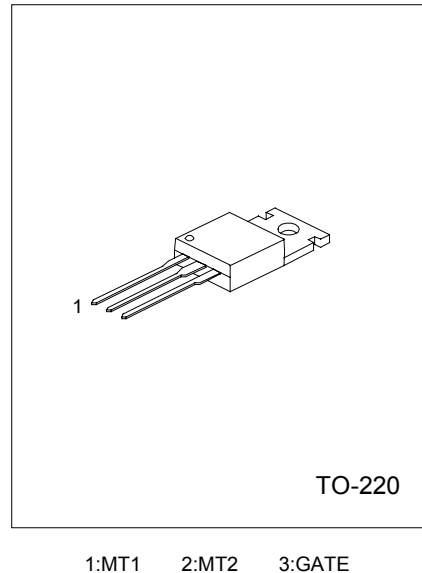
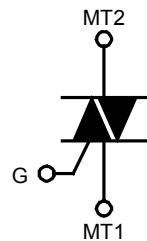


TRIACS

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.

SYMBOL



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Repetitive peak off-state voltages BT136-600 BT136-800	V_{DRM}	600* 800	V
RMS on-state current full sine wave; $T_{mb} \leq 107^\circ\text{C}$	$I_{T(RMS)}$	4	A
Non-repetitive peak on-state current (Full sine wave; $T_j = 25^\circ\text{C}$ prior to surge) $t = 20\text{ms}$ $t = 16.7\text{ ms}$	I_{TSM}	25 27	A
I^2t for fusing $t = 10\text{ ms}$	I^2t	3.1	A^2s
Repetitive rate of rise of on-state current after triggering $I_{TM} = 6\text{ A}$; $I_G = 0.2\text{A}$; $dI_G/dt = 0.2\text{A}/\mu\text{s}$ T2+G+ T2+G- T2-G- T2-G+	dI_T/dt	50 50 50 10	$\text{A}/\mu\text{s}$
Peak gate voltage	V_{GM}	5	V
Peak gate current	I_{GM}	2	A
Peak gate power	P_{GM}	5	W
Average gate power (over any 20 ms period)	$P_{G(AV)}$	0.5	W
Storage temperature	T_{stg}	-40 ~ 150	$^\circ\text{C}$
Operating junction temperature	T_j	125	$^\circ\text{C}$

*Although not recommended, off-state voltages up to 800V may be applied without damage, but the triac may switch to the on-state. The rate of rise of current should not exceed $3\text{A}/\mu\text{s}$.

THERMAL RESISTANCES

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Thermal resistance Junction to mounting base	$R_{th\ j-mb}$			3.0	K/W
Full cycle				3.7	K/W
Half cycle	$R_{th\ j-a}$		60		K/W
Thermal resistance Junction to ambient (In free air)					K/W

ELECTRICAL CHARACTERISTICS ($T_j=25^\circ\text{C}$, unless otherwise stated)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
STATIC CHARACTERISTICS						
Gate trigger current	I_{GT}	$V_D = 12\text{ V}$; $I_T = 0.1\text{ A}$ T2+G+ T2+G- T2-G- T2-G+		2.5 4.0 5.0 11	10 10 10 25	mA
Latching current	I_L	$V_D = 12\text{ V}$; $I_{GT} = 0.1\text{ A}$ T2+G+ T2+G- T2-G- T2-G+		3.0 10 2.5 4.0	15 20 15 20	mA
Holding current	I_H	$V_D = 12\text{ V}$; $I_{GT} = 0.1\text{ A}$		2.2	15	mA
On-state voltage	V_T	$I_T = 5\text{ A}$		1.4	1.7	V
Gate trigger voltage	V_{GT}	$V_D = 12\text{ V}$; $I_T = 0.1\text{ A}$ $V_D = 400\text{ V}$; $I_T = 0.1\text{ A}$; $T_j = 125^\circ\text{C}$		0.7 0.4	1.5	V
Off-state leakage current	I_D	$V_D = V_{DRM(max)}$; $T_j = 125^\circ\text{C}$		0.1	0.5	mA
DYNAMIC CHARACTERISTICS						
Critical rate of rise of Off-state voltage	dV_D/dt	$V_{DM} = 67\% V_{DRM(max)}$; $T_j = 125^\circ\text{C}$; exponential waveform; gate open circuit		50		V/ μs
Gate controlled turn-on time	t_{gt}	$I_{TM} = 6\text{ A}$; $V_D = V_{DRM(max)}$; $I_G = 0.1\text{ A}$; $dI_G/dt = 5\text{ A}/\mu\text{s}$		2		μs

