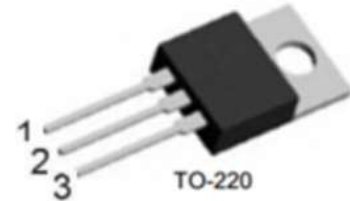


BT137 – 600E/800E



Description

Triacs is fabricated using separation diffusion processes, the junction termination areas are passivated with glass. Thanks to highly sensitive triggering levels and reliability, the Triacs series is suitable for domestic lighting, heating and motor speed controllers.



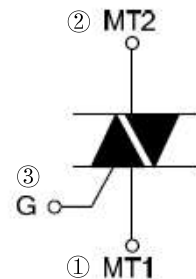
Applications

Domestic lighting, heating and motor speed controllers.

Ordering Information

Part No.	Package	Packing
BT137-600E	TO-220	50pcs / Tube
BT137-800E	TO-220	50pcs / Tube

Symbol



ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Repetitive Peak Off State Voltage	V _{DRM}	600	V
		800*	
RMS On-state Current (Full sine wave; T _{mb} ≤107°C)	I _{T(RMS)}	8	A
Non-Repetitive Peak. On-State Current (Full sine wave; T _j =25°C prior to surge)	I _{TSM}	65	A
		71	
I ² t For Fusing	I ² t	21	A ² s
Rate of Rise of On-state Current I _{TM} =6A; I _G =0.2A, dI _G /dt=0.2A/μs	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.

BT137-600E/800E

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS (T_J = 25°C, unless otherwise stated)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC CHARACTERISTICS						
Gate Trigger Current	I _{GT}	V _D =12V, I _T =0.1A T2+G+ T2+G- T2-G- T2-G+		2.2	10	mA
				5.5	10	
				5.2	10	
				32	35	
Latching Current	I _L	V _D =12V, I _T =0.1A T2+G+ T2+G- T2-G- T2-G+		5.8	25	mA
				13	35	
				7	25	
				16	35	
Holding Current	I _H	V _D =12V, I _T =0.1A		5	20	mA
Gate Trigger Voltage	V _{GT}	V _D =12V, I _T =0.1A; T _J =25°C		0.7	1.0	V
		V _D =400V, I _T =0.1A; T _J =125°C	0.25	0.4		V
On-State Voltage	V _T	I _T =10A		1.3	1.65	V
Off-state Leakage Current	I _D	V _D =600V, T _J =125°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°C Exponential waveform, Gate open circuit	100	250		V/μs
Gate Controlled Turn-on Time	t _{gt}	I _{TM} =12A, V _D =V _{DRM} , I _G =0.1A dI _G /dt=5A/μs		2		μs

BT137-600E/800E

TYPICAL CHARACTERISTICS

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

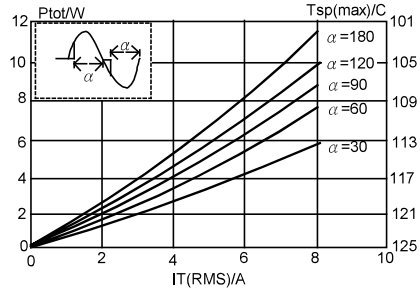


Figure 4. Maximum Permissible RMS Current $I_T(RMS)$ vs mounting base Temperature T_{mb}

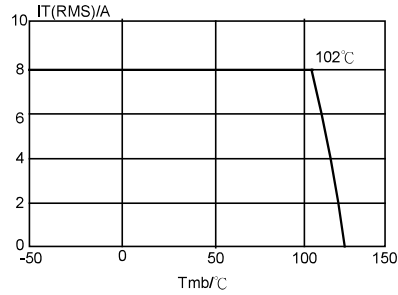


Figure 2. Maximum Permissible Non-repetitive Peak On-state Current I_{TSM} vs Pulse Width t_p for Sinusoidal Currents, $f_p \approx 20ms$

