

Triac

Description

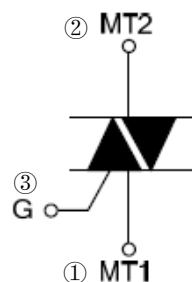
Triacs is fabricated using separation diffusion processes ,the junction termination areas are passivated with glass. Thanks to highly sensitive triggering levels and reliability,the Triacs series is suitable for domestic lighting ,heating and motor speed controllers.

Applications

Domestic lighting ,heating and motor speed controllers.



Symbol



ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Repetitive Peak Off State Voltage BT136-600E	V _{DRM}	600	V
RMS On-state Current (Full sine wave; T _{mb} ≤107°C)	I _{T(RMS)}	4	A
Non-Repetitive Peak. On-State Current (Full sine wave; T _j =25°C prior to surge)	I _{TSM}	25 27	A
t = 2.0 m s t = 16.7ms I ² t For Fusing t=10ms	I ² t	3.1	A ² s
Rate of Rise of On-state Current I _{TM} =6A; I _G =0.2A, dI _G /dt=0.2A/μs T2+G+ T2+G- T2-G- T2-G+	dI _T /dt	50 50 50 10	A/μs
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

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Thermal Resistance Junction to Mounting Base	Rth j-mb			3	K/W
Full cycle Half cycle				3.7	
Thermal Resistance Junction to Ambient	Rth j-a		60		K/W
In free air					

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC CHARACTERISTICS						
Gate Trigger Current	IGT	V _D =12V, I _T =0.1A T2+G+ T2+G- T2-G- T2-G+		2.5 4 5 11	10 10 10 25	mA
Latching Current	IL	V _D =12V, I _T =0.1A T2+G+ T2+G- T2-G- T2-G+		3 10 2.5 4	15 20 15 20	mA
Holding Current	IH	V _D =12V, I _T =0.1A		2.2	15	mA
Gate Trigger Voltage	VGT	V _D =12V, I _T =0.1A; T _J =25°C V _D =400V, I _T =0.1A; T _J =125°C		0.7 0.25	1.0	V
On-State Voltage	V _T	I _T =5A		1.4	1.7	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		50		V/μs
Gate Controlled Turn-on Time	tgt	I _{TM} =6A, V _D =V _{DRM} , I _G =0.1A dI _G /dt=5A/μs		2		μs

