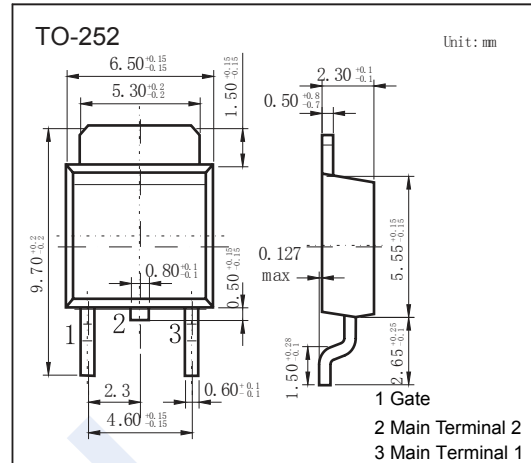
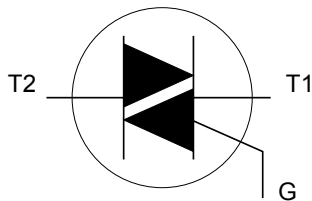


TRIACS Thyristor

BT137M series (KT137M series)

■ Features

- Repetitive peak off-state voltages :500V/600V/800V
- RMS on-state current :8A
- Non-repetitive peak on-state current :65A



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	BT137M -500	BT137M -600	BT137M -800	Unit
Repetitive Peak Off-state Voltages	V_{DRM}	500	600	800	V
RMS on-state Current $T_{amb} \leq 102^\circ\text{C}$	$I_T(\text{RMS})$	8			A
Non-Repetitive Peak on-state Current	$t=20\text{ms}$ $t=16.7\text{ms}$	65			
		71			
Circuit Fusing Considerations $t = 10\text{ms}$	I^2t	21			A^2s
Peak Gate Current	I_{GM}	2			A
Peak Gate Voltage	V_{GM}	5			V
Peak Gate Power	P_{GM}	5			W
Average Gate Power $t = 20\text{ms}$	$P_{G(AV)}$	0.5			
Thermal Resistance Junction to Ambient	R_{thJA}	75			K/W
Thermal Resistance Junction to Mounting Base	R_{thJMB}	2			
		2.4			
junction Temperature	T_J	125			$^\circ\text{C}$
Storage Temperature range	T_{stg}	-40 to 150			

TRIACS Thyristor

BT137M series (KT137M series)

■ Electrical Characteristics (Ta = 25°C, unless otherwise noted.)

Parameter	Symbol	Test Conditions	Min	Typ.	Max	Unit		
Repetitive Peak off-state Voltages	V _{DRM}	BT137M-500,BT137M-500F,BT137-500G	500			V		
		I _D =100uA BT137M-600,BT137M-600F,BT137-600G	600					
		BT137M-800,BT137M-800F,BT137-800G	800					
Off-state Leakage Current	I _D	V _D = V _{DRM(max)}			0.5	mA		
On-state Voltage	V _{TM}	I _T =10A			1.65	V		
Gate Trigger Voltage	V _{GT}	V _D =12V, I _T =0.1A			1.5			
		V _D =400V, I _T =0.1A, T _J = 25°C	0.25					
Gate Trigger Current	I _{GT}	V _D =12V, I _T =0.1A	T ₂₊ G+	BT137M-500/600/800		35	mA	
				BT137M-500F/600F/800F		25		
				BT137M-500G/600G/800G		50		
				BT137M-500/600/800	T ₂₊ G-			35
				BT137M-500F/600F/800F				25
				BT137M-500G/600G/800G				50
			BT137M-500/600/800	T ₂₋ G-		35		
			BT137M-500F/600F/800F			25		
			BT137M-500G/600G/800G			50		
			BT137M-500/600/800	T ₂₋ G+		70		
			BT137M-500F/600F/800F			70		
			BT137M-500G/600G/800G			100		
Latching Current	I _L	V _D =12V, I _{GT} =0.1A	T ₂₊ G+	BT137M-500/600/800		30	mA	
				BT137M-500F/600F/800F		30		
				BT137M-500G/600G/800G		45		
			BT137M-500/600/800	T ₂₊ G-		45		
			BT137M-500F/600F/800F			45		
			BT137M-500G/600G/800G			60		
			BT137M-500/600/800	T ₂₋ G-		30		
			BT137M-500F/600F/800F			30		
			BT137M-500G/600G/800G			45		
			BT137M-500/600/800	T ₂₋ G+		45		
			BT137M-500F/600F/800F			45		
			BT137M-500G/600G/800G			60		
Holding Current	I _H	V _D =12V ,I _{GT} =0.1A	BT137M-500/600/800		20			
			BT137M-500F/600F/800F		20			
			BT137M-500G/600G/800G		40			

TRIACS Thyristor

BT137M series (KT137M series)

■ Electrical Characteristics (Ta = 25°C, unless otherwise noted.)

