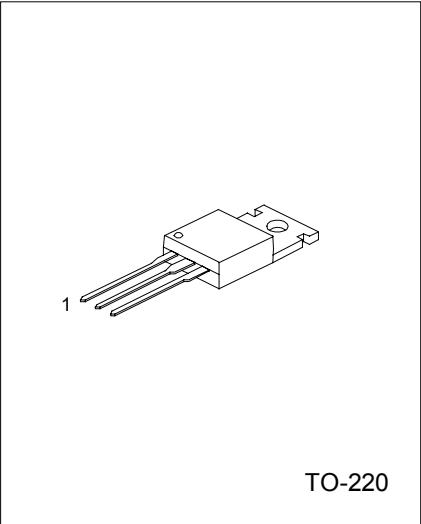
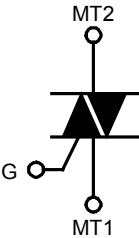


TRIACS

DESCRIPTION

Glass passivated , sensitive gate triacs in a plastic envelope, intended for use in general purpose bidirectional switching and phase control applications, where high sensitivity is required in all four quadrants.

SYMBOL



1:MT1 2:MT2 3:GATE

ABSOLUTE MAXIMUM RATINGS ($T_j=25^{\circ}\text{C}$)

PARAMETER	SYMBOL	RATING	UNIT
Repetitive Peak Off State Voltage UT138E-5 UT138E-6 UT138E-8	V_{DRM}	500* 600* 800	V
RMS On-state Current (Full sine wave, $T_{mb} \leq 99^{\circ}\text{C}$)	$I_T(\text{RMS})$	12	A
Non-repetitive Peak. On-State Current (Full sine wave, $T_j=25^{\circ}\text{C}$ prior to surge) $t=20\text{ms}$ $t=16.7\text{ms}$	I_{TSM}	95 105	A
I^2t For Fusing ($t=10\text{ms}$)	I^2t	45	A^2s
Repetitive Rate of Rise of On-state Current after Triggering ($I_{TM}=20\text{A}, I_G=0.2\text{A}, dI_G/dt=0.2\text{A}/\mu\text{s}$) T2+ G+ T2+ G- T2- G- T2- G+	dI_T/dt	50 50 50 10	$\text{A}/\mu\text{s}$
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	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-40~150	$^{\circ}\text{C}$

*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 $15\text{A}/\mu\text{s}$.

THERMAL RESISTANCES

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Thermal Resistance, Junction to Mounting Base	Rthj-mb			1.5	K/W
Full cycle				2.0	
Half cycle	Rthj-a		60		K/W
Thermal Resistance, Junction to Ambient					
In free air					

STATIC CHARACTERISTICS (Tj=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current	IGT	V _D =12V, I _T =0.1A				mA
		T2+ G+		2.5	10	
		T2+ G-		4.0	10	
		T2- G-		5.0	10	
		T2- G+		11	25	
Latching Current	IL	V _D =12V, I _{GT} =0.1A				mA
		T2+ G+		3.2	30	
		T2+ G-		16	40	
		T2- G-		4.0	30	
		T2- G+		5.5	40	
Holding Current	I _H	V _D =12V, I _{GT} =0.1A		4.0	30	mA
On-State Voltage	V _T	I _T =15A		1.4	1.65	V
Gate Trigger Voltage	V _{GT}	V _D =12V, I _T =0.1A		0.7	1.5	V
		V _D =400V, I _T =0.1A, T _j =125°C	0.25	0.4		V
Off-state Leakage Current	I _D	V _D =V _{DRM(max)} , T _j =125°C		0.1	0.5	mA

DYNAMIC CHARACTERISTICS (Tj=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
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	t _{gt}	I _{TM} =16A, V _D =V _{DRM(max)} , I _G =0.1A dI _G /dt=5A/μs		2		μs

TYPICAL CHARACTERISTICS

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

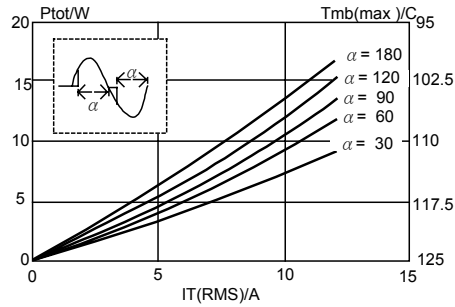


Figure 4. Maximum Permissible RMS Current $I_T(RMS)$ vs mounting base Temperature T_{mb} .

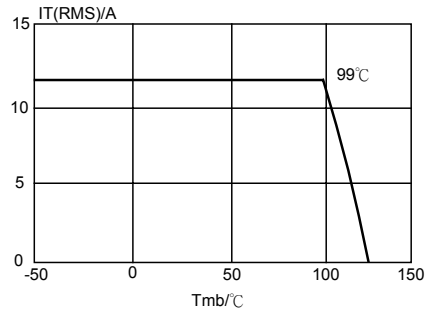


Figure 2. Maximum Permissible Non-repetitive Peak On-state Current I_{TSM} , vs Pulse Width t_p , for Sinusoidal Currents, $t_p \leq 20ms$.

