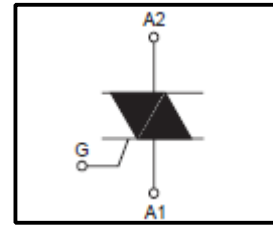


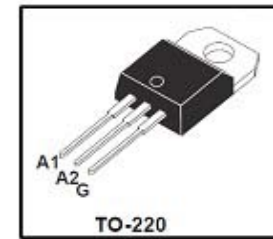
### Features

- Repetitive Peak off-State Voltage:600V
- R.M.S On-State Current( $I_{T(RMS)}$ )=6A
- Low on-state voltage:  $V_{TM}=1.55V(\text{Max.})@ I_T=11A$
- High Commutation  $dV/dt$ .



### General Description

General purpose switching and phase control applications. These devices are intended to be interfaced directly to micro- controllers, logic integrated circuits and other low power gate trigger circuits such as fan speed and temperature modulation control, lighting control and static switching relay.



### Absolute Maximum Ratings (T<sub>J</sub>=25°C unless otherwise specified)

Symbol	Parameter	Value	Units
$V_{DR}$	Peak Repetitive Forward Blocking Voltage(gate open) (Note 1)	600	V
$I_{T(RMS)}$	Forward Current RMS (All Conduction Angles, T <sub>c</sub> =58°C)	6	A
$I_{TS}$	Peak Forward Surge Current, (1/2 Cycle, Sine Wave, 50/60 Hz)	80/84	A
$I_{t}^M$	Circuit Fusing Considerations (t p= 10 ms)	36	A <sup>2</sup> s
PGM	Peak Gate Power — Forward, (T <sub>c</sub> = 58°C,Pulse with ≤1.0us)	5	W
PG(AV)	Average Gate Power — Forward, (Over any 20ms period)	1	W
I <sub>FG</sub>	Peak Gate Current — Forward, T <sub>j</sub> = 125°C (20 μs, 120 PPS)	2	A
$V_{RGM}^M$	Peak Gate Voltage — Reverse, T <sub>j</sub> = 125°C (20 μs, 120 PPS)	10	V
T <sub>J</sub> ,	Junction Temperature	-40~125	°C
T <sub>stg</sub>	Storage Temperature	-40~150	°C

**Note1:** .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 3A/us.

### Thermal Characteristics

Symbol	Parameter	Value			Units
		Min	Typ	Max	
R <sub>QJC</sub>	Thermal Resistance, Junction-to-Case	-	-	1.6	°C/W
R <sub>QJA</sub>	Thermal Resistance, Junction-to-Ambient	-	-	60	°C/W

## Electrical Characteristics (T<sub>c</sub> = 25°C unless otherwise specified)

Symbol	Characteristics	Min	Typ.	Max	Unit	
I <sub>DRM</sub> /I <sub>RRM</sub>	Peak Forward or Reverse Blocking Current (V <sub>DRM</sub> =V <sub>RRM</sub> )	T <sub>c</sub> =25°C	-	-	5	μA
		T <sub>c</sub> =125°C	-	-	1	mA
V <sub>TM</sub>	Forward "On" Voltage(Note2) (I <sub>TM</sub> = 11A Peak @ TA = 25°C)	-	-	1.55	V	
I <sub>GT</sub>	Gate Trigger Current (Continuous dc) (V <sub>D</sub> = 6 Vdc, RL = 10 Ohms)	T2+G+	-	-	5	mA
		T2+G-	-	-	5	
		T2-G-	-	-	5	
V <sub>GT</sub>	Gate Trigger Voltage (Continuous dc) (V <sub>D</sub> =6 Vdc, RL = 10 Ohms)	T2+G+	-	-	1.2	V
		T2+G-	-	-	1.2	
		T2-G-	-	-	1.2	
V <sub>GD</sub>	Gate threshold voltage(T <sub>j</sub> =125°C, V <sub>D</sub> = V <sub>DRM</sub> )	0.2	-	-	V	
dV/dt	Critical rate of rise of commutation Voltage (V <sub>D</sub> =0.67V <sub>DRM</sub> )	400	-	-	V/μs	
dI <sub>com</sub> /dt	Critical rate of rise On-State voltage(V <sub>D</sub> =400V,T <sub>j</sub> =125°C)	4.5	-	-	A/μs	
I <sub>H</sub>	Holding Current (I <sub>T</sub> = 100 mA)	-	4	10	mA	
I <sub>L</sub>	I <sub>G</sub> =1.2I <sub>GT</sub>	-	-	60	mA	
R <sub>d</sub>	Dynamic resistance	-	-	50	mΩ	

