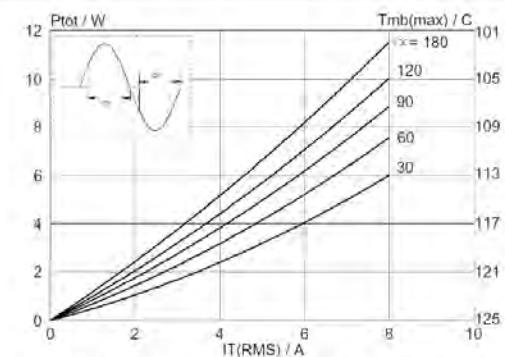


Fig.1. Maximum on-state dissipation, P_{tot} , versus rms on-state current, $I_{T(RMS)}$, where α = conduction angle.

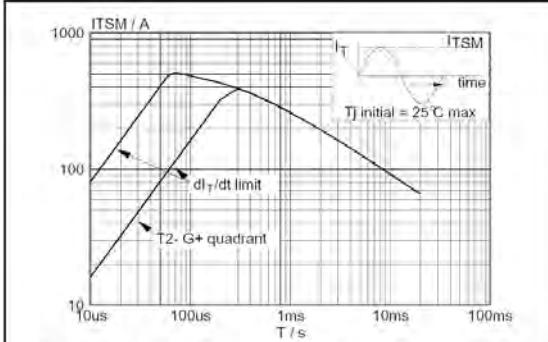


Fig.2. Maximum permissible non-repetitive peak on-state current I_{TSM} , versus pulse width t_p , for sinusoidal currents, $t_p \leq 20\text{ms}$.

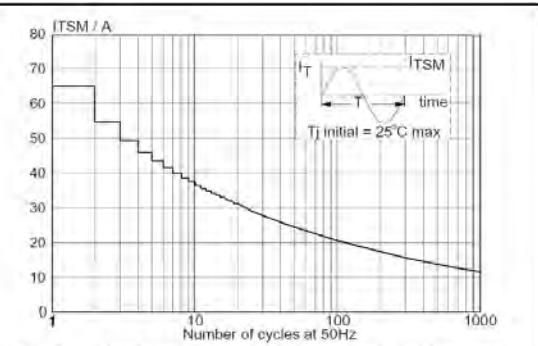


Fig.3. Maximum permissible non-repetitive peak on-state current I_{TSM} , versus number of cycles, for sinusoidal currents, $f = 50\text{ Hz}$.

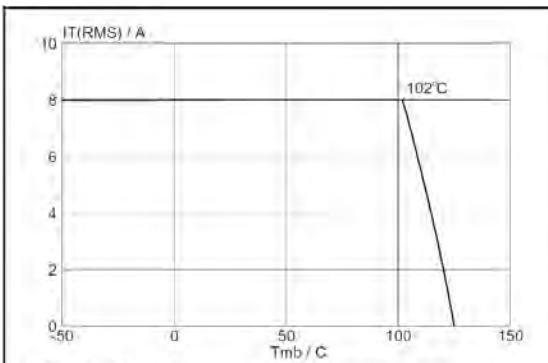


Fig.4. Maximum permissible rms current $I_{T(RMS)}$, versus mounting base temperature T_{mb} .

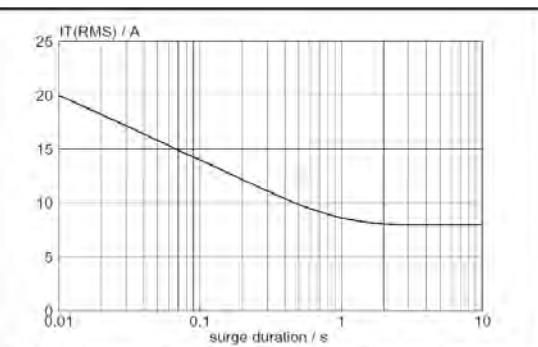


Fig.5. Maximum permissible repetitive rms on-state current $I_{T(RMS)}$, versus surge duration, for sinusoidal currents, $f = 50\text{ Hz}$; $T_{mb} \leq 102^\circ\text{C}$.

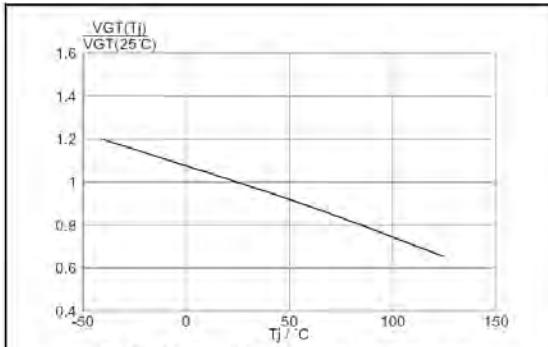


Fig.6. Normalised gate trigger voltage $V_{GT}(T_j)/V_{GT}(25^\circ\text{C})$, versus junction temperature T_j .

