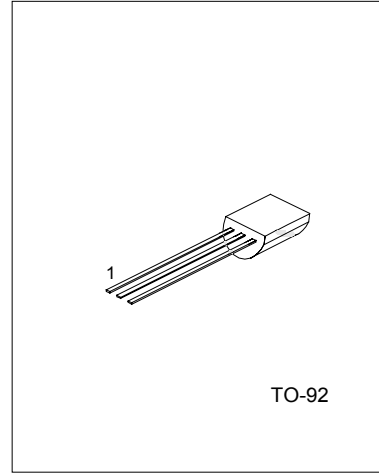
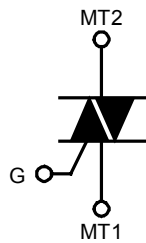


TRIACS LOGIC LEVEL

DESCRIPTION

Passivated, sensitive gate triacs in a plastic envelope, intended for use in general purpose bidirectional switching and phase control applications. These devices are intended to be interfaced directly to microcontrollers, logic integrated circuits and other low power gate trigger circuits.

SYMBOL



1:MT1 2:GATE 3:MT2

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltage UT131-5 UT131-6 UT131-8	V _{DRM}	500* 600* 800*	V
RMS On-State Current Full Sine Wave; T _{lead} ≤ 51°C	I _{T(RMS)}	1	A
Non-Repetitive Peak On-State Current (Full Sine Wave; T _j = 25°C prior to surge) t = 20ms t = 16.7ms	I _{TSM}	16 17.6	A
Circuit Fusing t = 10ms	I ² t	1.28	A ² s
Repetitive Rate of Rise of On-State Current after Triggering I _{TM} = 1.5A, 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 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 3 A/ μ s.

THERMAL RESISTANCES

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Thermal Resistance Junction to Lead Full Cycle	Rth j-lead			60	K/W
Half Cycle				80	
Thermal Resistance junction to Ambient (PCB mounted ;lead length=4mm)	Rth j-lead		150		K/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current	IGT	VD=12V, IT=0.1A				mA
		T2+ G+		0.4	3	
		T2+ G-		1.3	3	
		T2- G-		1.4	5	
		T2- G+		3.8	7	
Latching Current	IL	VD=12V, IGT=0.1A				mA
		T2+ G+		1.2	5	
		T2+ G-		4.0	8	
		T2- G-		1.0	5	
		T2- G+		2.5	8	
Holding Current	IH	VD=12V, IGT=0.1A		1.3	5	mA
On-State Voltage	VT	IT=2.0A		1.2	1.5	V
Gate Trigger Voltage	VGT	VD=12V, IT=0.1A		0.7	1.5	V
		VD=400V, IT=0.1A, Tj=125°C	0.2	0.3		V
Off-state Leakage Current	ID	VD=VDRM(max), Tj=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	dVd/dt	VDM=67% VDRM(max), Tj=125°C Exponential waveform, Rgk=1k Ω	5	15		V/ μ s
Gate Controlled Turn-on Time	tgt	ITM=1.5A, VD=VDRM(max), IG=0.1A dIG/dt=5A/ μ s		2		μ s

TYPICAL CHARACTERISTICS

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

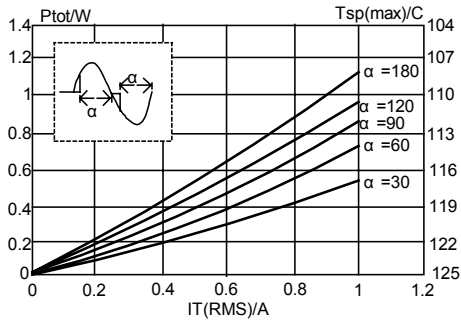


Figure 4. Maximum Permissible RMS Current $I_T(RMS)$ vs Lead Temperature T_{lead}

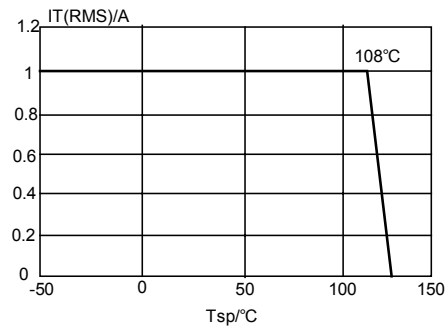


Figure 2. Maximum Permissible Non-repetitive Peak On-state Current I_{TSM} , vs Pulse Width t_p , for Sinusoidal Currents, $t_p \leq 20ms$

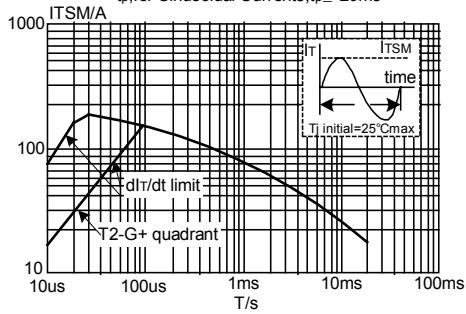


Figure 5. Maximum Permissible Repetitive RMS on-state Current $I_T(RMS)$, vs Surge Duration, for Sinusoidal Currents, $f=50Hz$; $T_{lead} \leq 51^\circ C$