TYPICAL CHARACTERISTICS

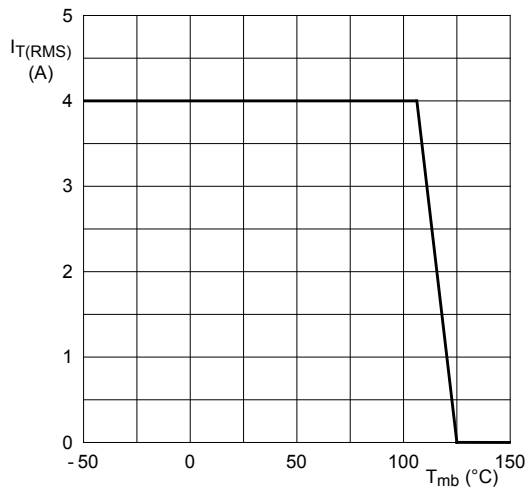
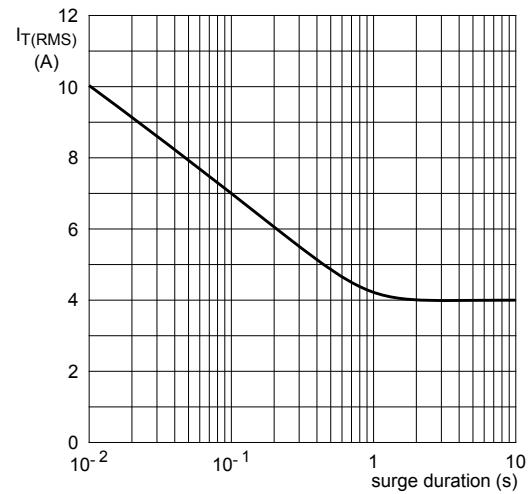
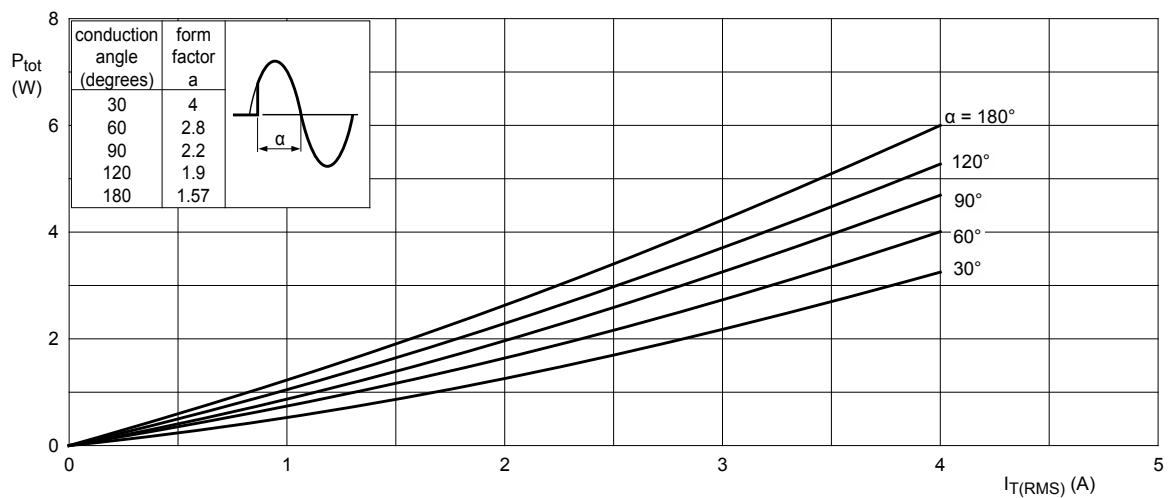


Fig. 1. RMS on-state current as a function of mounting base temperature; maximum values



$f = 50 \text{ Hz}$
 $T_{mb} \leq 107^\circ \text{C}$

Fig. 2. RMS on-state current as a function of surge duration; maximum values



α = conduction angle
 $a = \text{form factor} = I_{T(RMS)} / I_{T(AV)}$

Fig. 3. Total power dissipation as a function of RMS on-state current; maximum values