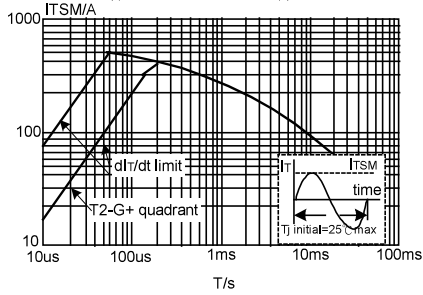


Figure 5. Maximum Permissible Repetitive RMS on-state Current $I_T(RMS)$ vs Surge Duration for Sinusoidal Currents, $f=50Hz; T_{mb} \approx 102^\circ C$

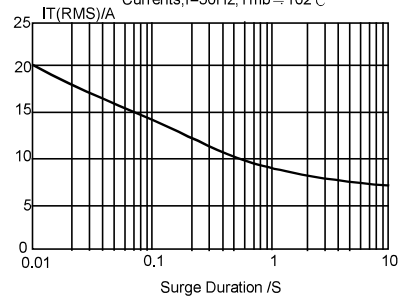


Figure 3. Maximum Permissible Non-Repetitive peak on-state Current I_{TSM} vs Number of Cycles, for Sinusoidal Currents, $f=50Hz$

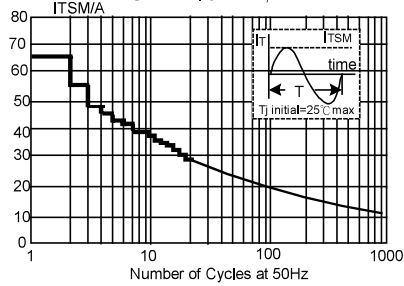
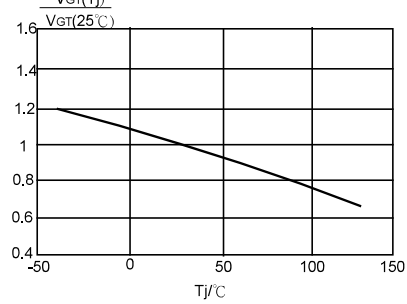


Figure 6. Normalised Gate Trigger Voltage $V_{GT}(T_j)/V_{GT}(25^\circ C)$ vs Junction Temperature T_j



BT137-600E/800E

TYPICAL CHARACTERISTICS

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

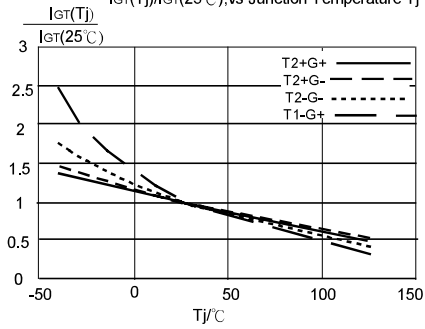


Figure 8. Normalised Latching Current $I_L(T_j)/I_L(25^\circ\text{C})$, vs Junction Temperature T_j

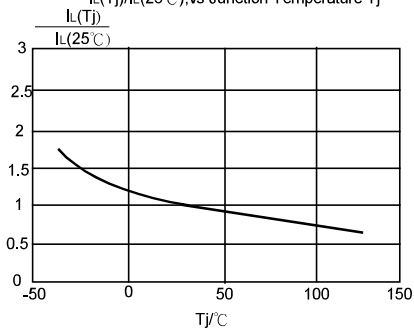


Figure 9. Normalised Holding Current $I_H(T_j)/I_H(25^\circ\text{C})$, vs Junction Temperature T_j

