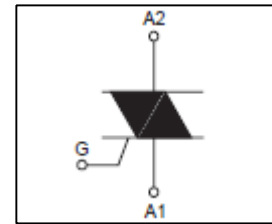


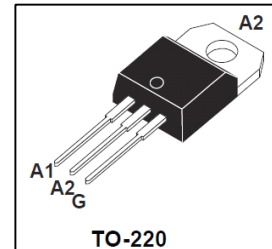
**Features**

- Repetitive Peak off-State Voltage:600V
- R.M.S On-State Current( $I_{T(RMS)}=8A$ )
- Low on-state voltage:  $V_{TM}=1.55V(Max.)@ I_T=11A$
- 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 <sub>DRM</sub>	Peak Repetitive Forward Blocking Voltage(gate open) (Note 1)	600	V
I <sub>T(RMS)</sub>	Forward Current RMS (All Conduction Angles, T <sub>c</sub> =58°C)	8	A
I <sub>TSM</sub>	Peak Forward Surge Current, (1/2 Cycle, Sine Wave, 50/60 Hz)	80/84	A
I <sup>2</sup> t	Circuit Fusing Considerations (t p= 10 ms)	36	A <sup>2</sup> s
P <sub>GM</sub>	Peak Gate Power — Forward, (T <sub>c</sub> = 58°C,Pulse with ≤ 1.0us)	5	W
P <sub>G(AV)</sub>	Average Gate Power — Forward, (Over any 20ms period)	1	W
I <sub>FGM</sub>	Peak Gate Current — Forward, T <sub>j</sub> = 125°C (20 μs, 120 PPS)	2	A
V <sub>RGM</sub>	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**

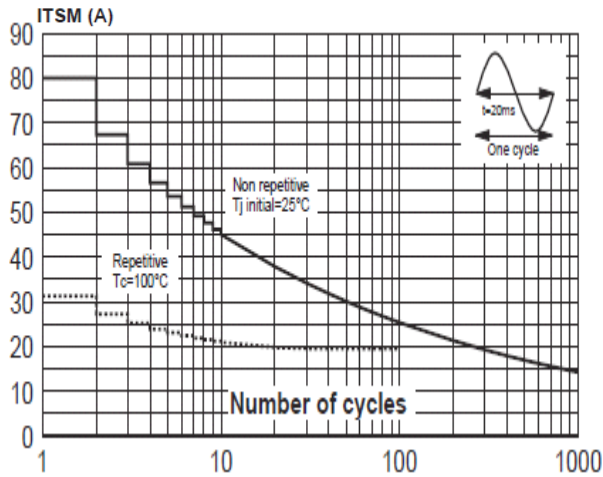
Symbol	Parameter	Value			Units
		Min	Typ	Max	
R <sub>QJC</sub>	Thermal Resistance, Junction-to-Case	-	-	1.6	°C/W
R <sub>QJA</sub>	Thermal Resistance, Junction-to-Ambient	-	-	60	°C/W

# WTPB8A60CW

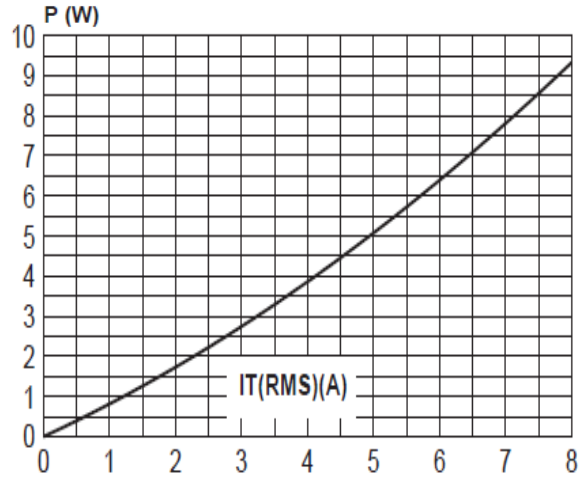
## Electrical Characteristics (Tc = 25°C unless otherwise specified)