Repetitive rate of rise of on-state current after triggering	dI _T /dt	I _{TM} = 12 A , I _G = 0.2 A, dI _G /dt = 0.2 A/us	T2+ G+		50	A/us
			T2+ G-		50	
			T2- G-		50	
			T2- G+		10	
Critical Rate of rise of off-state Voltage	dV _D /dt	V _{DM} =67% V _{DRM} (max); T _J =125°C exponential waveform;	BT137M-500/600/800	100		V/us
			BT137M-500F/600F/800F	50		
			BT137M-500G/600G/800G	200		
Critical rate of change of commutating voltage	dV _{com} /dt	V _{DM} = 400V , T _J = 95 °C I _{T(RMS)} = 8 A , dI _{com} /dt = 3.6 A/us; gate open circuit		20		V/us
Gate Controlled turn-on time	tgt	I _{TM} =12A; V _D =V _{DRM} (max),I _G =0.1A; dI _G /dt=5A/us		2		us

■ Typical Characteristics

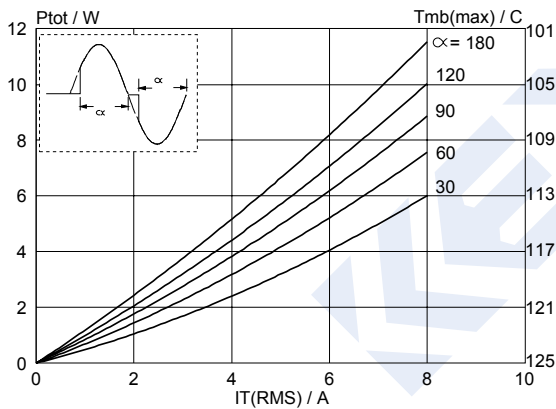


Fig.1. Maximum on-state dissipation, P_{tot} , versus rms on-state current, $I_{T(RMS)}$, where α = conduction angle.

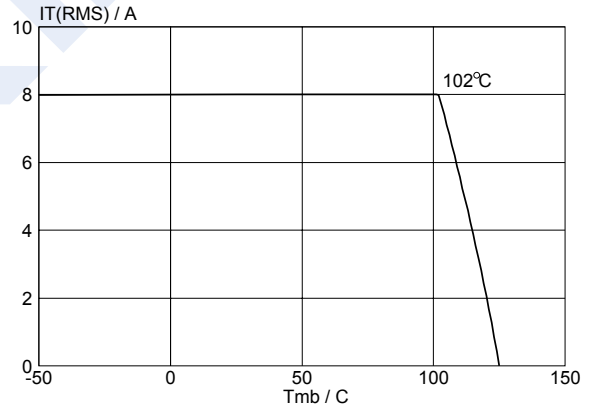


Fig.3. Maximum permissible rms current $I_{T(RMS)}$, versus mounting base temperature T_{mb} .

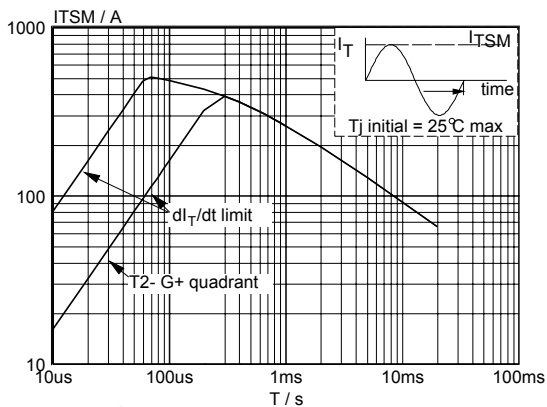


Fig.2. Maximum permissible non-repetitive peak on-state current I_{TSM} , versus pulse width t_p , for sinusoidal currents, $t_p \leq 20ms$.