**Note 2.** Forward current applied for 1 ms maximum duration, duty cycle

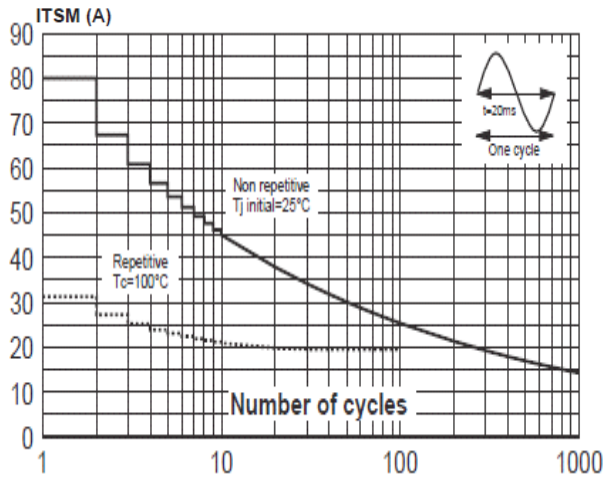


Fig.1 Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus number of cycles, for sinusoidal currents,  $f = 50$  Hz.

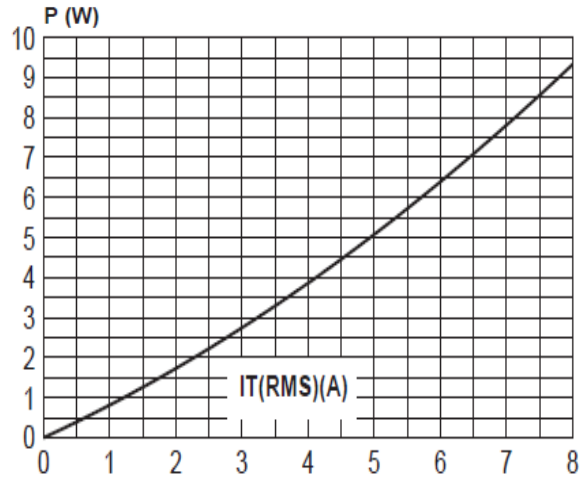


Fig.2 Maximum on-state dissipation,  $P_{tot}$ , versus rms on-state current,  $I_{T(RMS)}$ , where  $\alpha =$  conduction angle.

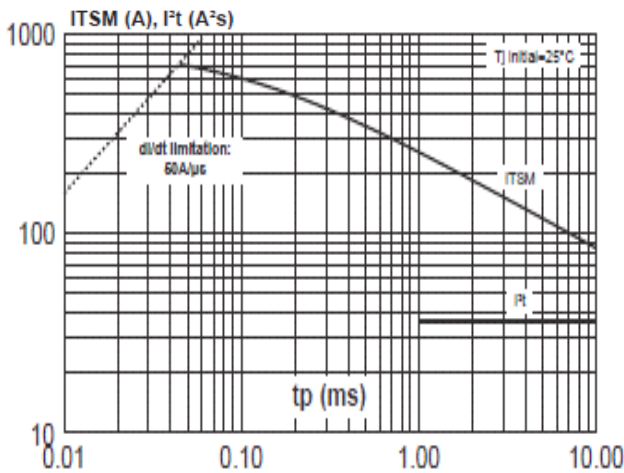


Fig.3 Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10$ ms, and corresponding value of  $I^2t$ .

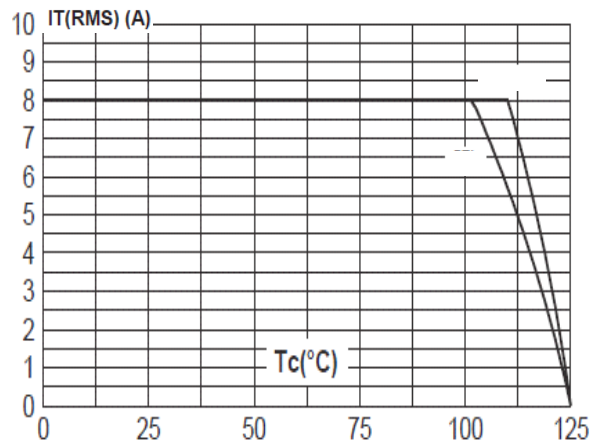


Fig.4 Maximum permissible rms current  $I_{T(RMS)}$ , versus lead temperature  $T_{lead}$ .

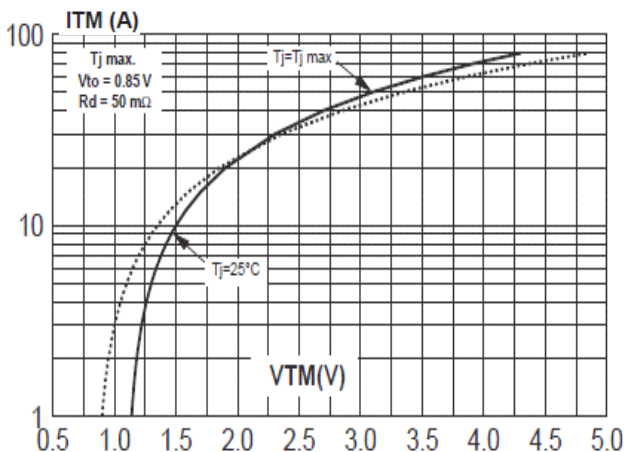


Fig.5 Typical and maximum on-state characteristic.