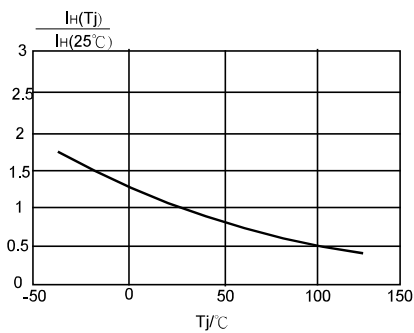


Figure 10. Typical and Maximum On-state Characteristic

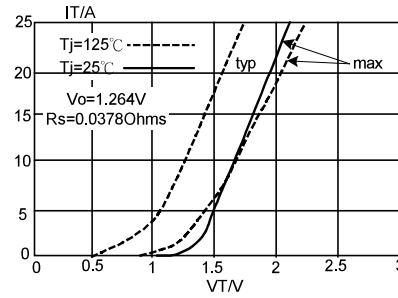


Figure 11. Transient Thermal Impedance $Z_{th j-mb}$, vs Pulse Width t_p

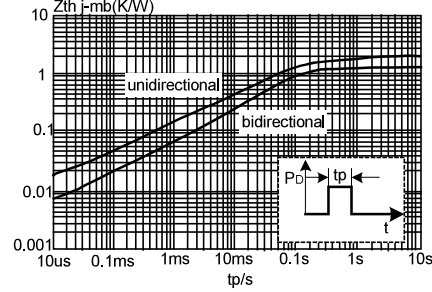
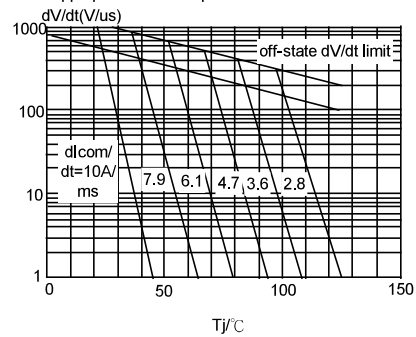
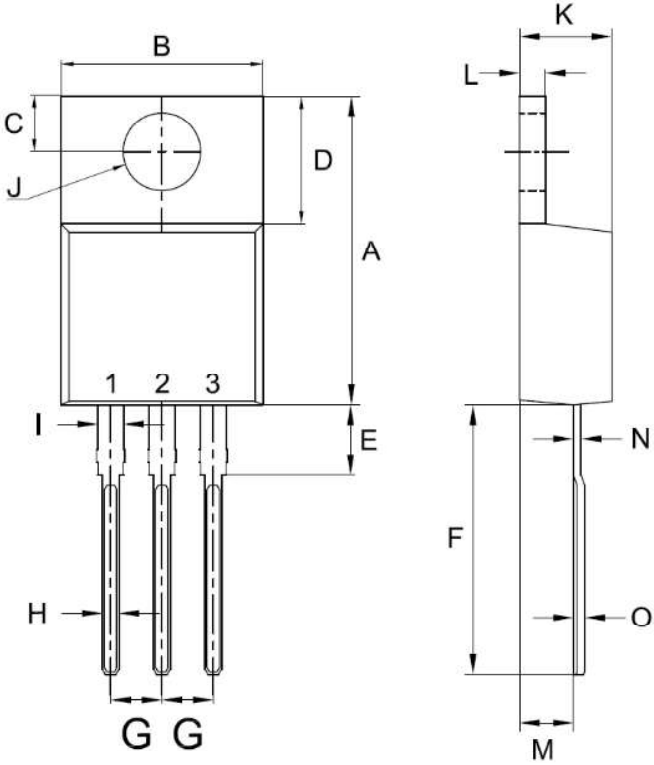


Figure 12. Typical commutation dV/dt vs junction temperature, parameter commutation dI/dt . The triac should commute when the dV/dt is below the value on the appropriate curve for pre-commutation dI/dt



TO-220 Mechanical Drawing



TO-220AB Unit:mm		
DIM	MIN	MAX
A	14.80	15.80
B	9.57	10.57
C	2.54	2.94
D	5.80	6.80
E	2.95	3.95
F	12.70	13.40
G	2.34	2.74
H	0.51	1.11
I	0.97	1.57
J	3.54 ϕ	4.14 ϕ
K	4.27	4.87
L	1.07	1.47
M	2.65	3.05
N	0.30	0.46
O	0.48	0.64