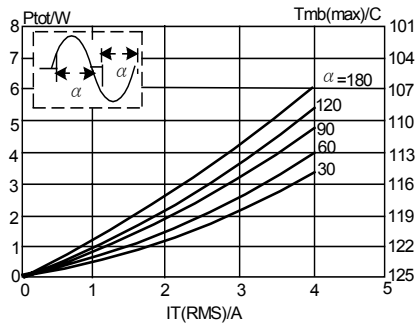


Fig. 1. Maximum on-state dissipation, P_{tot} , versus rms on-state current, $I_{T(RMS)}$, where α = conduction angle.

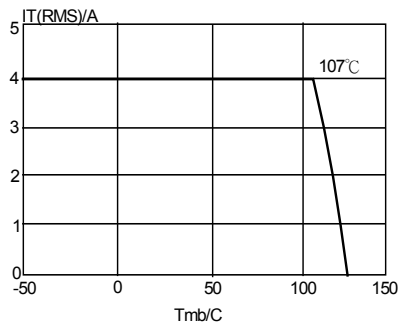


Fig. 4. Maximum permissible rms current $I_{T(RMS)}$, versus mounting base temperature T_{mb}

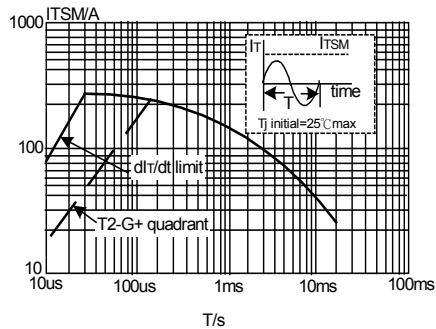


Fig. 2. Maximum Permissible non-repetitive peak on-state Current I_{TSM} , versus pulse width t_p for sinusoidal currents, $t_p \leq 20ms$

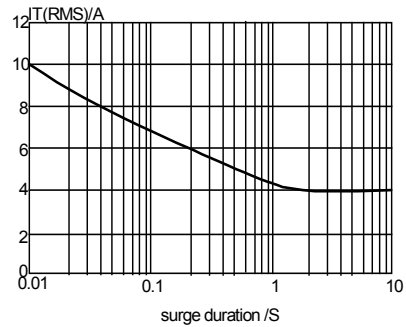


Fig. 5. Maximum permissible repetitive rms on-state current $I_{T(RMS)}$, versus surge duration, for sinusoidal currents, $f=50Hz$; $T_{mb} \leq 107^\circ C$

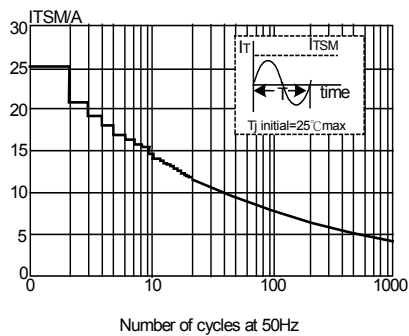


Fig. 3. Maximum Permissible non-repetitive peak on-state current I_{TSM} , versus number of cycles, for sinusoidal currents, $f=50Hz$.