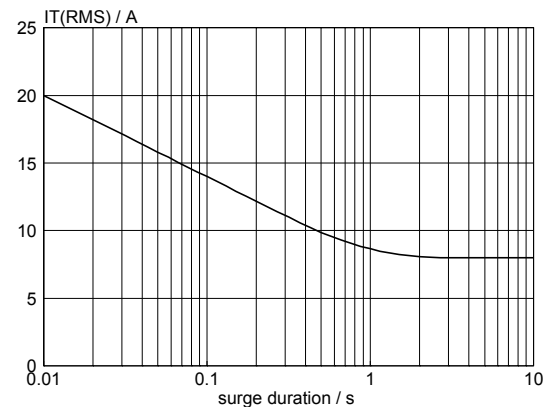


Fig.4. Maximum permissible repetitive rms on-state current $I_{T(RMS)}$, versus surge duration, for sinusoidal currents, $f = 50 Hz$; $T_{mb} \leq 102^\circ C$.

TRIACS Thyristor BT137M series (KT137M series)

■ Typical Characteristics

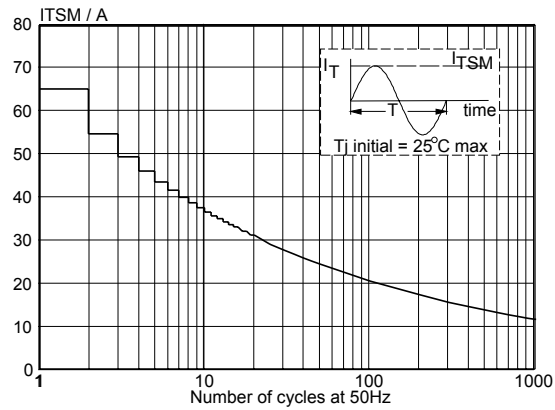


Fig. 5. Maximum permissible non-repetitive peak on-state current I_{TSM} , versus number of cycles, for sinusoidal currents, $f = 50$ Hz.

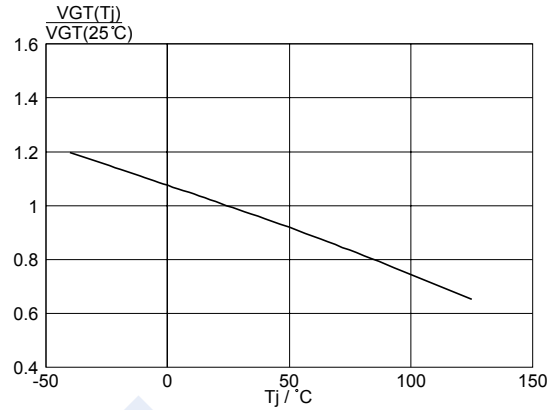


Fig. 6. Normalised gate trigger voltage $V_{GT}(T_j)/V_{GT}(25^\circ C)$, versus junction temperature T_j .

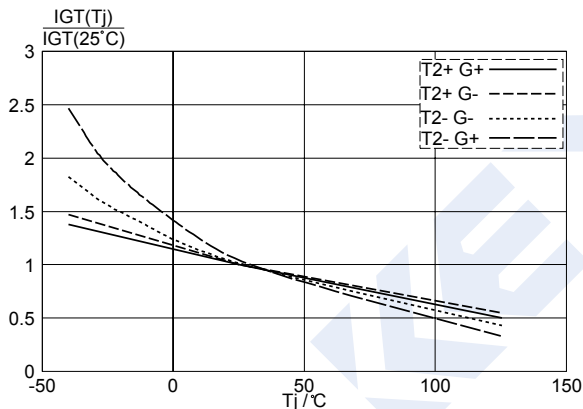


Fig. 7. Normalised gate trigger current $I_{GT}(T_j)/I_{GT}(25^\circ C)$, versus junction temperature T_j .