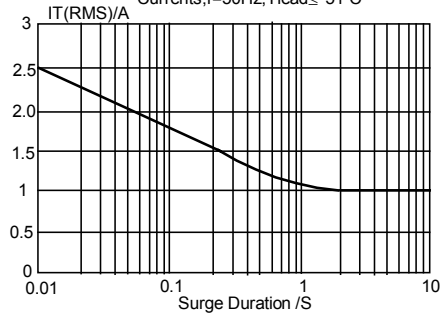


Figure 3. Maximum Permissible Non-Repetitive peak on-state Current I_{TSM} , vs Number of Cycles, for Sinusoidal Currents, $f=50Hz$

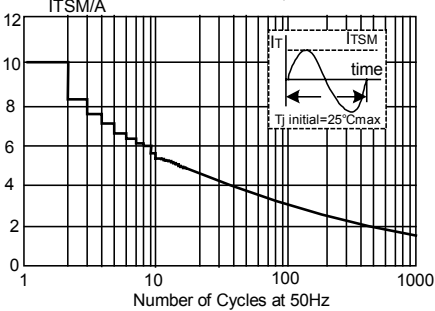


Figure 6. Normalised Gate Trigger Voltage $V_{GT}(T_j) / V_{GT}(25^\circ C)$, vs Junction Temperature T_j

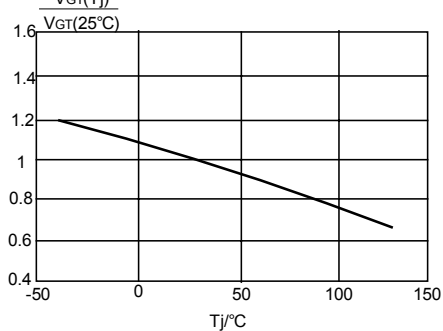


Figure 7. Normalised Gate Trigger current $I_{GT}(T_j)/I_{GT}(25^\circ\text{C})$, vs Junction Temperature T_j

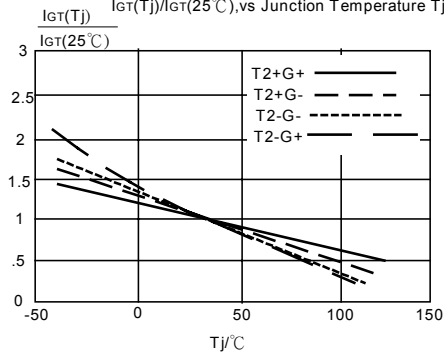


Figure 10. Typical and Maximum On-state Characteristic

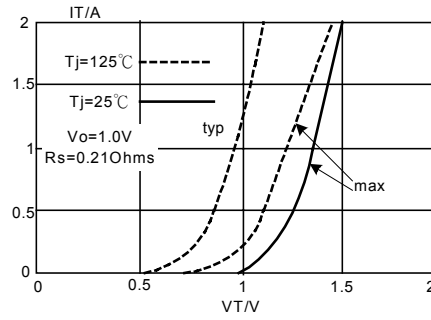


Figure 8. Normalised Latching Current $I_L(T_j)/I_L(25^\circ\text{C})$, vs Junction Temperature T_j

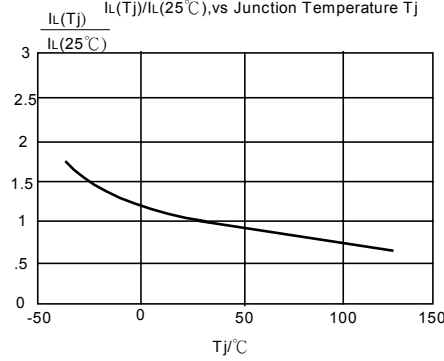


Figure 11. Transient Thermal Impedance $Z_{th\ j\text{-lead}}$, vs Pulse Width t_p

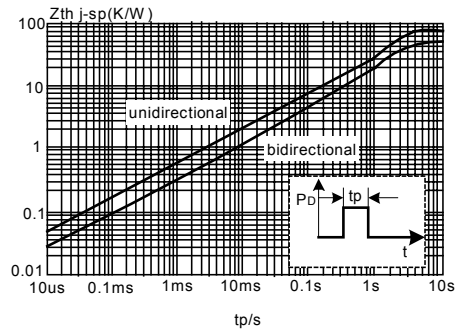


Figure 9. Normalised Holding Current $I_H(T_j)/I_H(25^\circ\text{C})$, vs Junction Temperature T_j

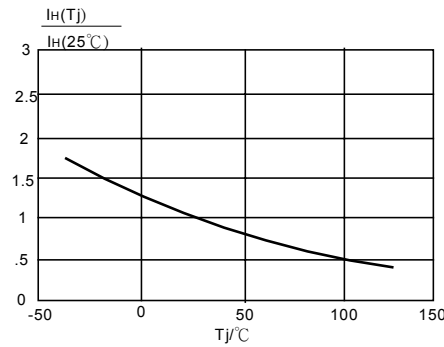
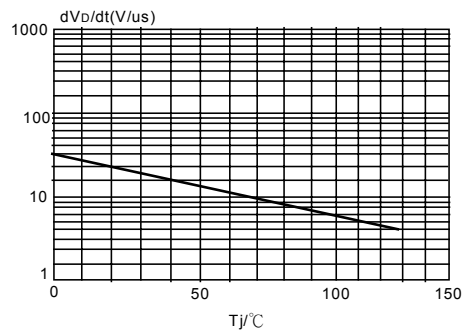


Figure 12. Typical Critical Rate of Rise of off-state Voltage, dV_D/dt vs Junction Temperature T_j



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.