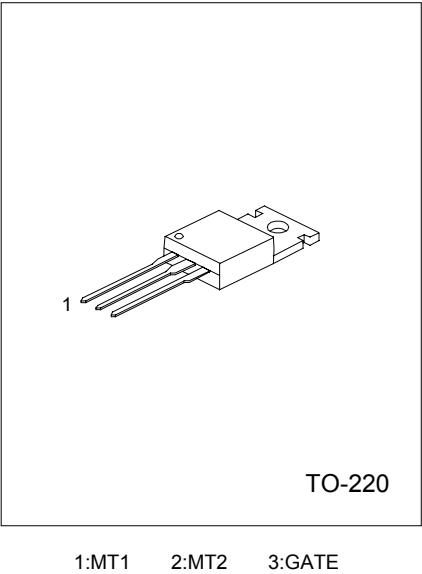
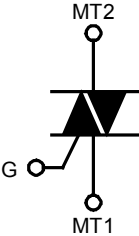


TRIACS

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 voltages and static switching.

SYMBOL



ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS		UNIT
Repetitive Peak Off State Voltage BT137-600 BT137-800	V _{DRM}	600	-600	V	
		800*	-800		
RMS On-state Current (Full sine wave; T _{mb} ≤102°C)	I _{T(RMS)}	8		A	
Non-Repetitive Peak. On-State Current (Full sine wave; T _j =25°C prior to surge) t=20ms t=16.7ms	I _{TSM}	65		A	
		71			
I ² t For Fusing t=10ms	I ² t	21		A ² s	
Repetitive Rate of Rise of On-state Current after Triggering I _{TM} =12A;I _G =0.2A,dI _G /dt=0.2A/μs T2+G+ T2+G- T2-G- T2-G+	dI _T /dt	50		A/μs	
		50			
		50			
		10			
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 20ms period)	P _{G(AV)}	0.5		W	
Operating Junction Temperature	T _j	125		°C	
Storage Temperature	T _{stg}	-40~150		°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 6A/μs.

THERMAL RESISTANCES

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Thermal Resistance Junction to Mounting Base Full cycle Half cycle	Rth j-mb			2.0 2.4	K/W
Thermal Resistance Junction to Ambient In free air	Rth j-a		60		K/W

ELECTRICAL CHARACTERISTICS (Tj=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC CHARACTERISTICS						
Gate Trigger Current	IGT	VD=12V, IT=0.1A T2+G+ T2+G- T2-G- T2-G+		5 8 11 30	35 35 35 70	mA
Latching Current	IL	VD=12V, IGT=0.1A T2+G+ T2+G- T2-G- T2-G+		7 16 5 7	30 45 30 45	mA
On-State Voltage	VT	IT=10A		1.3	1.65	V
Gate Trigger Voltage	VGT	VD=12V, IT=0.1A		0.7	1.5	V
		VD=400V, IT=0.1A Tj=125°C	0.25	0.4		V
Holding Current	IH	VD=12V, IGT=0.1A		5	20	mA
Off-state Leakage Current	ID	VD=VDRM(max), Tj=125°C		0.1	0.5	mA
DYNAMIC CHARACTERISTICS						
Critical Rate of Rise of off-state Voltage	dVD/dt	VDM=67% VDRM(max), Tj=125°C Exponential waveform, Gate open circuit	100	250		V/μs
Critical Rate of Change of commutating Voltage	dVcom/dt	VDM=400V, Tj=95°C, IT(RMS)=8A dIcom/dt =3.6A/ms Gate open circuit		20		V/μs
Gate Controlled Turn-on Time	tgt	ITM=12A, VD=VDRM(max), IG=0.1A dIG/dt=5A/μs		2		μs

TYPICAL CHARACTERISTICS

Figure 1. Maximum on-state Dissipation. P_{tot} vs RMS On-state Current, $I_T(RMS)$, Where α = conduction Angle.

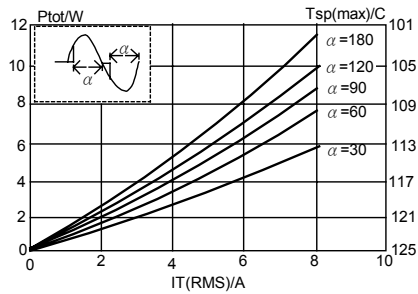


Figure 4. Maximum Permissible RMS Current $I_T(RMS)$ vs mounting base Temperature T_{mb}

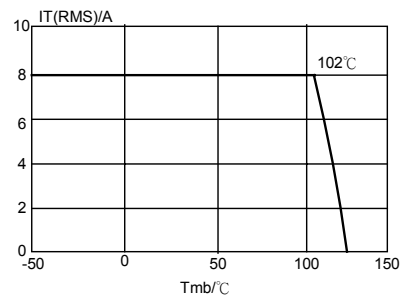


Figure 2. Maximum Permissible Non-repetitive Peak On-state Current I_{TSM} , vs Pulse Width t_p , for Sinusoidal Currents, $t_p \approx 20ms$

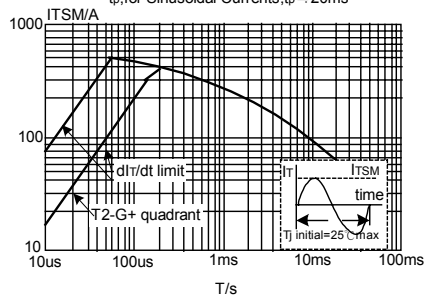


Figure 5. Maximum Permissible Repetitive RMS on-state Current $I_T(RMS)$, vs Surge Duration, for Sinusoidal Currents, $f=50Hz$; $T_{mb} \approx 102^\circ C$

