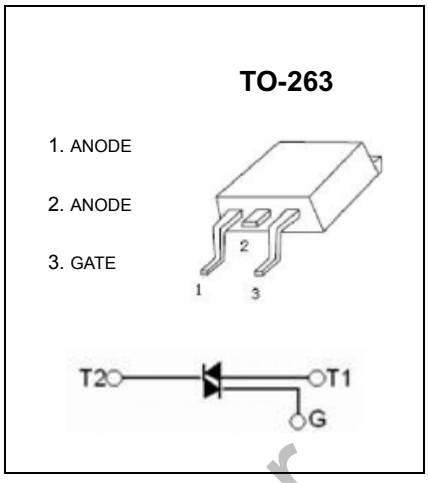
TO-263 Plastic-Encapsulate Thyristors

BT137E-800E TRIAC



MAIN FEATURES

Symbol	value	unit
$I_{T(RMS)}$	8	A
V_{DRM}/V_{RRM}	800	V
I_{TSM}	25	A

GENERAL DESCRIPTION

Glass passivated triacs in a plastic envelope , intended for use in applications requiring high bidirectional transient andblocking voltage capability and high thermal cycling performance.

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

ABSOLUTE MAXIMUM RATINGS (Ta=25℃ unless otherwise noted)

symbol	parameter			value	unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	D^2 PAK/TO-252	T_C=107℃	8	A
I_{TSM}	Non repetitive surge peak on-state current (full sine wave, Tj =25℃)		t=20ms	25	A
			t=16.7ms	27	
I_{GM}	Peak gate current			2	A
$P_{G(AV)}$	Average gate power dissipation		T_j=125℃	0.5	W
T_{stg}	Storage junction temperature range			-40 to +150	℃
T_j	Operating junction temperature range			-40 to +125	

ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

Parameter		Symbol	Test conditions		Min	Max	Unit
Rated repetitive peak off-state/reverse voltage		V_{DRM},V_{RRM}	I_D=10μA		600		V
Rated repetitive peak off-state current		I_{DRM}, I_{RRM}	V_D=620V			10	μA
On-state voltage		V_{TM}	I_T=5A			1.7	V
Gate trigger current	Ⅰ	I_{GT}	T_2(+), G(+)	V_D=12V R_L=100Ω		10	mA
	Ⅱ		T_2(+), G(-)			10	mA
	Ⅲ		T_2(-), G(-)			10	mA
	Ⅳ		T_2(-), G(+)			12	mA
Gate trigger voltage	Ⅰ	V_{GT}	T_2(+), G(+)	V_D=12V R_L=100Ω		1.45	V
	Ⅱ		T_2(+), G(-)			1.45	V
	Ⅲ		T_2(-), G(-)			1.45	V
	Ⅳ		T_2(-), G(+)			2	V
Holding current		I_H	I_T =100mA	I_G=20mA		20	mA

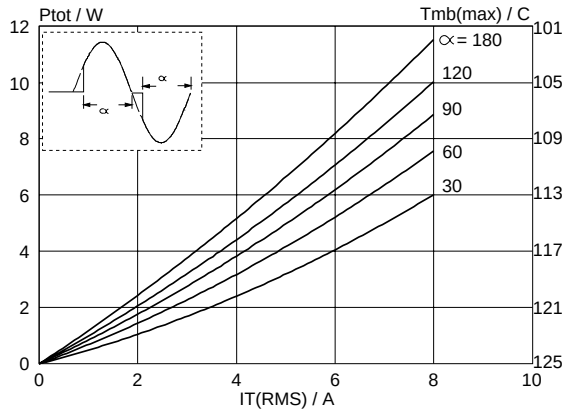


Fig.1. Maximum on-state dissipation, P_{tot}, versus rms on-state current, $I_{T(RMS)}$, where α = conduction angle.

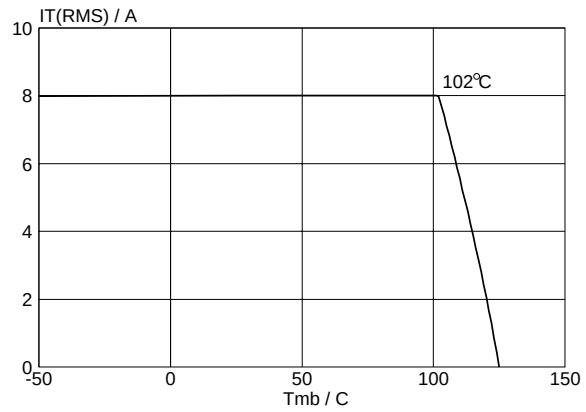


Fig.4. Maximum permissible rms current $I_{T(RMS)}$, versus mounting base temperature T_{mb}.

