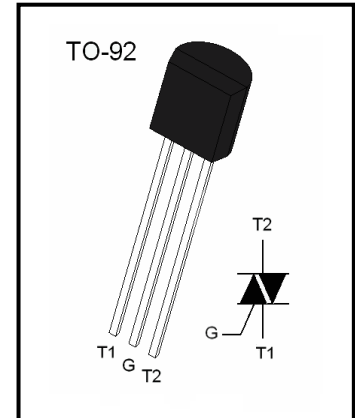


GENERAL DESCRIPTION

Logic level sensitive gate triac intended to be interfaced directly to microcontrollers, logic integrated circuits and other low power gate trigger circuits.

FEATURES

- Blocking voltage to 800V
- RMS on-state current to 0.8A
- Sensitive gate in all four quadrants



Absolute Maximum Rating (Ta=25°C)

Limiting values in accordance with the Absolute Maximum System

Parameter	Symbol	Conditions	Rating	Unit	
Repetitive peak off-state voltages	V_{DRM}		-800 800	V	
On-State RMS Current	$I_{T(RMS)}$	full sine wave; $T_{mb} \leq 108\text{ }^{\circ}\text{C}$	1	A	
Non-repetitive peak on-state current	I_{TSM}	full sine wave; $T_j = 25\text{ }^{\circ}\text{C}$ prior to surge	$t = 20\text{ ms}$	10	A
			$t = 16.7\text{ ms}$	11	
I^2t for fusing	I^2t	$t = 10\text{ ms}$	0.5	A^2s	
Repetitive rate of rise of on-state current after triggering	di_T/dt	$I_{TM} = 6\text{ A}; I_G = 0.2\text{ A};$ $dI_G/dt = 0.2\text{ A}/\mu\text{s}$	T2+ G+	50	A/ μs
			T2+ G-	50	
			T2- G-	50	
			T2- G+	10	
Peak gate current	I_{GM}		2	A	
Peak Gate Voltage	V_{GM}		5	V	
Peak gate power	P_{GM}		5	W	
Average gate power	$P_{G(AV)}$	over any 20 ms period	0.5	W	
Storage Temperature	T_{stg}		-40~150	$^{\circ}\text{C}$	
Operating junction temperature	T_j		125	$^{\circ}\text{C}$	

Thermal Resistances

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Thermal resistance junction to solder point	Rth j-sp	full or half cycle	-		15	K/W
Thermal resistance junction to ambient	Rth j-a	pcb mounted; minimum footprint pcb mounted;	-	156 70		K/W

Static Characteristics $T_j = 25\text{ }^\circ\text{C}$ unless otherwise stated

Parameter	Symbol	Conditions	Min	Typ	Max			Unit	
				F	...G		
Gate trigger current	I_{GT}	$V_D = 12\text{ V}$ $I_T = 0.1\text{ A}$	T2+ G+	-		35	25	50	mA
			T2+ G-	-		35	25	50	
			T2- G-	-		35	25	50	
			T2- G+	-		70	70	100	
Latching current	I_L	$V_D = 12\text{ V}$ $I_{GT} = 0.1\text{ A}$	T2+ G+	-		20	20	30	mA
			T2+ G-	-		30	30	45	
			T2- G-	-		20	20	30	
			T2- G+	-		30	30	45	
Holding current	I_H	$V_D = 12\text{ V}$, $I_{GT} = 0.1\text{ A}$			15	15	30	mA	
On-state voltage	V_T	$I_T = 2\text{ A}$		1.2	1.5			V	
Gate trigger voltage	V_{GT}	$V_D = 12\text{ V}$; $I_T = 0.1\text{ A}$ $V_D = 400\text{ V}$; $I_T = 0.1\text{ A}$; $T_j = 125\text{ }^\circ\text{C}$			1.5			V	
			0.25						
Off-state leakage current	I_D	$V_D = V_{DRM(max)}$; $T_j = 125\text{ }^\circ\text{C}$			0.5			mA	

Dynamic Characteristics $T_j = 25\text{ }^\circ\text{C}$ unless otherwise stated

Parameter	Symbol	Conditions	Min			Typ	Max	Unit
		F	...G			
Critical rate of rise of Critical rate of rise of	dV_D/dt	$V_{DM} = 67\% V_{DRM(max)}$; $V_{DM} = 67\% V_{DRM(max)}$; $V_{DM} = 67\% V_{DRM(max)}$; circuit	100	50	200	250	-	V/ μs
Critical rate of change of commutating voltage	dV_{com}/dt	$V_{DM} = 400\text{ V}$; $T_j = 95\text{ }^\circ\text{C}$; $I_{T(RMS)} = 1\text{ A}$; $dI_{com}/dt = 1.8\text{ A/ms}$; gate open circuit	-	-	10	50	-	V/ μs
Gate controlled turn-on time	tgt	$I_{TM} = 1.5\text{ A}$; $V_D = V_{DRM(max)}$; $I_G = 0.1\text{ A}$; $dI_G/dt = 5\text{ A}/\mu\text{s}$;						μs

