

T-25-15

Power triac suited for use on 200 V and 380 V main.

FEATURES :

- Glass passivated chip.
- IGT specified in four quadrants.

ADVANTAGES :

- Excellent $(dv/dt)_G > 10 \text{ V}/\mu\text{s}$.
- Metallic encapsulation gives an excellent thermal impedance and high reliability construction.

APPLICATIONS :

- Motor control.
- Heating control.
- Light dimmer.

Triac de puissance utilisable sur les réseaux 200 V et 380 V.

CARACTERISTIQUES :

- Pastille glassivée.
- IGT défini dans les quatre quadrants.

AVANTAGES :

- Excellente tenue aux $(dv/dt)_G > 10 \text{ V}/\mu\text{s}$.
- L'encapsulation métallique confère une excellente impédance thermique assurant une bonne fiabilité.

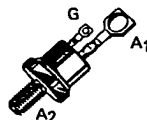
APPLICATIONS :

- Commande de moteur.
- Régulation de chauffage.
- Variateur de lumière.

$$I_{T_{RMS}} = 25 \text{ A}/T_c = 60^\circ\text{C}$$

$$V_{DRM} : 200 \text{ V} \rightarrow 1200 \text{ V}$$

Case : TO 48 metal (CB-267)
Boîtier :



Standard type : 1/4"-28 UNF

On request, type number + suffix M : ISO M6

ABSOLUTE RATINGS (LIMITING VALUES) VALEURS LIMITES ABSOLUES D'UTILISATION

	Symbols	TRAL 1125 D → TRAL 1225 D	Units
RMS on-state current (360° conduction angle) Courant efficace à l'état passant (angle de conduction 360°)	$T_c = 60^\circ\text{C}$	$I_{T_{RMS}}$	25 A
Non repetitive surge peak on-state current (on full cycle) at $25^\circ\text{C} < T_{j \text{ initial}} < 100^\circ\text{C}$ Courant non répétitif de surcharge crête accidentelle à l'état passant (1 cycle complet) à $25^\circ\text{C} < T_{j \text{ initial}} < 100^\circ\text{C}$	$F = 60 \text{ Hz}$ $F = 50 \text{ Hz}$	I_{TSM}	240 230 A
$ I_2 $ value Valeur de la constante I_2	$t = 10 \text{ ms}$	$ I_2 $	270 A2s
Critical rate of rise of on-state current ^e Vitesse critique de croissance du courant à l'état passant	Repetitive $F = 50 \text{ Hz}$ Non Repetitive	di/dt	20 100 A/ μs
Storage and operating junction temperature range Températures extrêmes de stockage et de jonction en fonctionnement	T_{stg} T_j	— 40 → + 150 — 40 → + 100	$^\circ\text{C}$

ABSOLUTE RATING (LIMITING VALUE) VALEUR LIMITE ABSOLUE D'UTILISATION	Symbol	TRAL 1125 D	TRAL 2225 D	TRAL 3325 D	TRAL 3825 D	TRAL 1025 D	TRAL 1225 D	Unit
Repetitive peak off-state voltage Tension de crête répétitive à l'état bloqué	V_{DRM}	±200	±400	±600	±700	±1000	±1200	V

*Gate supply : 20 V/20 Ω - $t_r < 0,1 \mu\text{s}$ -
Générateur de gâchette

Half sine wave 6,3 μs - V_{DRM} specified
Demi-sinusoïde de 6,3 μs spécifié

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Thermal resistance <i>Résistance thermique</i>	Symbols	TRAL 1125 D → TRAL 1225 D	Units
— Contact (case-heat sink) for recommended stud torque <i>Contact (boîtier-radiateur) au couple de serrage recommandé</i>	$R_{th\ c-h}$	0,4	°C/W
— Junction to case for DC <i>Jonction - boîtier en continu</i>	$R_{th\ j-c\ DC}$	1,24	°C/W
— Junction to case for 360° conduction angle ($F = 50\ Hz$) <i>Jonction - boîtier pour angle de conduction 360° ($F = 50\ Hz$)</i>	$R_{th\ j-c\ AC}$	0,93	°C/W