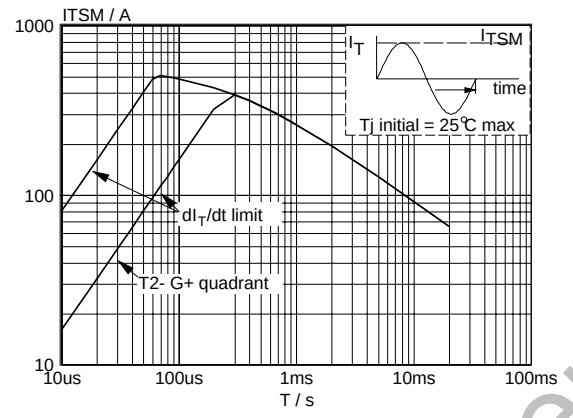


Fig.2. Maximum permissible non-repetitive peak on-state current I_{TSM}, versus pulse width t_p, for sinusoidal currents, $t_p \leq 20ms$.

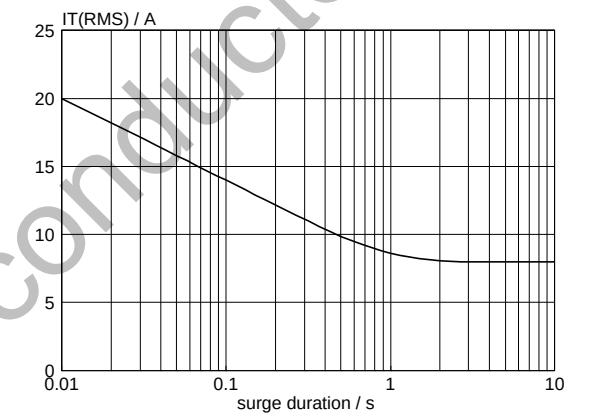


Fig.5. Maximum permissible repetitive rms on-state current $I_{T(RMS)}$, versus surge duration, for sinusoidal currents, f = 50 Hz; $T_{mb} \leq 102^{\circ}C$.

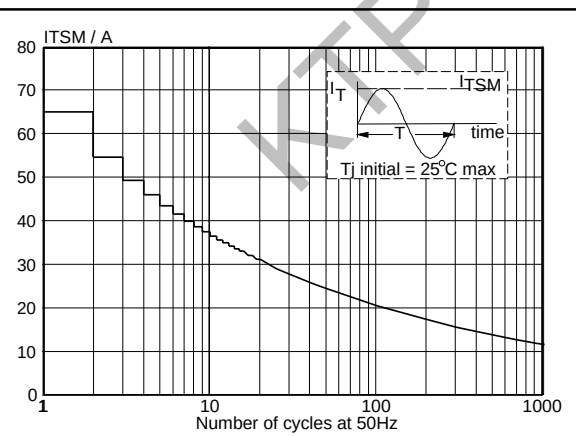


Fig.3. Maximum permissible non-repetitive peak on-state current I_{TSM}, versus number of cycles, for sinusoidal currents, f = 50 Hz.

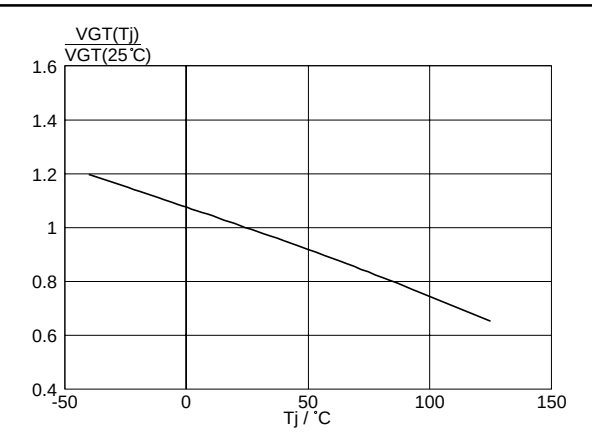


Fig.6. Normalised gate trigger voltage $V_{GT}(T_j)$/ $V_{GT}(25^{\circ}C)$, versus junction temperature T_j.

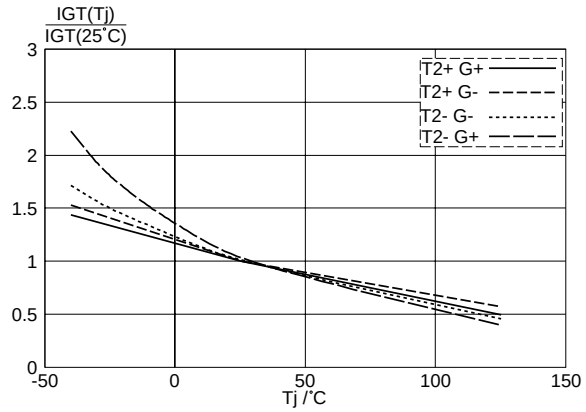


Fig.7. Normalised gate trigger current $I_{GT}(T_j)/ I_{GT}(25^{\circ}C)$, versus junction temperature T_j.