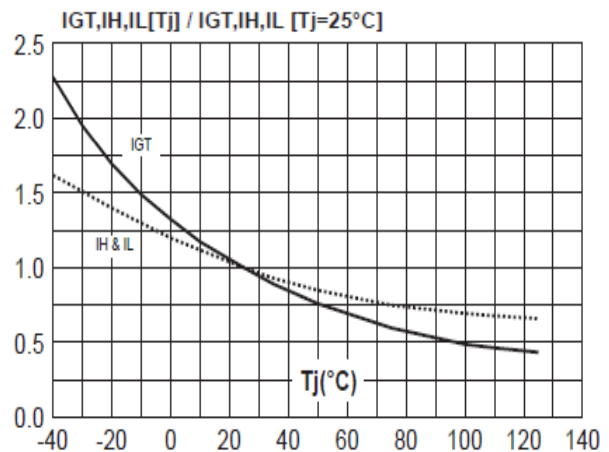
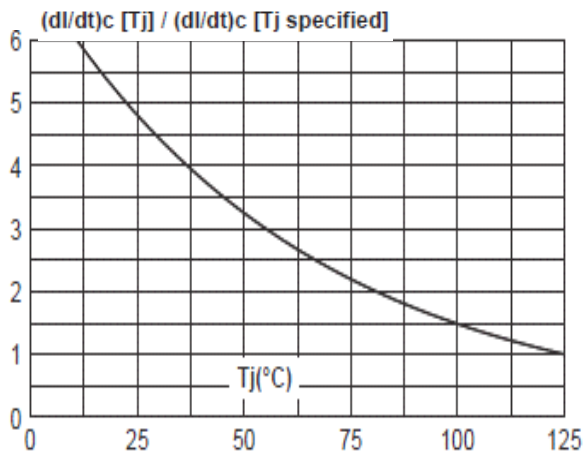
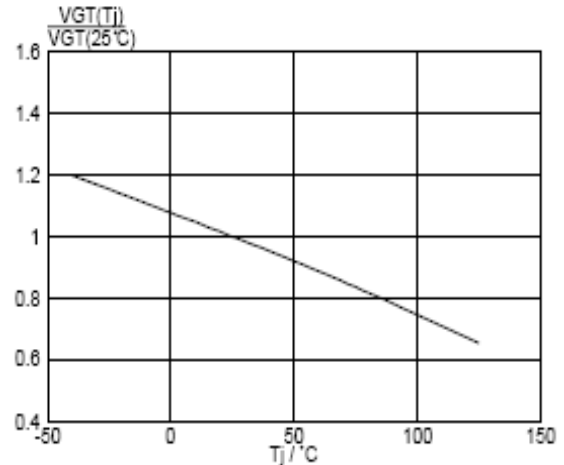


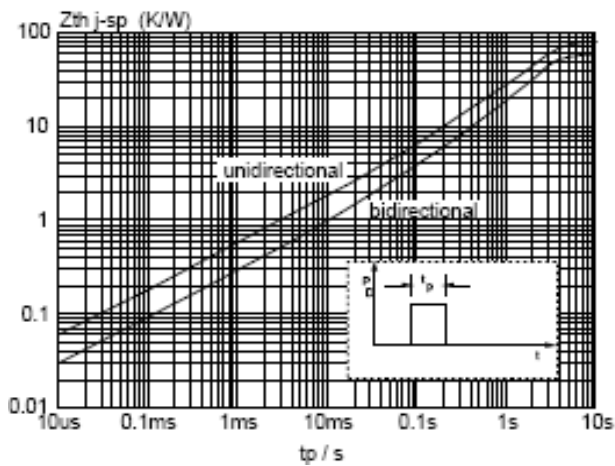
Fig.6 Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).



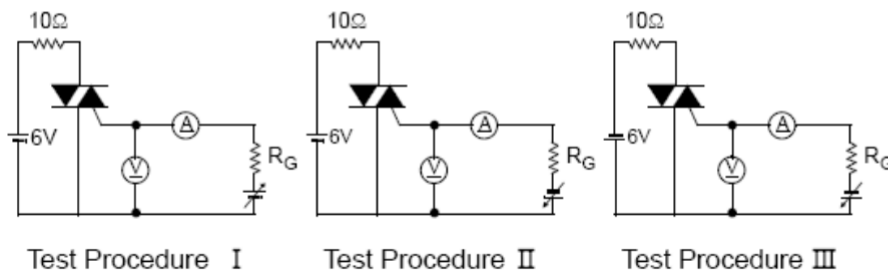
**Fig.7** : Relative variation of critical rate of decrease of main current versus junction temperature.



**Fig.8** . Normalised gate trigger voltage  $V_{GT}(T_j) / V_{GT}(25^{\circ}\text{C})$ , versus junction temperature  $T_j$ .



**Fig.9** Transient thermal impedance  $Z_{thj-lead}$ , versus pulse width  $t_p$ .



**Fig.10** Gate Trigger Characteristics Test Circuit

TO-220 Package Dimension