GATE CHARACTERISTICS (MAXIMUM VALUES) CARACTERISTIQUES DE GACHETTE (VALEURS MAXIMALES)

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

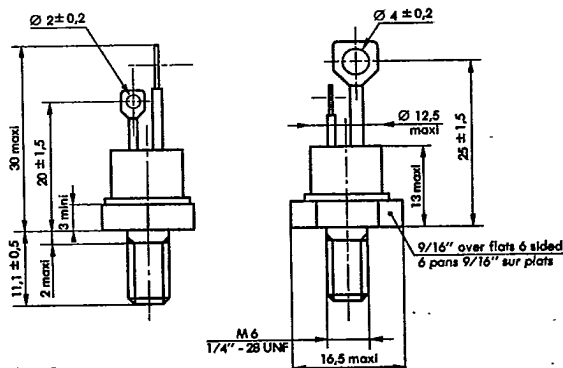
ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ C$ unless otherwise specified) CARACTERISTIQUES ELECTRIQUES ($T_j = 25^\circ C$ sauf spécification contraire)

Symbols	Quadrants	Values			Units	Test conditions
		min.	typ.	max.		
I_{GT}	I-II—III IV			100 150	mA	$V_D = 12\ V$ $R_L = 33\ \Omega$ Pulse duration $> 20\ \mu s$
V_{GT}^*				3	V	$V_D = 12\ V$ $R_L = 33\ \Omega$ Pulse duration $> 20\ \mu s$
V_{GD}^*		0,2			V	$T_j = 100^\circ C$ $V_D = V_{DRM}$ $R_L = 3\ k\Omega$ Pulse duration $> 20\ \mu s$
I_H^{**}				50	mA	$V_D = 12\ V$ Gate open
I_L	I-III—IV II		50 100		mA	$V_D = 12\ V$ $R_L = 33\ \Omega$ Pulse duration $> 20\ \mu s$
V_{TM}^{**}			2		V	$I_{TM} = 35\ A$ $t_p = 10\ ms$
I_{DRM}^{**}			3			$T_j = 100^\circ C$ V_{DRM} rated Gate open
dv/dt^{**}		100			V/ μs	$T_j = 100^\circ C$ Gate open Linear slope up to $0,67\ V_{DRM}$
$(dv/dt)_c^{**}$		10			V/ μs	$T_c = 60^\circ C$ $(di/dt)_c = 11,2\ A/ms$ I_{TRMS} and V_{DRM} rated
t_{gt}^*			3		μs	$di/dt = 2\ A/\mu s$ $I_G = 200\ mA$ I_{TRMS} and V_{DRM} rated

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

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

CASE DESCRIPTION DESCRIPTION DU BOITIER



Cooling method : by conduction (method C)

Marking : type number

Weight : $13,5 \pm 1\ g$

Stud torque : $3,5\ mAN\ min - 3,8\ mAN\ max$

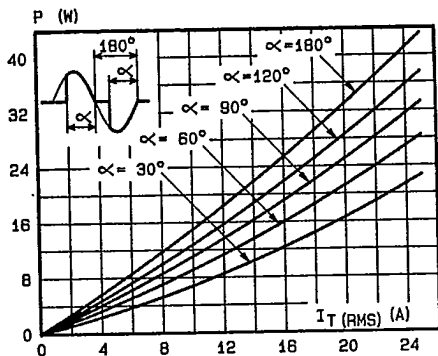


Fig.1 - Maximum mean power dissipation versus RMS on-state current.

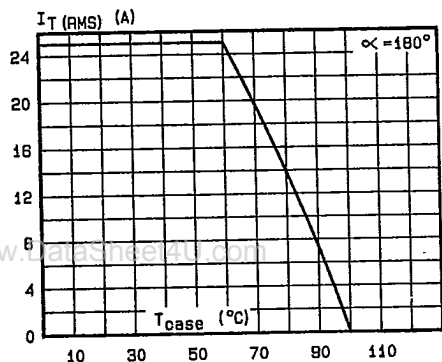


Fig.3 - RMS on-state current versus case temperature.

