

SENSITIVE GATE TRIACS

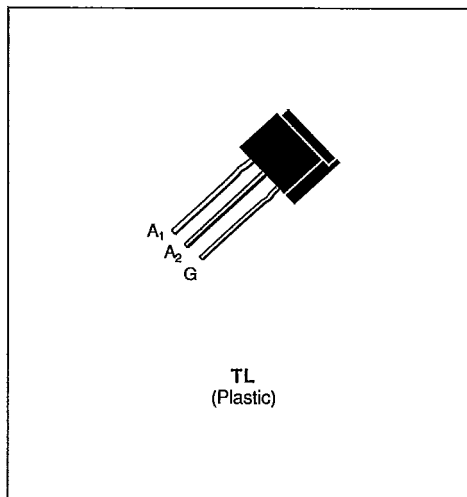
- GLASS PASSIVATED CHIP
- HIGH SURGE CURRENT

DESCRIPTION

Low power triacs suited for 50 and 60 Hz up to 380 V_{RMS}.

APPLICATIONS

- CONTROL SPEED FOR LITTLE MOTORS ;
ELECTRIC PUMP OR VENTILATOR, SEWING MACHINE
- RELAY, DETECTOR, ALARM SYSTEM
- ELECTRONIC STARTER FOR LAMP
- HIGH POWER TRIAC DRIVER



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value	Unit
I _{T(RMS)}	RMS on-state Current (360° conduction angle) T _I = 40 °C	1	A
I _{T(RMS)}	RMS on-state Current on Printed Circuit (360° conduction angle) T _a = 25 °C	0.77	A
I _{TSM}	Non Repetitive Surge Peak on-state Current (T _J initial = 25 °C - Half sine wave)	t = 8.3 ms 16 t = 10 ms 15	A
I ² t	I ² t Value for Fusing	t = 10 ms 1.125	A ² s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive 10	A/μs
T _{stg} T _J	Storage and Operating Junction Temperature Range	- 40 to 150 - 40 to 110	°C °C

Symbol	Parameter	TLC111T	TLC221T	TLC331T	TLC381T	Unit
V _{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	V

(1) I_G = 50 mA di_G/dt = 1 A/μs

(2) T_J = 110 °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th (j-a)}	Junction to Ambient on Printed Circuit	75	°C/W
R _{th (j-l)}	Junction-leads for 360° Conduction Angle (F = 50 Hz)	45	°C/W

GATE CHARACTERISTICS (maximum values)

$F_{GM} = 2 \text{ W}$ ($t_p = 10 \mu\text{s}$) $I_{GM} = 1 \text{ A}$ ($t_p = 10 \mu\text{s}$)
 $P_{G(AV)} = 0.1 \text{ W}$ $V_{GM} = 16 \text{ V}$ ($t_p = 10 \mu\text{s}$)