TYPICAL CHARACTERISTICS

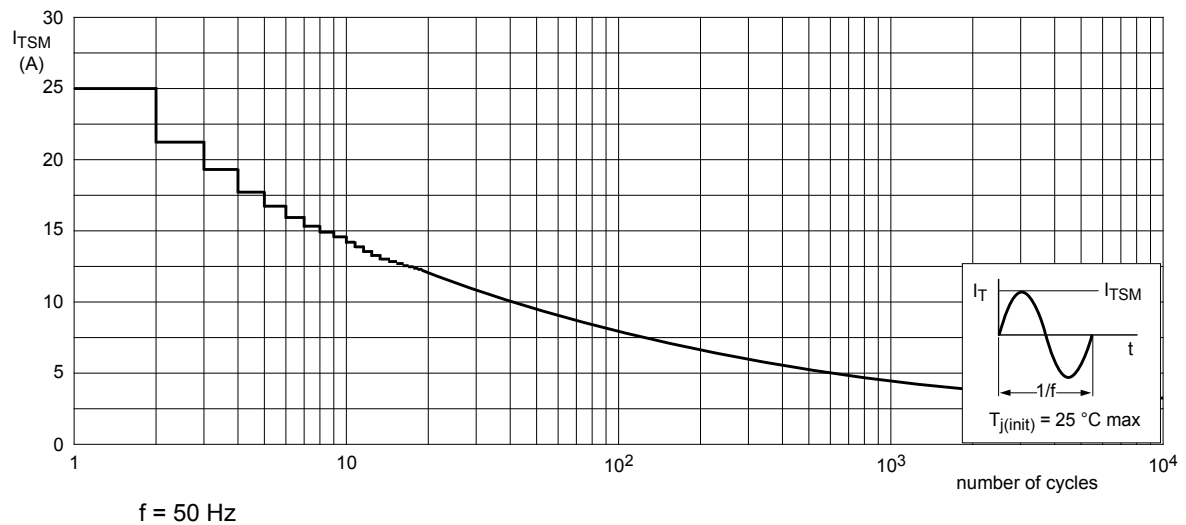
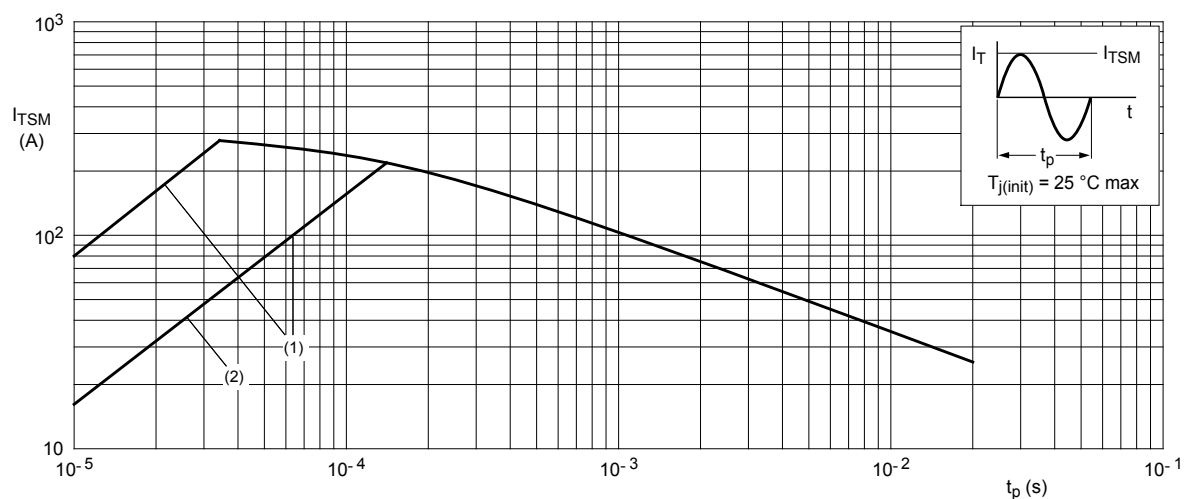


Fig. 4. Non-repetitive peak on-state current as a function of the number of sinusoidal current cycles; maximum values



- (1) dI_T/dt limit
- (2) T2- G+ quadrant limit

Fig. 5. Non-repetitive peak on-state current as a function of pulse width; maximum values

TYPICAL CHARACTERISTICS

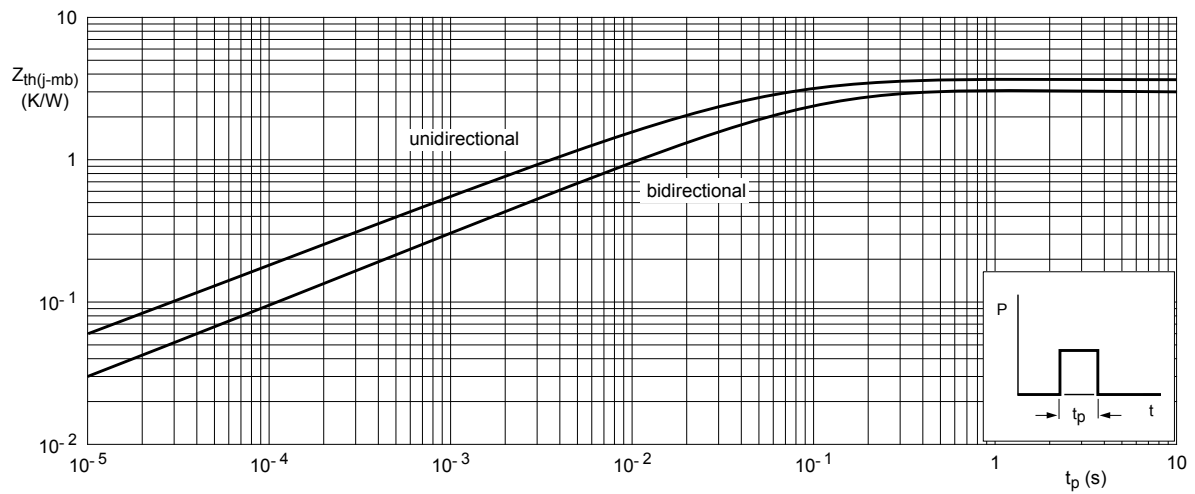
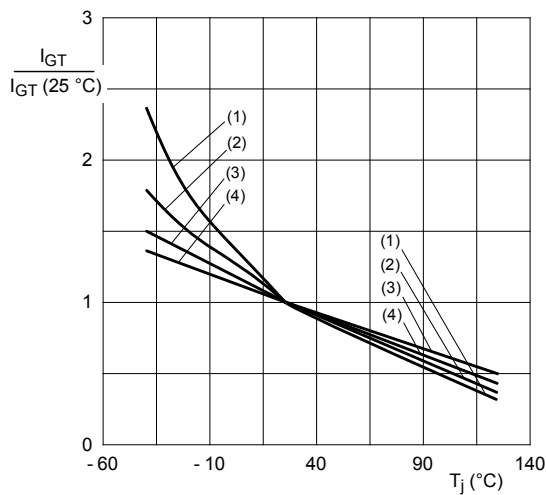


