THOMSON SEMICONDUCTORS

TRAL 1125 D → TRAL 1225 D

TRIACS

T-25-15

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

FEATURES :
- Glass passivated chip.
- I_{GT} specified in four quadrants.

ADVANTAGES :
- Excellent $(dv/dt)_c$: > 10 V/µs.
- 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.*
- *I_{GT} défini dans les quatre quadrants.*

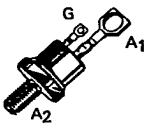
AVANTAGES :
- *Excellente tenue aux $(dv/dt)_c$: > 10 V/µs.*
- *L'encapsulation métallique confère une excellente impédance thermique assurant une bonne fiabilité.*

APPLICATIONS :
- *Commande de moteur.*
- *Régulation de chauffage.*
- *Variateur de lumière.*

I_{TRMS} = 25 A/T_c = 60°C

V_{DRM} : 200 V → 1200 V

Case
Boîtier : TO 48 metal (CB-267)



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°C	I_{TRMS}	25	A
Non repetitive surge peak on-state current (on full cycle) at 25°C < T_j initial < 100°C *Courant non répétitif de surcharge crête accidentelle à l'état passant (1 cycle complet) à 25°C < T_j initial < 100°C*	F = 60 Hz	I_{TSM}	240	A
	F = 50 Hz		230	
I^2t value *Valeur de la constante I^2t*	t = 10 ms	I^2t	270	A^2s
Critical rate of rise of on-state current* *Vitesse critique de croissance du courant à l'état passant*	Repetitive F = 50 Hz	di/dt	20	A/µs
	Non Repetitive		100	
Storage and operating junction temperature range *Températures extrêmes de stockage et de jonction en fonctionnement*		T_{stg} T_j	− 40 → + 150 − 40 → + 100	°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 µs - Half sine wave 6,3 µs - V_{DRM} specified
Générateur de gâchette *Demi-sinusoïde de 6,3 µs* *spécifié*

October 1984 - 1/4

THOMSON SEMICONDUCTORS
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THOMSON COMPONENTS

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

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

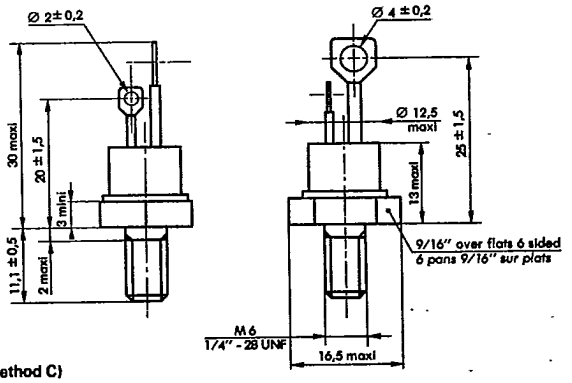
P_{GM}* = 40 W (t = 10 µs) $P_{G(AV)}$ = 1 W I_{GM}* = 6 A (t = 10 µs) V_{GM}* = 16 V (t = 10 µs)

ELECTRICAL CHARACTERISTICS (T_j = 25°C unless otherwise specified)
CARACTERISTIQUES ELECTRIQUES (T_j = 25°C sauf spécification contraire)

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

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

CASE DESCRIPTION
DESCRIPTION DU BOITIER



Cooling method : by conduction (method C)
Marking : type number
Weight : 13,5 ± 1g
Stud torque : 3,5 mAN min - 3,8 mAN max

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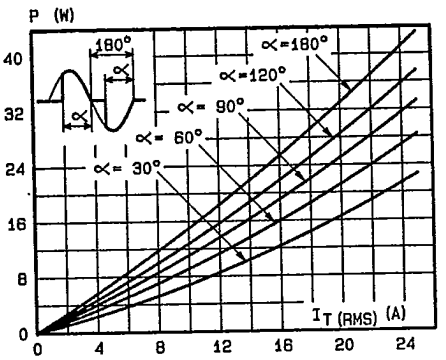

Fig.1 - Maximum mean power dissipation versus RMS on-state current.