Description

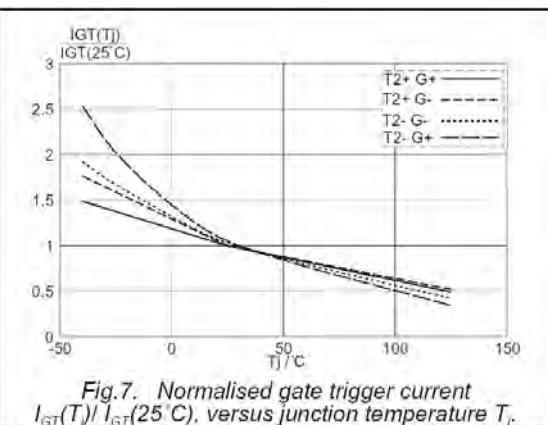


Fig. 7. Normalised gate trigger current $I_{GT}(T_j)/I_{GT}(25^\circ C)$, versus junction temperature T_j .

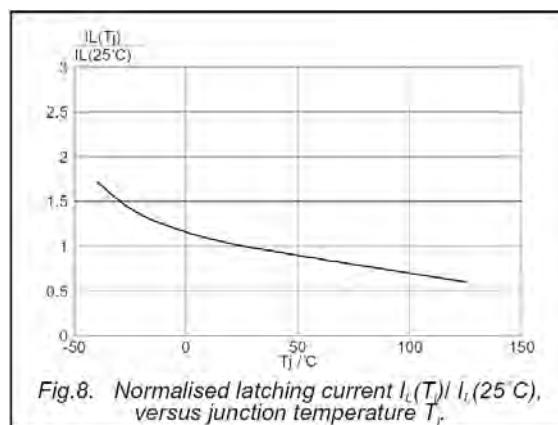


Fig. 8. Normalised latching current $I_L(T_j)/I_L(25^\circ C)$, versus junction temperature T_j .

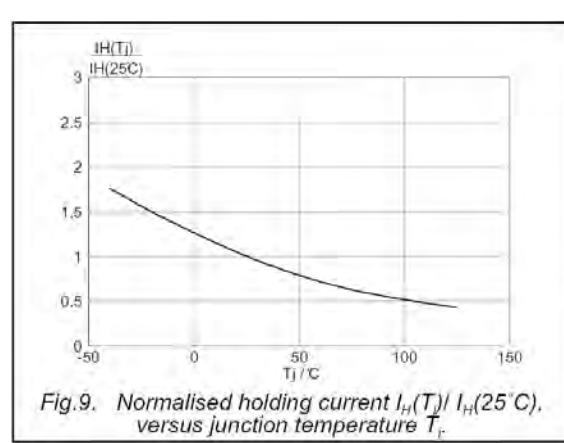


Fig. 9. Normalised holding current $I_H(T_j)/I_H(25^\circ C)$, versus junction temperature T_j .

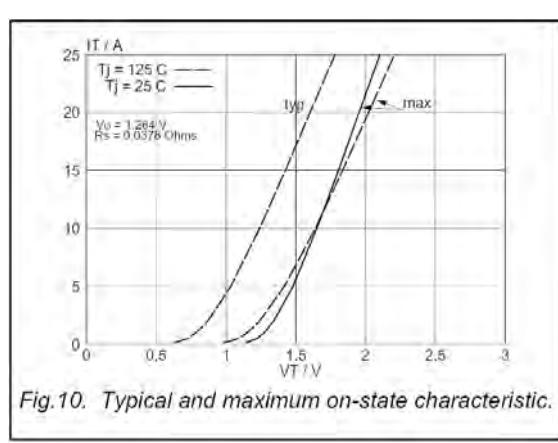


Fig. 10. Typical and maximum on-state characteristic.

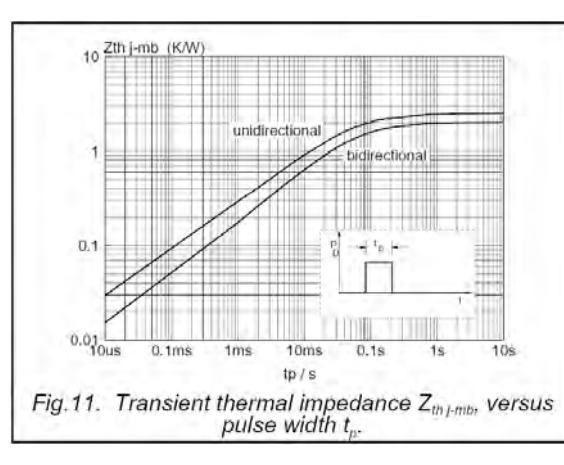


Fig. 11. Transient thermal impedance $Z_{th,jmb}$, versus pulse width t_p .

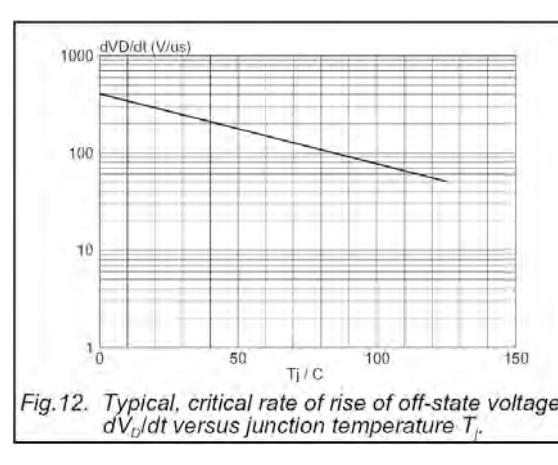


Fig. 12. Typical, critical rate of rise of off-state voltage dV_D/dt versus junction temperature T_j .

MECHANICAL DATA

Dimensions in mm
Net Mass: 2 g