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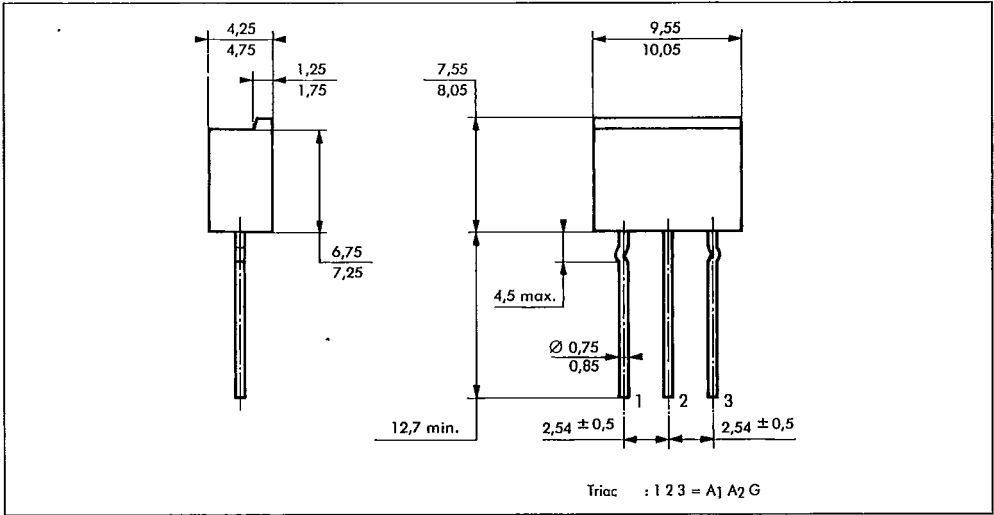
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	$T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 33 \text{ }\Omega$ Pulse Duration $> 20 \mu\text{s}$	I-II-III-IV			5	mA
V_{GT}	$T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $R_L = 33 \text{ }\Omega$ Pulse Duration $> 20 \mu\text{s}$	I-II-III-IV			1.5	V
V_{GD}	$T_j = 110 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$	I-II-III-IV	0.2			V
I_H^*	$T_j = 25 \text{ }^\circ\text{C}$ $I_T = 100 \text{ mA}$ Gate Open				15	mA
I_L	$T_j = 25 \text{ }^\circ\text{C}$ $V_D = 12 \text{ V}$ $I_G = 10 \text{ mA}$ Pulse Duration $> 20 \mu\text{s}$	I-II-III-IV			15	mA
V_{TM}^*	$T_j = 25 \text{ }^\circ\text{C}$ $I_{TM} = 1.4 \text{ A}$ $t_p = 10 \text{ ms}$				1.8	V
I_{DRM}^*	V_{DRM} Specified				0.01	mA
					0.75	
dv/dt^*	$T_j = 110 \text{ }^\circ\text{C}$ Gate Open Linear Slope up to $V_D = 67 \% V_{DRM}$			10		V/ μs
$(dv/dt)_c^*$	$T_j = 40 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $I_T = 1.4 \text{ A}$ $(di/dt)_c = 0.4 \text{ A/ms}$			1		V/ μs
t_{gt}	$T_j = 25 \text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $I_T = 1.4 \text{ A}$ $I_G = 100 \text{ mA}$ $di_G/dt = 1 \text{ A}/\mu\text{s}$	I-II-III-IV		3		μs

* For either polarity of electrode A_2 voltage with reference to electrode A_1 .

PACKAGE MECHANICAL DATA

TL Plastic



Cooling method : by convection (method A)
Marking : type number
Weight : 0.8 g.

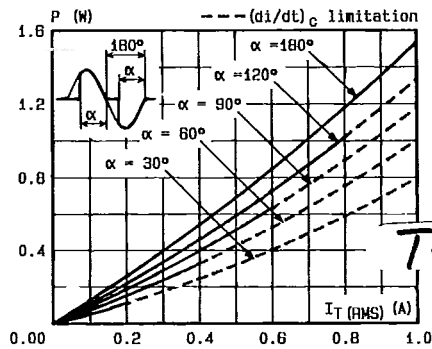


Fig.1 - Maximum mean power dissipation versus RMS on-state current ($F = 60$ Hz).

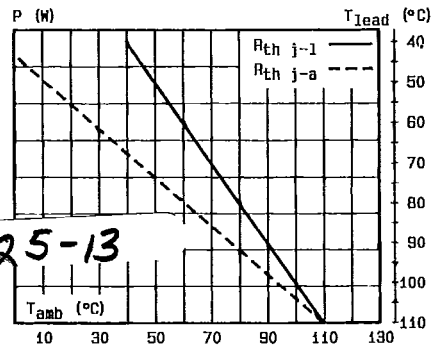


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}). resistances heatsink + contact.

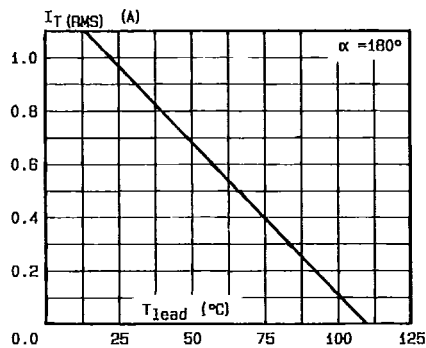


Fig.3 - RMS on-state current versus lead temperature.