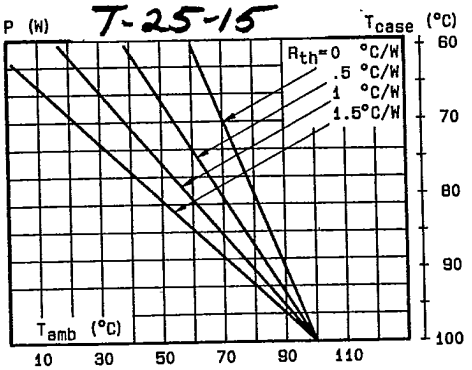

Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (Tamb and Tcase) for different thermal resistances heatsink + contact.

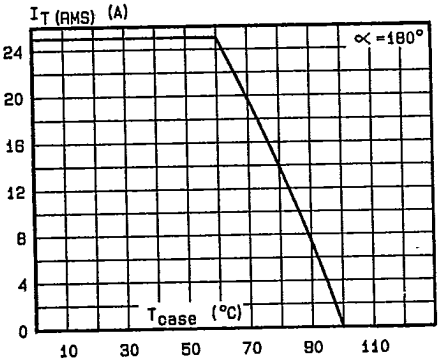

Fig.3 - RMS on-state current versus case temperature.

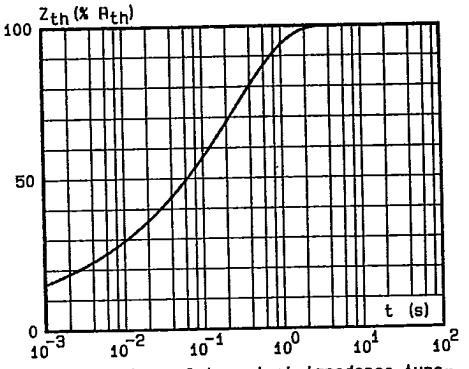

Fig.4 - Thermal transient impedance junction to case versus pulse duration.

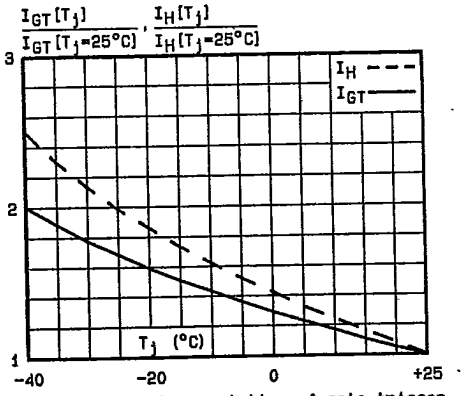

Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

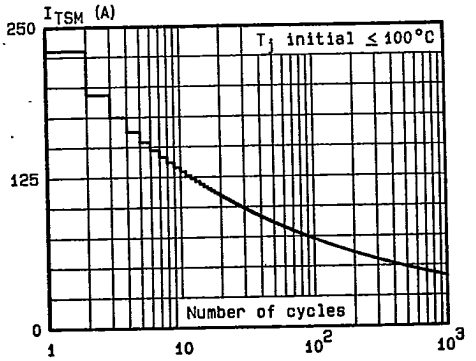

Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

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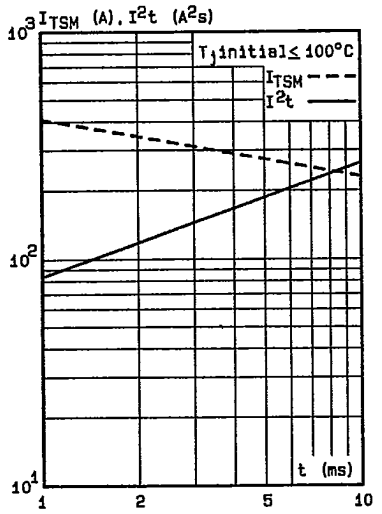

Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width: t≤ 10ms, and corresponding value of I^2t.

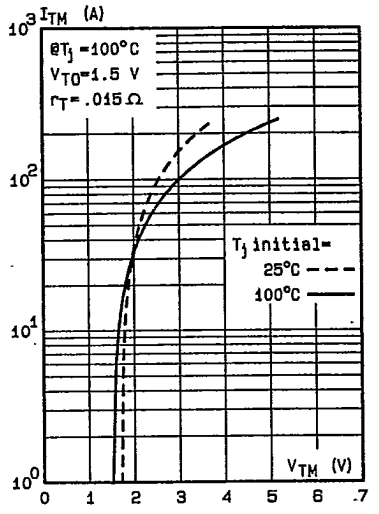

Fig.8 - On-state characteristic (maximum values).

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