Fig. 6. Transient thermal impedance from junction to mounting base as a function of pulse width



- (1) T2- G+
- (2) T2- G-
- (3) T2+ G-
- (4) T2+ G+

Fig. 7. Normalized gate trigger current as a function of junction temperature

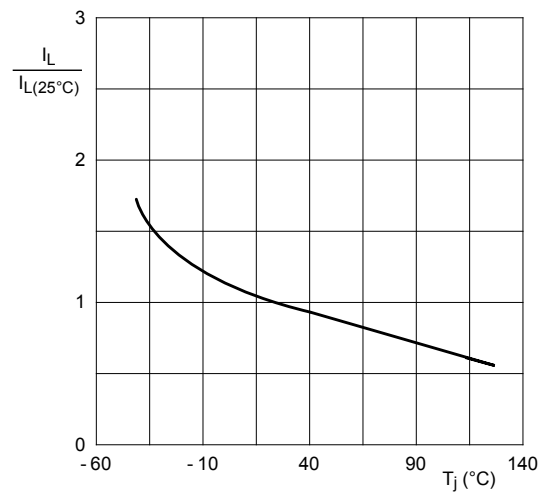


Fig. 8. Normalized latching current as a function of junction temperature

TYPICAL CHARACTERISTICS

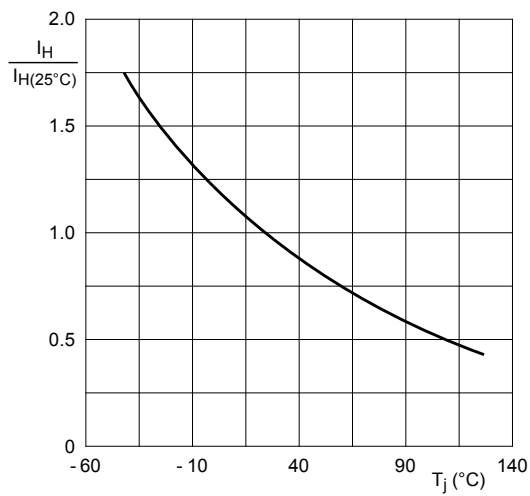
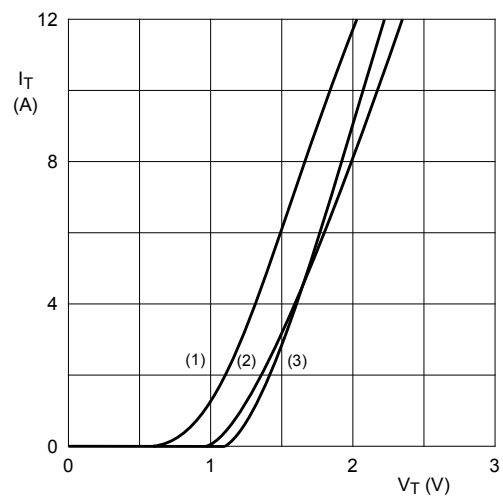