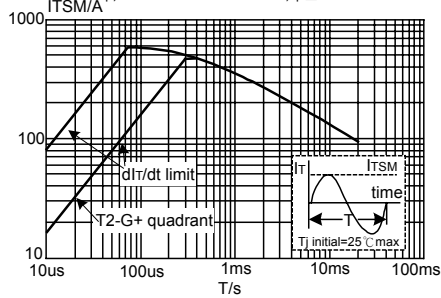


Figure 5. Maximum Permissible Repetitive RMS on-state Current $I_T(RMS)$, vs Surge Duration, for Sinusoidal Currents, $f=50Hz$; $T_{mb} \leq 99^\circ C$.

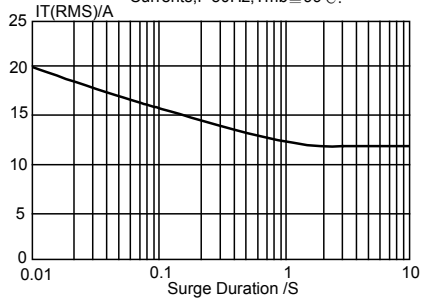


Figure 3. Maximum Permissible Non-Repetitive peak on-state Current i_{TSM} , vs Number of Cycles, for Sinusoidal Currents, $f=50Hz$.

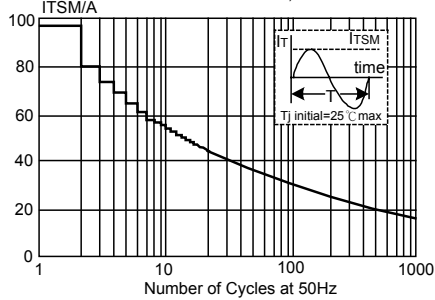
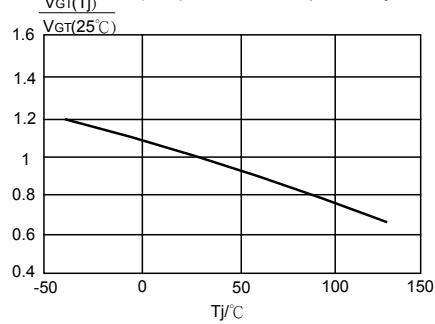
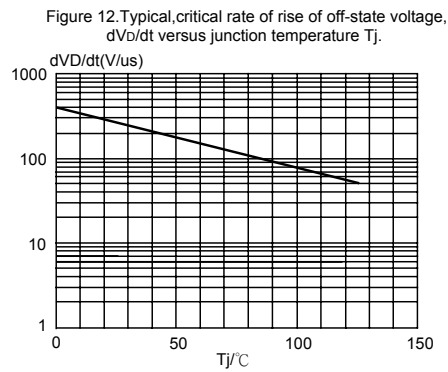
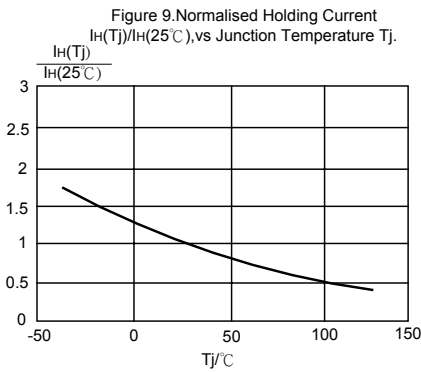
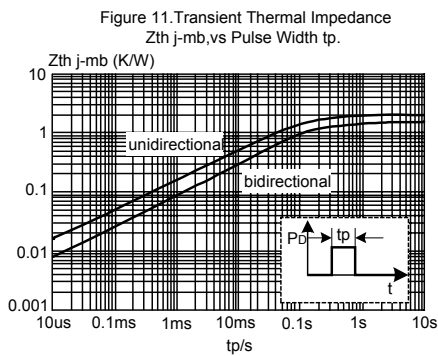
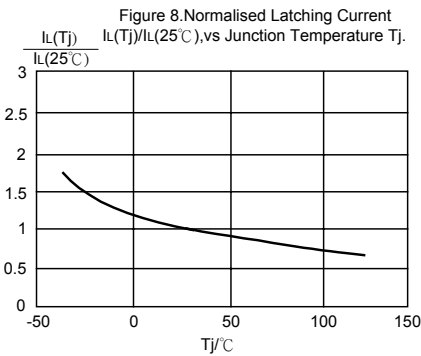
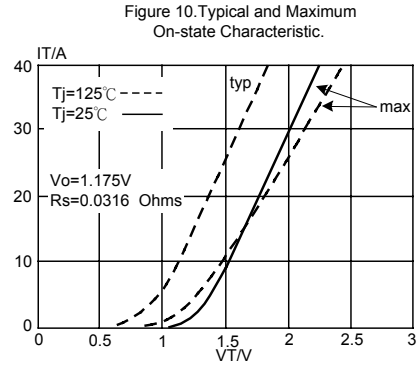
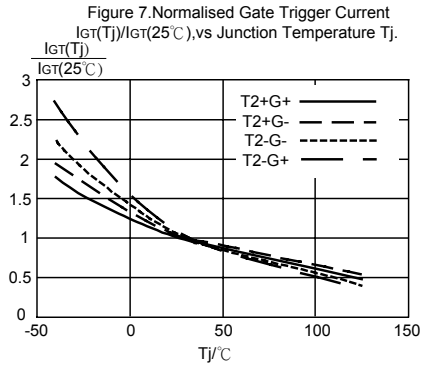


Figure 6. Normalised Gate Trigger Voltage $V_{GT}(T_j)/V_{GT}(25^\circ C)$, vs Junction Temperature T_j .





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