Symbol	Characteristics	Min	Typ.	Max	Unit	
$I_{DRM}/I_{RRM}$	Peak Forward or Reverse Blocking Current ( $V_{DRM}=V_{RRM}$ )	Tc=25°C	-	-	5	μA
		Tc=125°C	-	-	1	mA
$V_{TM}$	Forward "On" Voltage(Note2) ( $I_{TM} = 11A$ Peak @ TA = 25°C)	-	-	1.55	V	
$I_{GT}$	Gate Trigger Current (Continuous dc) ( $V_D = 6$ Vdc, RL = 10 Ohms)	T2+G+	-	-	35	mA
		T2+G-	-	-	35	
		T2-G-	-	-	35	
$V_{GT}$	Gate Trigger Voltage (Continuous dc) ( $V_D = 6$ Vdc, RL = 10 Ohms)	T2+G+	-	-	1.2	V
		T2+G-	-	-	1.2	
		T2-G-	-	-	1.2	
$V_{GD}$	Gate threshold voltage( $T_j=125^\circ\text{C}$ , $V_D=V_{DRM}$ )	0.2	-	-	V	
dV/dt	Critical rate of rise of commutation Voltage ( $V_D=0.67V_{DRM}$ )	400	-	-	V/μs	
dI <sub>com</sub> /dt	Critical rate of rise On-State voltage( $V_D=400V$ , $T_j=125^\circ\text{C}$ )	4.5	-	-	A/μs	
$I_H$	Holding Current ( $I_T= 100$ mA)	-	4	10	mA	
$I_L$	$I_G=1.2I_{GT}$	-	-	60	mA	
$R_d$	Dynamic resistance	-	-	50	mΩ	

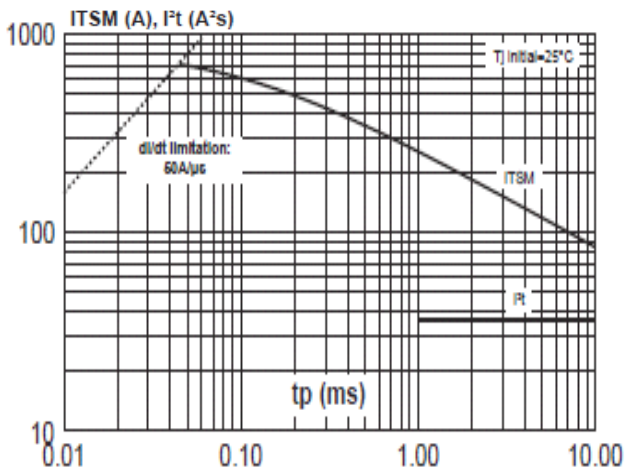
Note 2. Forward current applied for 1 ms maximum duration, duty cycle



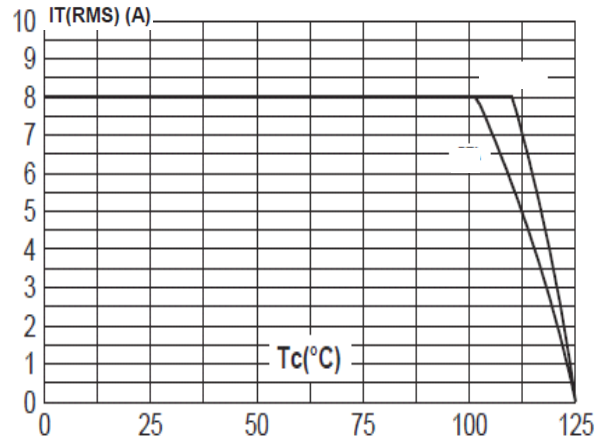
**Fig.1** Maximum permissible non-repetitive peak on-state current  $I_{TSM}$ , versus number of cycles, for sinusoidal currents,  $f = 50$  Hz.



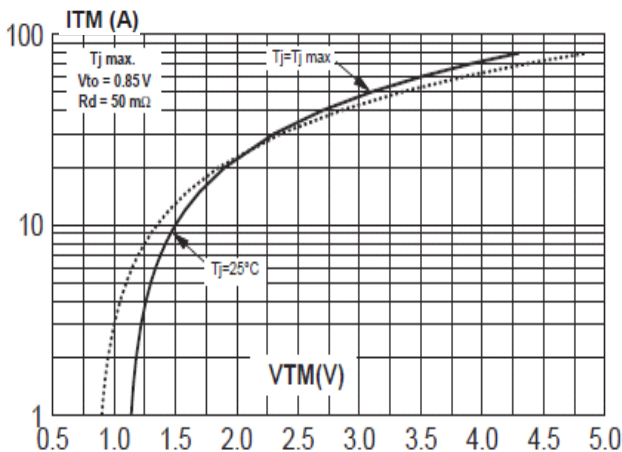
**Fig.2** Maximum on-state dissipation,  $P_{tot}$ , versus rms on-state current,  $I_{T(RMS)}$ , where  $\alpha =$  conduction angle.