Fig. 9. Normalized holding current as a function of junction temperature



$$V_o = 1.27 \text{ V}$$

$$R_s = 0.091 \text{ } \Omega$$

(1) $T_j = 125^\circ\text{C}$; typical values (2)

$T_j = 125^\circ\text{C}$; maximum values (3)

$T_j = 25^\circ\text{C}$; maximum values

Fig. 10. On-state current as a function of on-state voltage

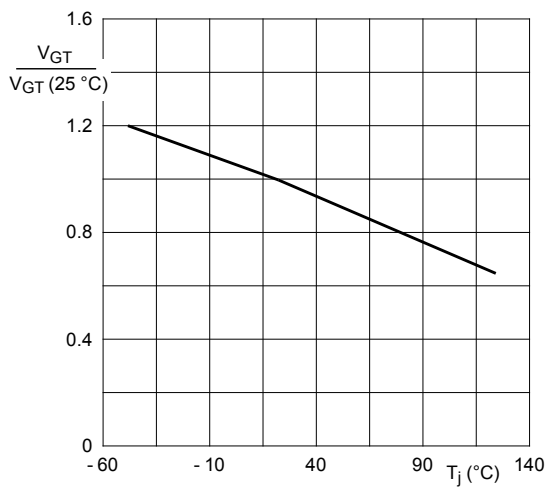
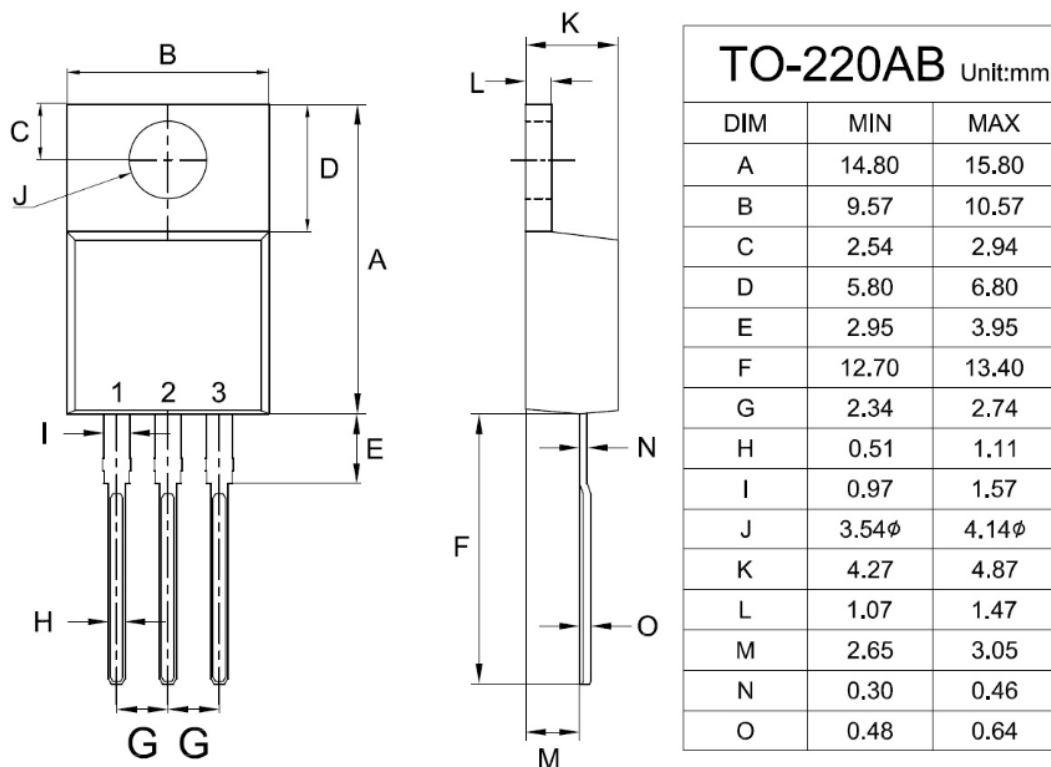


Fig. 11. Normalized gate trigger voltage as a function of junction temperature

TO-220 Mechanical Drawing



ITO-220 Mechanical Drawing