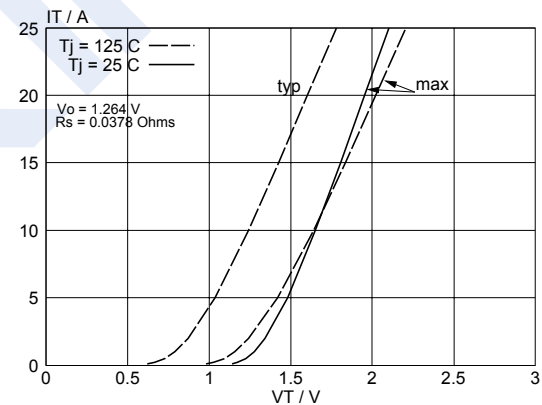


Fig. 8. Typical and maximum on-state characteristic.

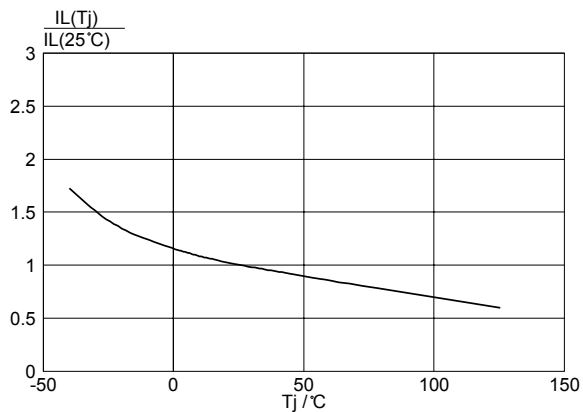


Fig. 9. Normalised latching current $I_L(T_j)/I_L(25^\circ C)$, versus junction temperature T_j .

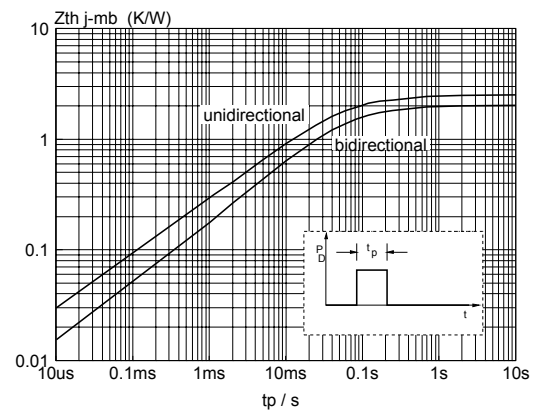


Fig. 10. Transient thermal impedance $Z_{th\ j-mb}$, versus pulse width t_p .

TRIACS Thyristor

BT137M series (KT137M series)

■ Typical Characteristics

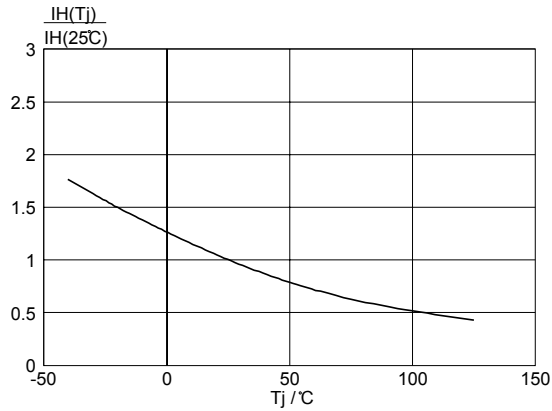


Fig.11. Normalised holding current $I_H(T_j)/I_H(25^\circ\text{C})$, versus junction temperature T_j .

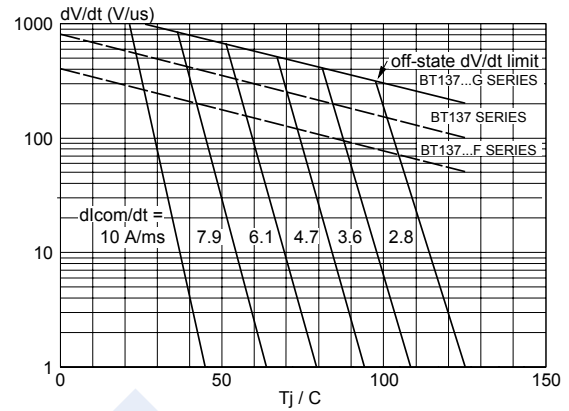


Fig.12. Typical commutation dV/dt versus junction temperature, parameter commutation dI_T/dt . The triac should commute when the dV/dt is below the value on the appropriate curve for pre-commutation dI_T/dt .