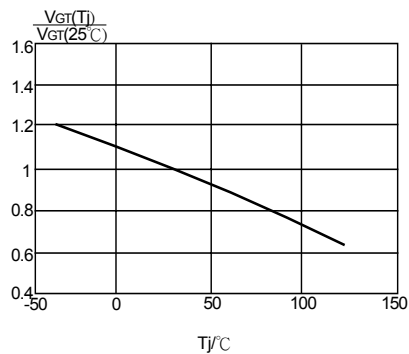


Fig. 6. Normalised gate trigger voltage $V_{GT}(T_j)/V_{GT}(25^\circ C)$, versus junction temperature T_j

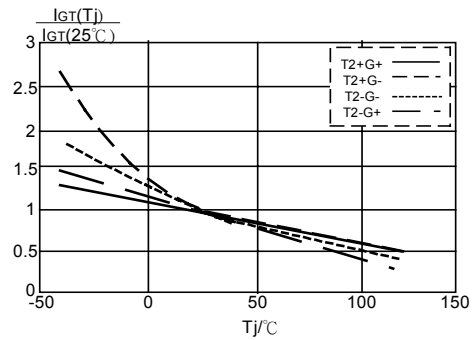


Fig. 7. Normalised gate trigger Current $I_{GT}(T_j)/I_{GT}(25^\circ\text{C})$, versus junction temperature T_j

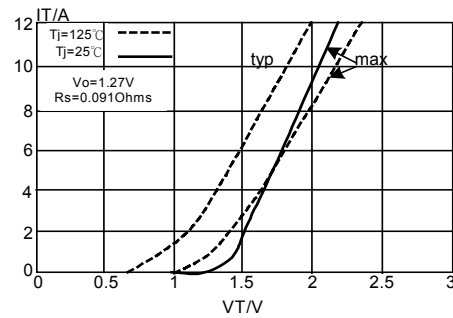


Fig. 10. Typical and maximum on-state characteristic.

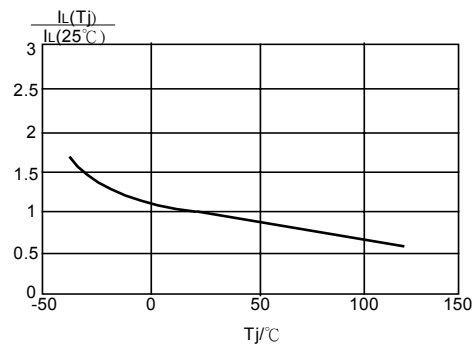


Fig. 8. Normalised latching Current $I_L(T_j)/I_L(25^\circ\text{C})$, versus junction temperature T_j

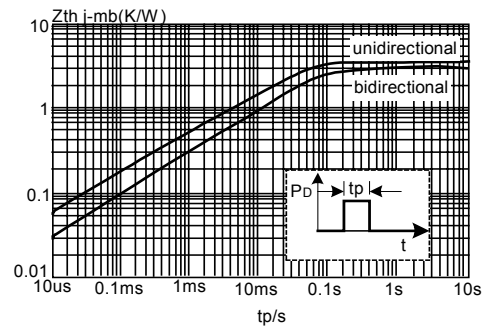


Fig. 11. Transient thermal impedance Z_{thj-mb} , versus pulse width t_p .

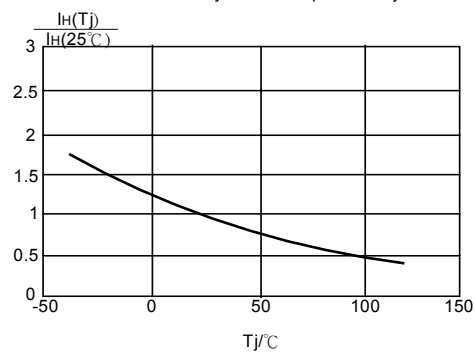


Fig. 9. Normalised holding current $I_H(T_j)/I_H(25^\circ\text{C})$, versus junction temperature T_j

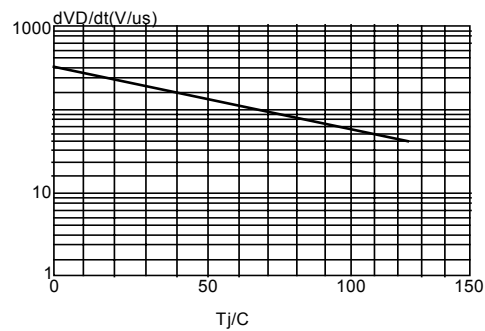


Fig. 12. Typical, critical rate of rise of off-state voltage, dV_D/dt versus junction temperature T_j

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