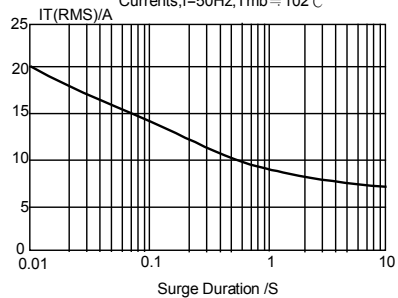


Figure 3. Maximum Permissible Non-Repetitive peak on-state Current I_{TSM} , vs Number of Cycles, for Sinusoidal Currents, $f=50Hz$

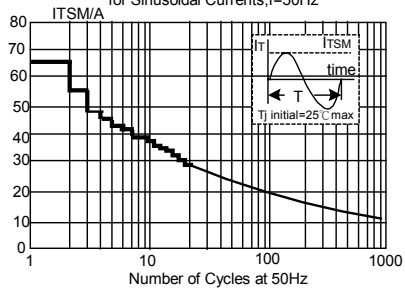


Figure 6. Normalised Gate Trigger Voltage $V_{GT}(T_j)/V_{GT}(25^\circ C)$, vs Junction Temperature T_j

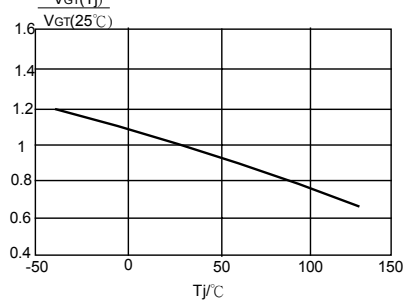


Figure 7. Normalised Gate Trigger Current
 $I_{GT}(T_j)/I_{GT}(25^\circ\text{C})$, vs Junction Temperature T_j

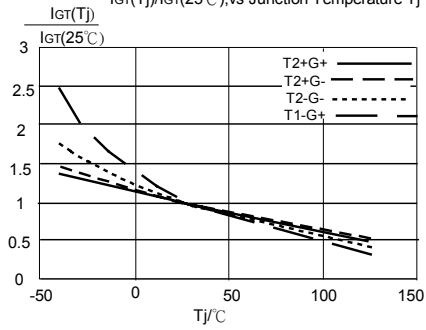


Figure 8. Normalised Latching Current
 $I_L(T_j)/I_L(25^\circ\text{C})$, vs Junction Temperature T_j

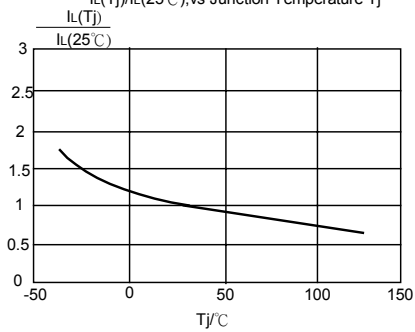


Figure 9. Normalised Holding Current
 $I_H(T_j)/I_H(25^\circ\text{C})$, vs Junction Temperature T_j

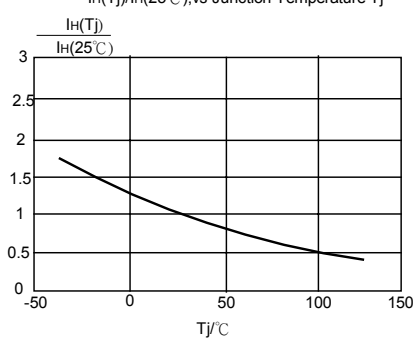


Figure 10. Typical and Maximum
 On-state Characteristic

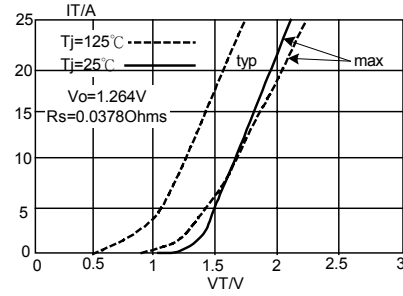


Figure 11. Transient Thermal Impedance
 $Z_{th j-mb}$, vs Pulse Width t_p

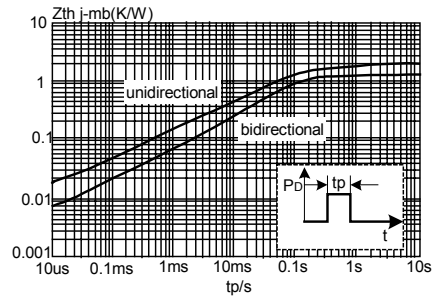
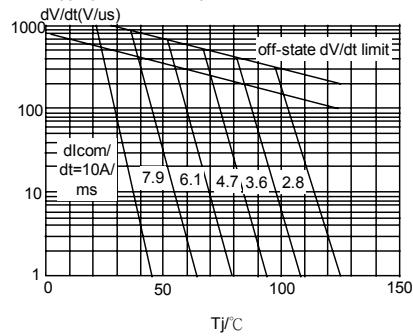


Figure 12. Typical commutation dV/dt vs junction temperature, parameter commutation dI_T/dt . The triac should commute when the dV/dt is below the value on the appropriate curve for pre-commutation dI_T/dt



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