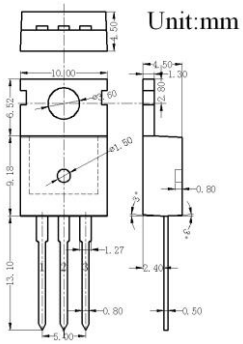
SHENZHEN LONG JING MICRO-ELECTRONICS CO., LTD.

TO-220 Plastic-Encapsulate Thyristors

BT136/600D/600E TRIAC



1. ANODE
2. ANODE
3. GATE

DESCRIPTION

Passivated triacs in a 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.

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

symbol	parameter			value	unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	D^2PAK/TO-220	T_C=107℃	6	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=600V					10	μA
On-state voltage		V_{TM}	I_T=5A					1.7	V
Gate trigger current		I_{GT}		V_D=12V R_L=100Ω		600	600D	600E	
	I		T_2(+), G(+)			35	5	10	mA
	II		T_2(+), G(-)			35	5	10	mA
	III		T_2(-), G(-)			35	5	10	mA
	IV		T_2(-), G(+)			70	10	25	mA
Gate trigger voltage	I	V_{GT}	T_2(+), G(+)	V_D=12V R_L=100Ω		1.5	1.5	1.5	V
	II		T_2(+), G(-)			1.5	1.5	1.5	V
	III		T_2(-), G(-)			1.5	1.5	1.5	V
	IV		T_2(-), G(+)			-	-	-	V
Holding current		I_H	I_T =100mA	I_G=20mA		20	20	20	mA

Typical Characteristics

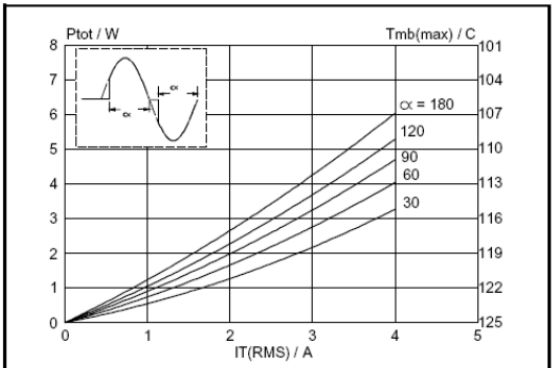


Fig.1. Maximum on-state dissipation, P_{tot}, versus rms on-state current, $I_{T(RMS)}$, where α = conduction angle.

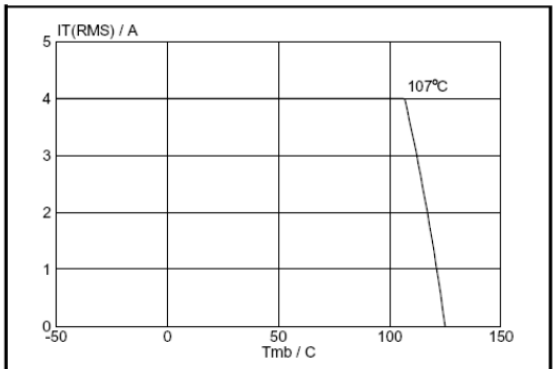


Fig.4. Maximum permissible rms current $I_{T(RMS)}$, versus mounting base temperature T_{mb}.

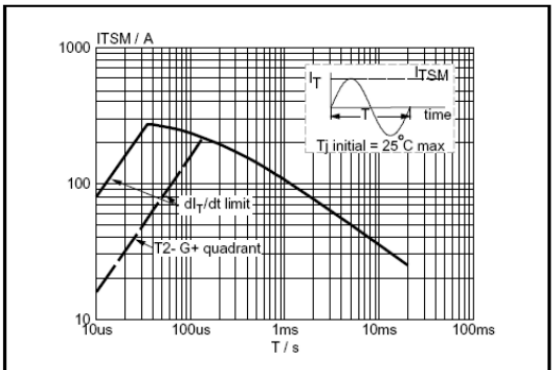


Fig.2. Maximum permissible non-repetitive peak on-state current I_{TSM}, versus pulse width t_p, for sinusoidal currents, $t_p \leq 20ms$.

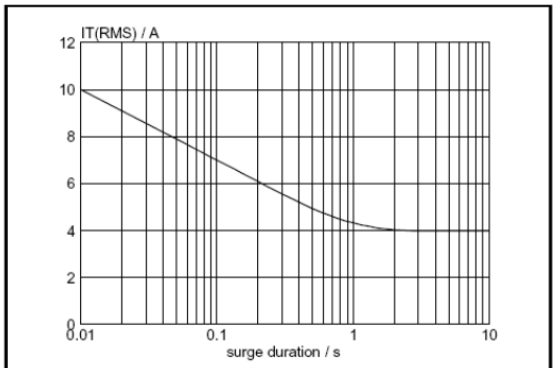


Fig.5. Maximum permissible repetitive rms on-state current $I_{T(RMS)}$, versus surge duration, for sinusoidal currents, f = 50 Hz; $T_{mb} \leq 107°C$.

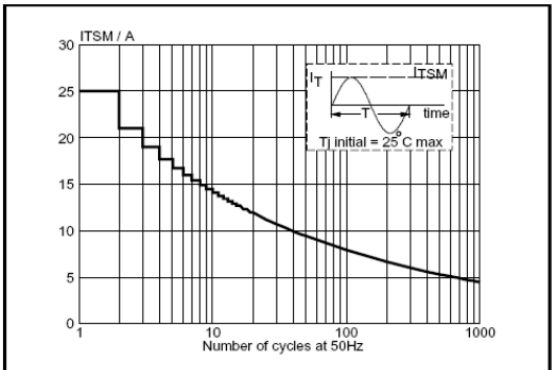


Fig.3. Maximum permissible non-repetitive peak on-state current I_{TSM}, versus number of cycles, for sinusoidal currents, f = 50 Hz.