Typical Characteristics

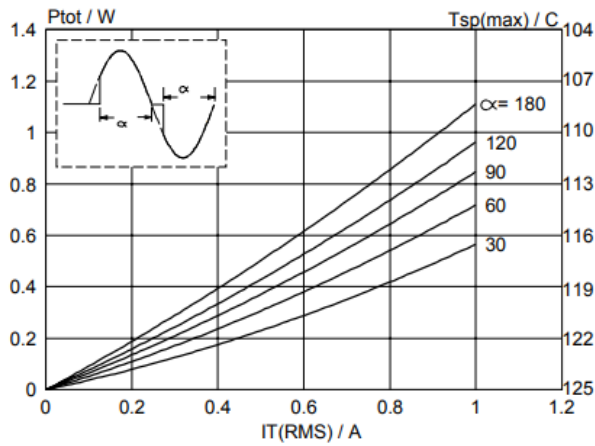


Fig.1. Maximum on-state dissipation, P_{tot} , vs rms on-state current, $I_{T(RMS)}$, where α = conduction angle.

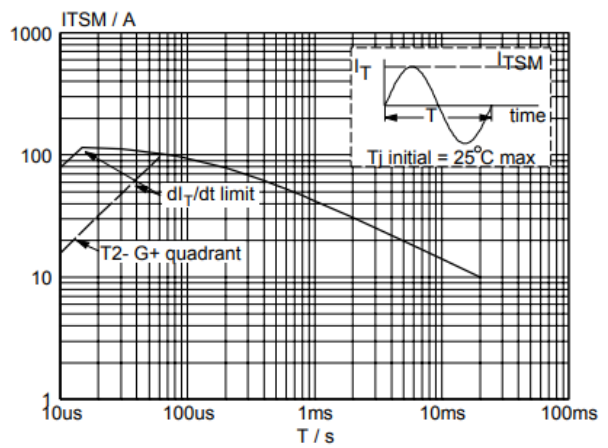


Fig.2. Maximum permissible non-repetitive peak on-state current I_{TSM} , vs pulse width t_p , for sinusoidal currents, $t_p \leq 20ms$.

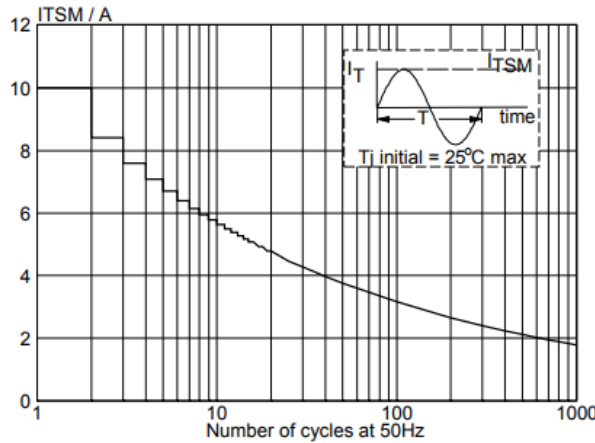


Fig.3. Maximum permissible non-repetitive peak on-state current I_{TSM} , vs number of cycles, for sinusoidal currents, $f = 50 Hz$.

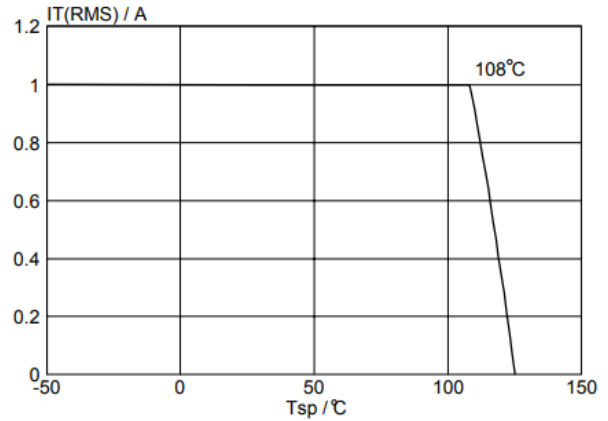


Fig.4. Maximum permissible rms current $I_{T(RMS)}$, vs solder point temperature T_{sp} .