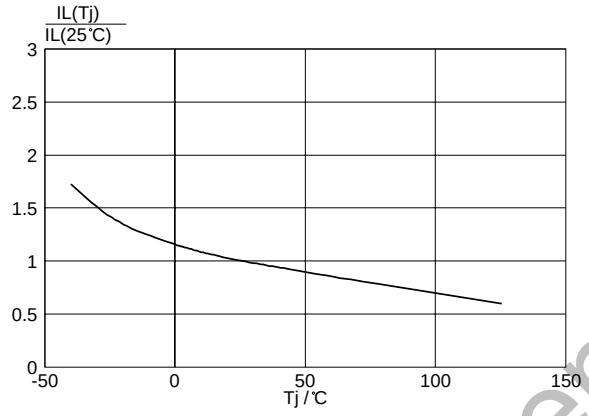


Fig.8. Normalised latching current $I_L(T_j)/ I_L(25^{\circ}C)$, versus junction temperature T_j.

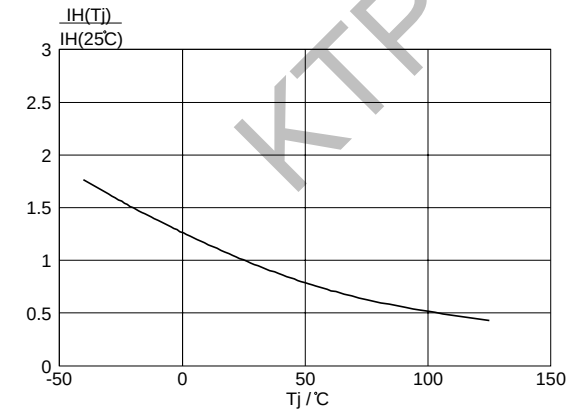


Fig.9. Normalised holding current $I_H(T_j)/ I_H(25^{\circ}C)$, versus junction temperature T_j.

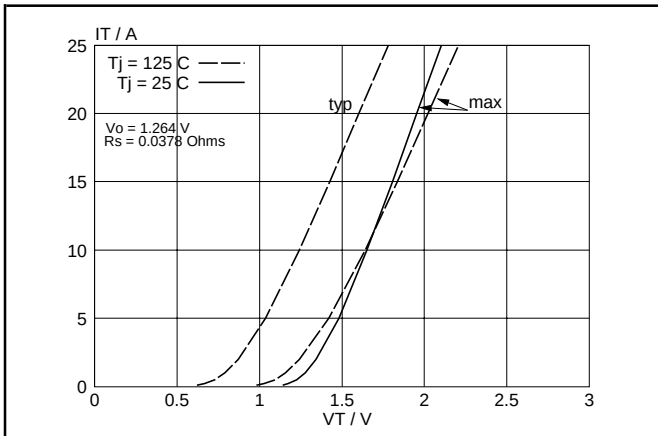


Fig.10. Typical and maximum on-state characteristic.

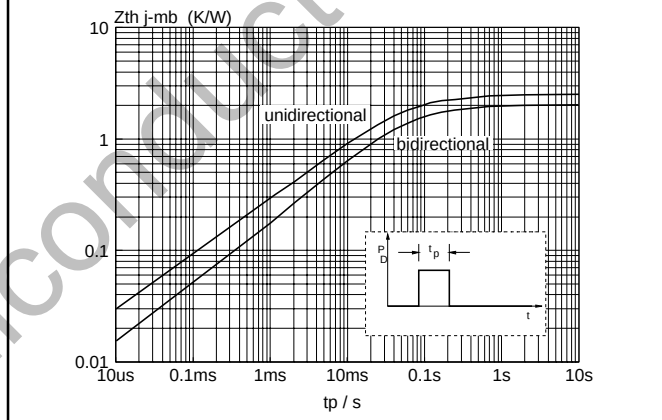


Fig.11. Transient thermal impedance $Z_{th\ j\text{-}mb}$, versus pulse width t_p.

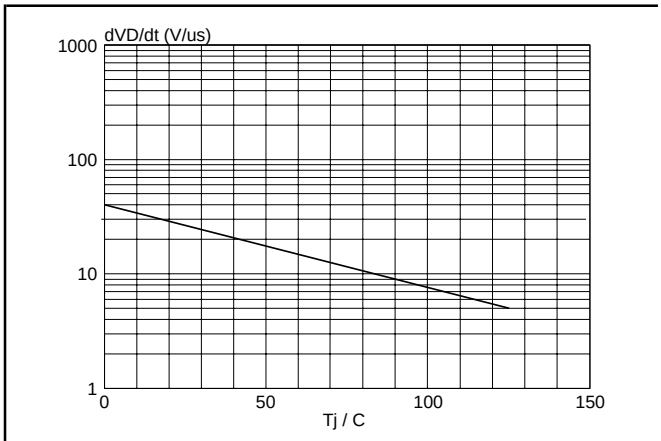


Fig.12. Typical, critical rate of rise of off-state voltage, dV_D/dt versus junction temperature T_j.