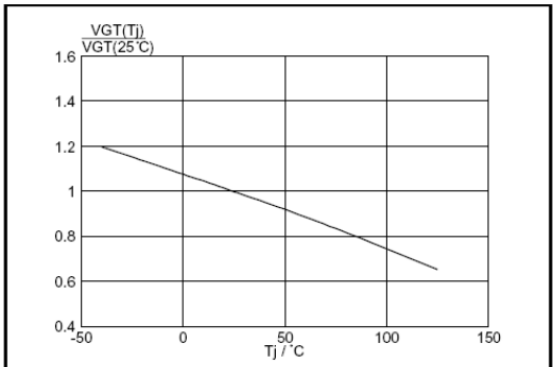


Fig.6. Normalised gate trigger voltage $V_{GT}(T_j)/ V_{GT}(25°C)$, versus junction temperature T_j.

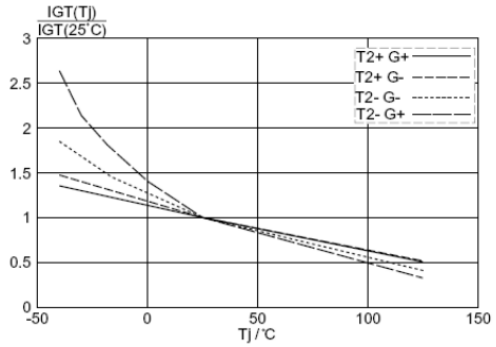


Fig.7. Normalised gate trigger current $I_{GT}(T_j)/ I_{GT}(25^{\circ}C)$, versus junction temperature T_j.

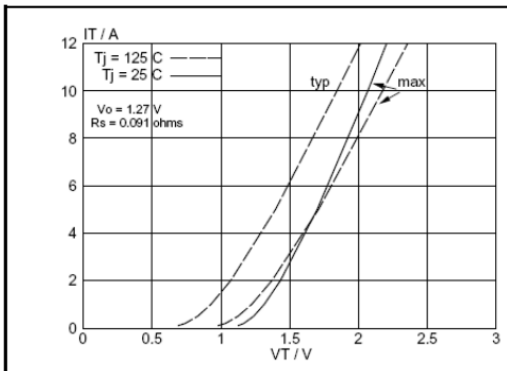


Fig.10. Typical and maximum on-state characteristic.

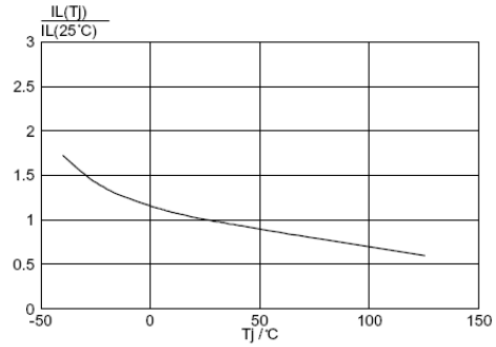


Fig.8. Normalised latching current $I_L(T_j)/ I_L(25^{\circ}C)$, versus junction temperature T_j.

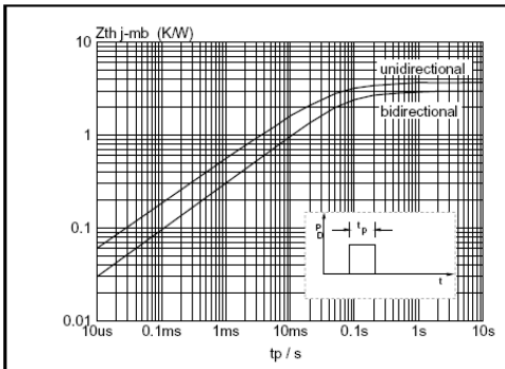


Fig.11. Transient thermal impedance $Z_{th\ j\text{-}mb}$, versus pulse width t_p.

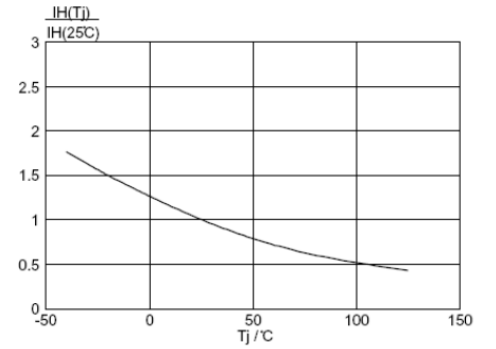


Fig.9. Normalised holding current $I_H(T_j)/ I_H(25^{\circ}C)$, versus junction temperature T_j.

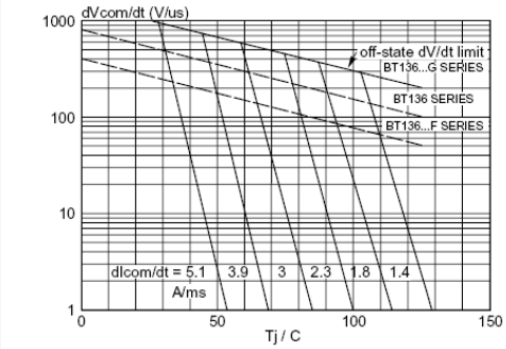


Fig.12. Typical commutation dV/dt versus junction temperature, parameter commutation dI_T/dt. The triac should commutate when the dV/dt is below the value on the appropriate curve for pre-commutation dI_T/dt.