

TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS

ADVANTAGES

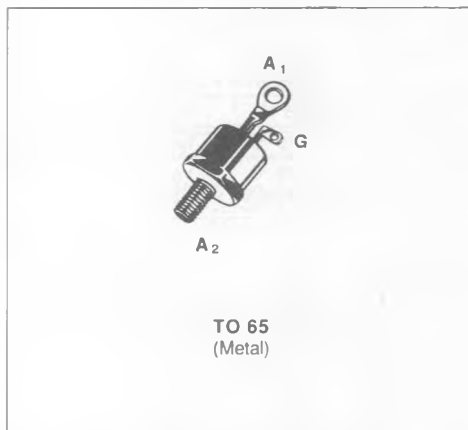
- EXCELLENT $(dv/dt)_C : > 10 \text{ V}/\mu\text{s}$
- METALLIC ENCAPSULATION GIVES AN EXCELLENT THERMAL IMPEDANCE AND HIGH RELIABILITY CONSTRUCTION

APPLICATIONS

- MOTOR CONTROL
- HEATING CONTROL
- LIGHT DIMMER

DESCRIPTION

Power triacs suited for use on 220 V and 380 V main.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	$T_C = 75^\circ\text{C}$	60	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25°C - Half sine wave)	$t = 8.3 \text{ ms}$	550	A
		$t = 10 \text{ ms}$	500	
I^2t	I^2t Value for Fusing	$t = 10 \text{ ms}$	1250	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive $F = 50 \text{ Hz}$	50	$\text{A}/\mu\text{s}$
		Non Repetitive	300	
T_{sig} T_j	Storage and Operating Junction Temperature Range		- 40 to 150 - 40 to 125	$^\circ\text{C}$ $^\circ\text{C}$

Symbol	Parameter	TGAL					Unit
		602	604	606	608	610	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	800	1000	V

(1) $I_G = 1.5 \text{ A}$ $di/dt = 1 \text{ A}/\mu\text{s}$
 (2) $T_j = 125^\circ\text{C}$.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th (c-h)}$	Contact (case-heatsink) for Recommended Stud Torque	0.3	$^\circ\text{C}/\text{W}$
$R_{th (j-c)} \text{ DC}$	Junction to Case for DC	0.66	$^\circ\text{C}/\text{W}$
$R_{th (j-c)} \text{ AC}$	Junction to Case for 360 ° Conduction Angle ($F = 50 \text{ Hz}$)	0.5	$^\circ\text{C}/\text{W}$

GATE CHARACTERISTICS
(maximum values)

$P_{GM} = 40\text{ W}$ ($t_p = 10\text{ }\mu\text{s}$) $I_{GM} = 6\text{ A}$ ($t_p = 10\text{ }\mu\text{s}$)
 $P_{G(AV)} = 1\text{ V}$ $V_{GM} = 16\text{ V}$ ($t_p = 10\text{ }\mu\text{s}$)