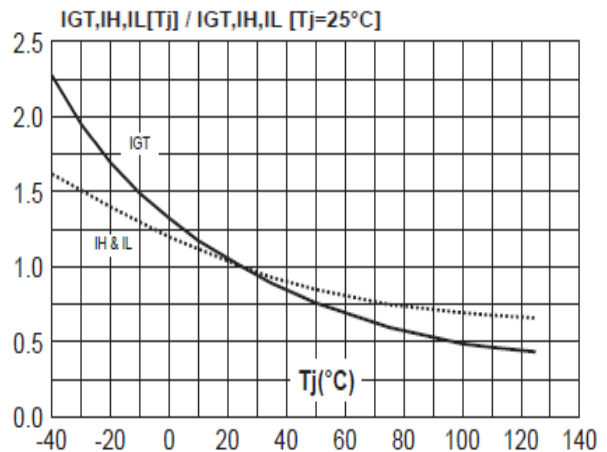
**Fig.3** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10$ ms, and corresponding value of  $I^2t$ .



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

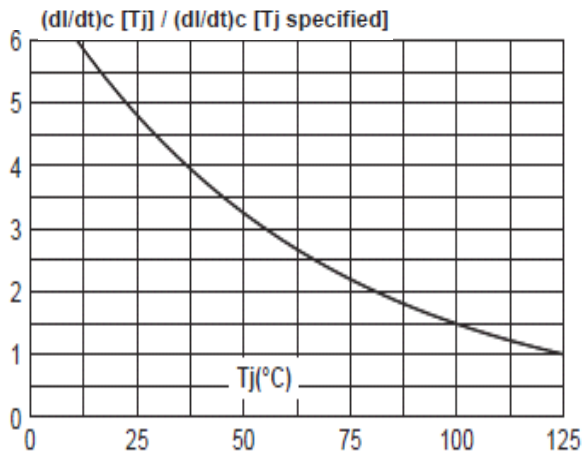


**Fig.5** Typical and maximum on-state characteristic.

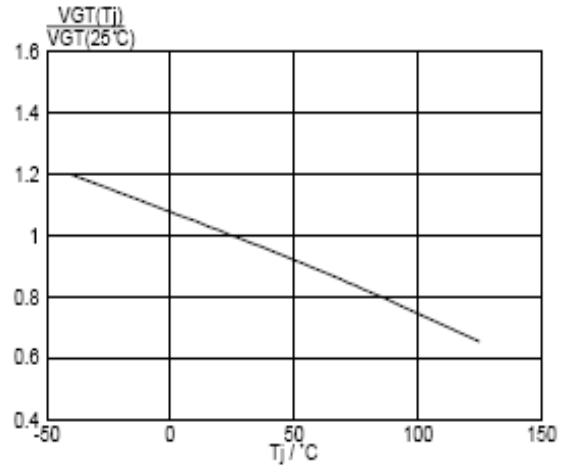


**Fig.6** Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

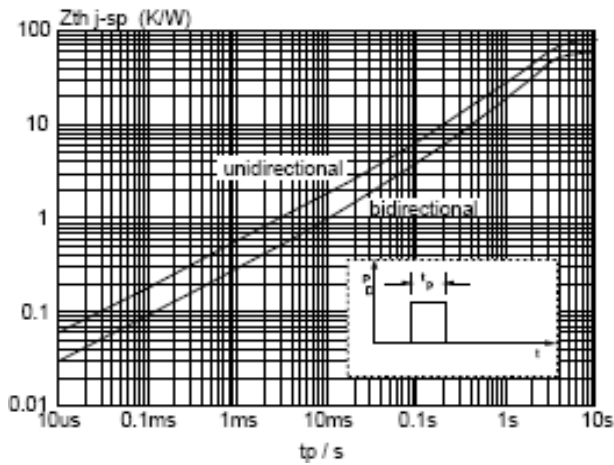
# WTPB8A60CW



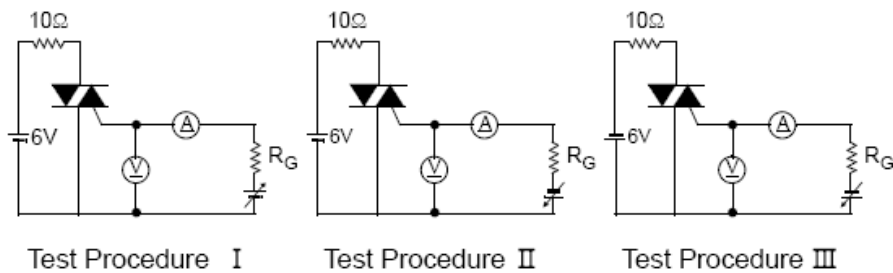
**Fig.7** : Relative variation of critical rate of decrease of main current versus junction temperature.



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



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



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

TO-220 Package Dimension