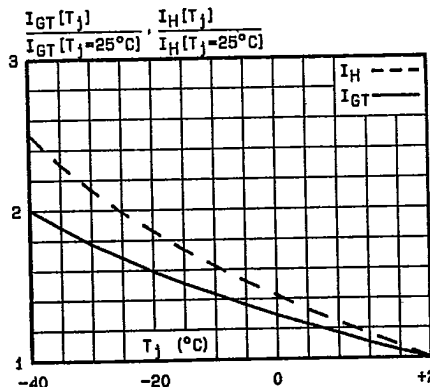


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

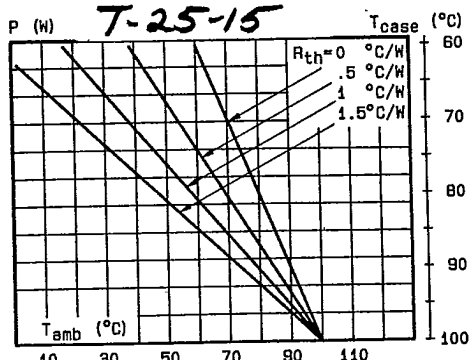


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

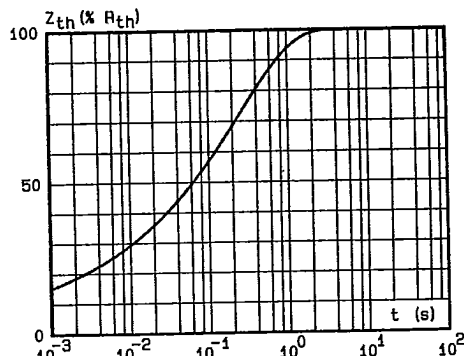


Fig.4 - Thermal transient impedance junction to case versus pulse duration.

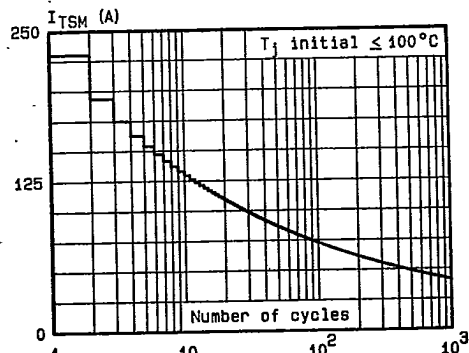


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

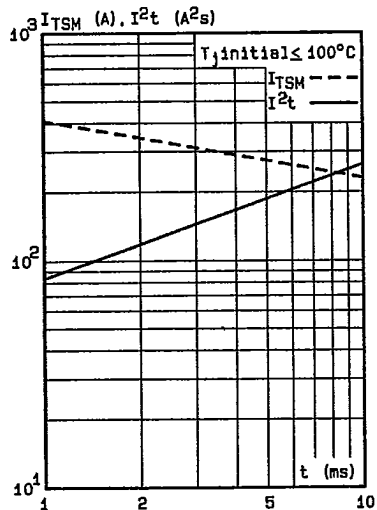


Fig. 7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t \leq 10$ ms, and corresponding value of I^2t .

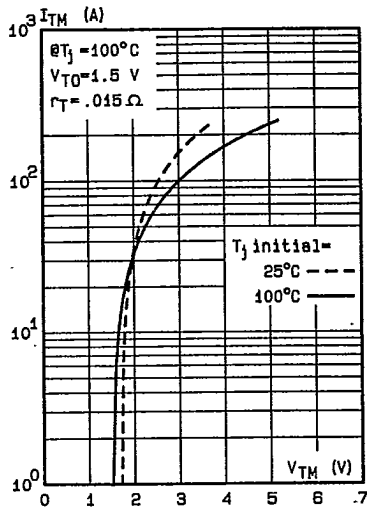


Fig. 8 - On-state characteristic (maximum values).