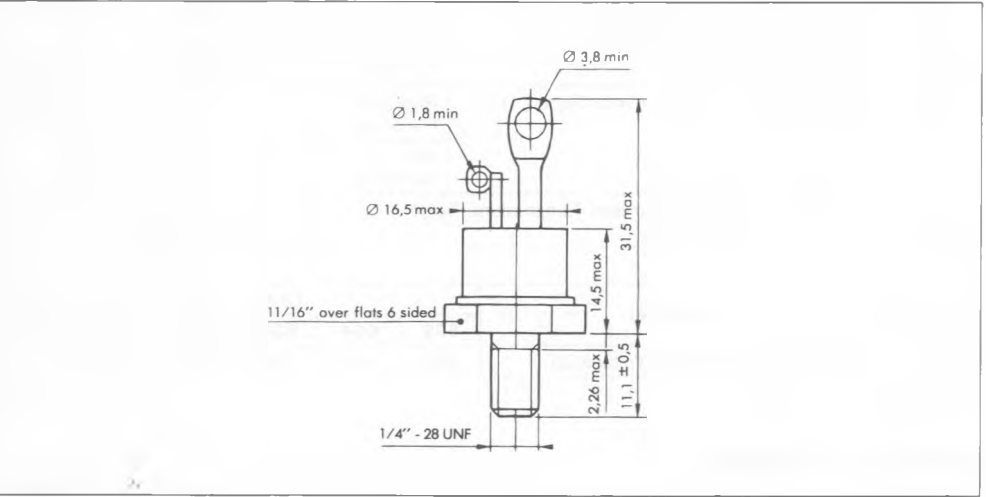
ELECTRICAL CHARACTERISTICS

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 μs	I-III			100	mA
		II-IV			150	
V_{GT}	$T_J = 25\text{ }^{\circ}\text{C}$ $V_D = 12\text{ V}$ $R_L = 33\text{ }\Omega$ Pulse Duration > 20 μs	I-II-III-IV			1.5	V
V_{GD}	$T_J = 125\text{ }^{\circ}\text{C}$ $V_D = V_{DRM}$ $R_L = 3.3\text{ k}\Omega$	I-II-III-IV	0.2			V
I_H^*	$T_J = 25\text{ }^{\circ}\text{C}$ $I_T = 500\text{ mA}$ Gate Open				100	mA
I_L	$T_J = 25\text{ }^{\circ}\text{C}$ $V_D = 12\text{ V}$ $I_G = 300\text{ mA}$ Pulse Duration > 20 μs	I-III-IV		60		mA
		II		120		
V_{TM}^*	$T_J = 25\text{ }^{\circ}\text{C}$ $I_{TM} = 100\text{ A}$ $t_p = 10\text{ ms}$				2	V
I_{DRM}^*	$T_J = 125\text{ }^{\circ}\text{C}$ V_{DRM} Specified				10	mA
dv/dt^*	$T_J = 125\text{ }^{\circ}\text{C}$ Gate Open Linear Slope up to $V_D = 67\text{ }\%$ V_{DRM}		250			V/ μs
$(dv/dt)_c^*$	$T_C = 75\text{ }^{\circ}\text{C}$ $V_D = V_{DRM}$ $I_T = 100\text{ A}$ $(di/dt)_c = 26.7\text{ A/ms}$		10			V/ μs
t_{g1}	$T_J = 25\text{ }^{\circ}\text{C}$ $V_D = V_{DRM}$ $I_T = 100\text{ A}$ $I_G = 500\text{ mA}$ $di_G/dt = 3.5\text{ A}/\mu\text{s}$	I-II-III-IV		3		μs

* For either polarity of electrode A₂ voltage with reference to electrode A₁.

PACKAGE MECHANICAL DATA

TO 65 Metal



Cooling method : by conduction (method C)
 Marking : type number
 Weight : 19 g without accessories
 Polarity : Electrode A₂ to case
 Stud torque : 3.5 mAN min - 3.8 mAN max.

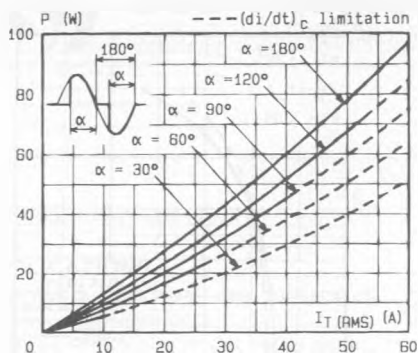


Fig.1 - Maximum mean power dissipation versus RMS on-state current ($F = 60$ Hz).