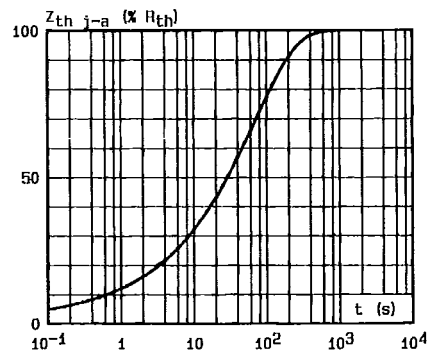


Fig.4 - Thermal transient impedance junction to ambient versus pulse duration.

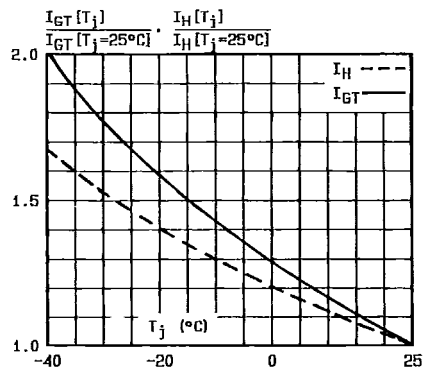


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

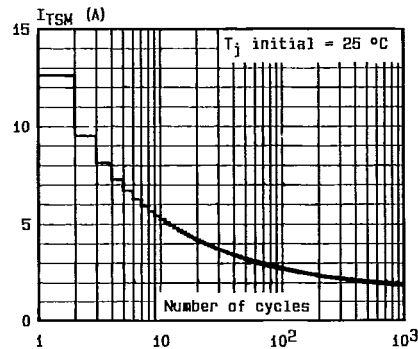


Fig.6 - Non repetitive surge peak on state current versus number of cycles.

T-25-13

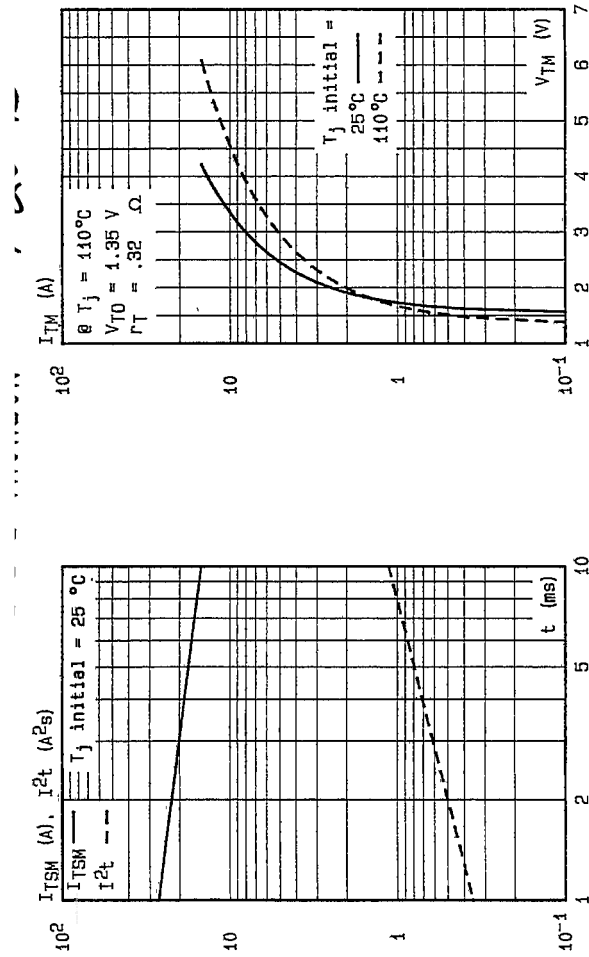


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

Fig.8 - On-state characteristics (maximum values).