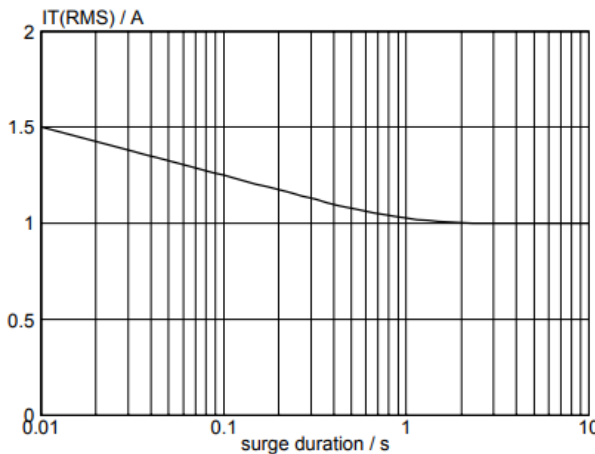


Fig.5. Maximum permissible repetitive rms on-state current $I_{T(RMS)}$, vs surge duration, for sinusoidal currents, $f = 50Hz$; $T_{sp} \leq 108^\circ C$.

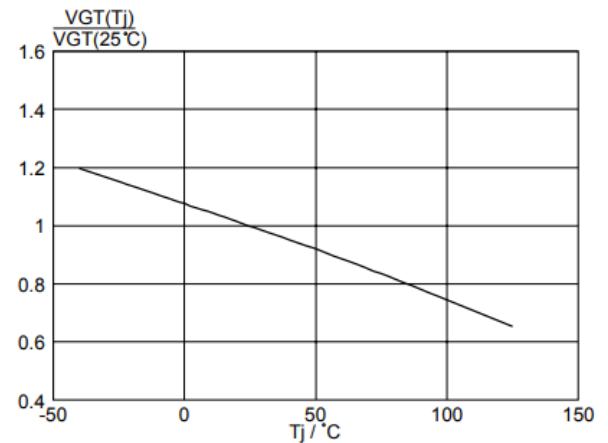
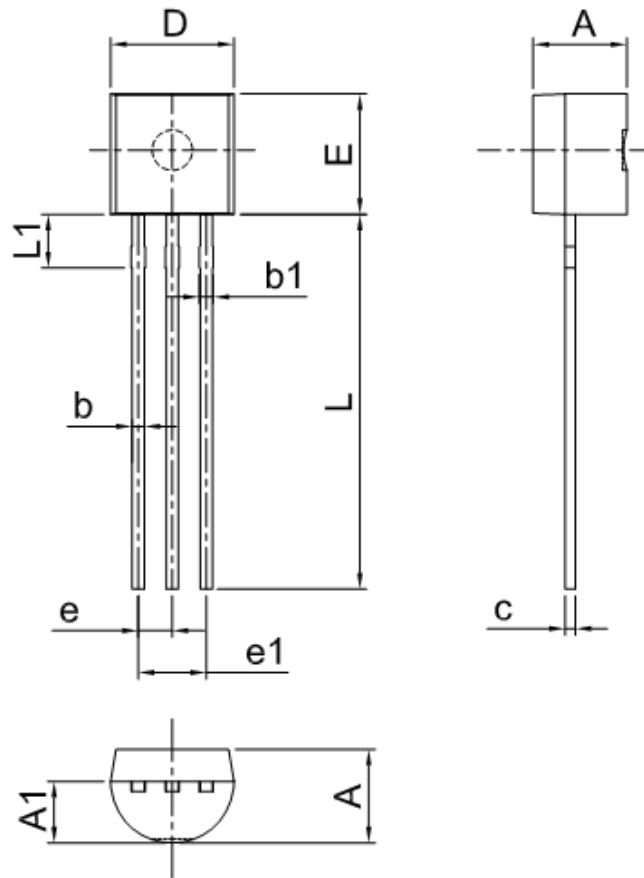


Fig.6. Normalised gate trigger voltage $V_{GT}(T_j) / V_{GT}(25^\circ C)$, vs junction temperature T_j .

Package Dimensions (Unit:mm)



Symbol	TO-92		
	Min.	Typ	Max.
A	3.30	3.50	3.70
A1	2.10	2.30	2.50
b	0.40	0.45	0.50
b1	0.50	0.55	0.60
c	0.35	0.40	0.45
D	4.45	4.55	4.65
E	4.45	4.55	4.65
e	1.17	1.27	1.37
e1	2.34	2.54	2.64
L	13.50	14.00	14.50
L1	1.80	2.00	2.20