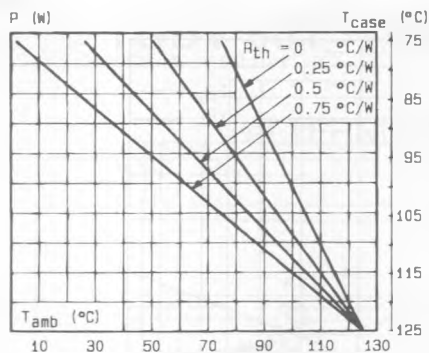


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

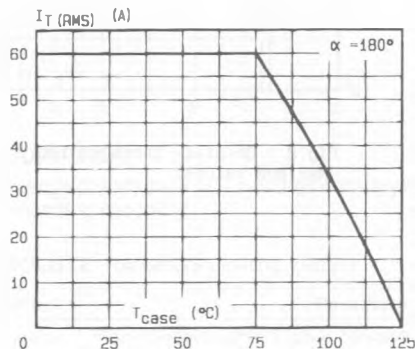


Fig.3 - RMS on-state current versus case temperature.

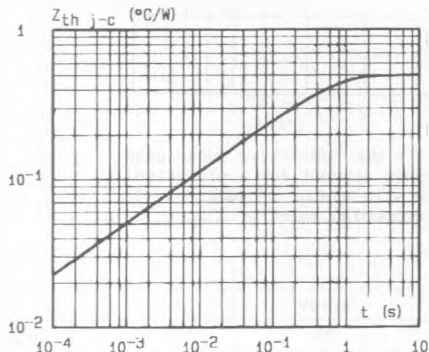


Fig.4 - Thermal transient impedance junction to case versus pulse duration.

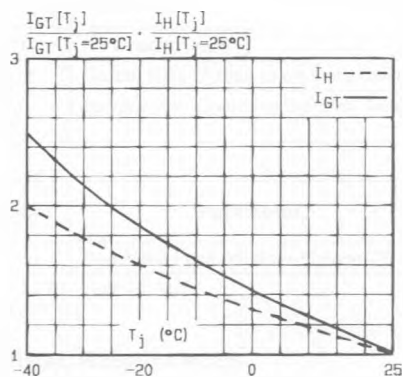


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

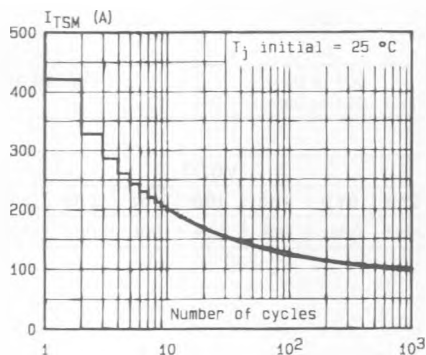


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

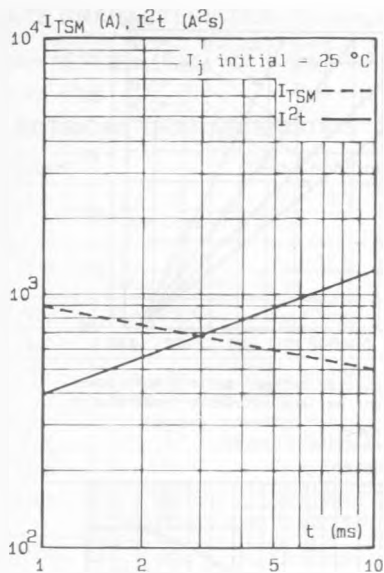


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t \leq 10$ ms, and corresponding value of I^2t .

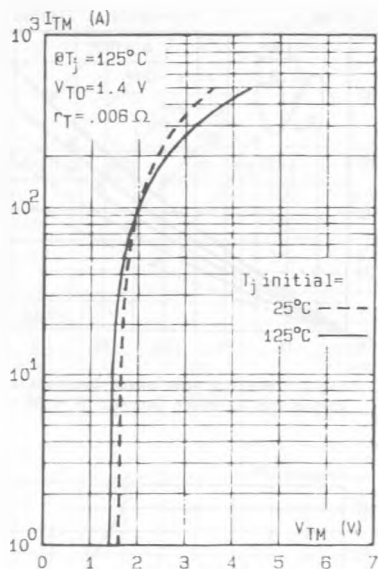


Fig.8 - On-state characteristic (maximum values).