

THOMSON SEMICONDUCTORS

BTA/BTB 25, A TRIACS

T-25-17

This new design of plastic insulated power triacs offers maximum efficiency with maximum ease of mounting.

FEATURES :

- Glass passivated chip. Fast-on connexions.
- IGT specified in four quadrants.
- Available in insulated version → **BTA series** (insulating voltage 2500 V_{rms}) or in uninsulated version → **BTB series**.

ADVANTAGES :

- No tapping required for fixing.
- Excellent thermal impedance and high reliability construction.

Cette nouvelle conception de triacs de puissance isolés offre un maximum d'efficacité avec un maximum de facilité d'implantation.

CARACTERISTIQUES :

- Pastille glassivée. Connexions fast-on.
- IGT défini dans les quatre quadrants.
- Livrable en version isolée → **série BTA** (tension d'isolement 2500 V_{eff}) ou en version non isolée → **série BTB**.

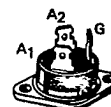
AVANTAGES :

- Fixation sans taraudage.
- Excellente impédance thermique assurant une bonne fiabilité.

$$I_{TRMS} = 30 \text{ A} / T_c = 65^\circ\text{C}$$

$$V_{DRM} : 200 \text{ V} \rightarrow 700 \text{ V}^*$$

Case : RD 91 (CB - 332)
Boitier :



ABSOLUTE RATINGS (LIMITING VALUES) VALEURS LIMITES ABSOLUES D'UTILISATION		Symbols	BTA/BTB 25, A	Units
RMS on-state current (360° conduction angle) Courant efficace à l'état passant (angle de conduction 360°)	$T_c = 65^\circ\text{C}$	I_{TRMS}	30	A
Non repetitive surge peak on-state current (on full cycle) at $25^\circ\text{C} < T_j \text{ initial} < 110^\circ\text{C}$ Courant non répétitif de surcharge crête accidentelle à l'état passant (1 cycle complet) à $25^\circ\text{C} < T_j \text{ initial} < 110^\circ\text{C}$	F = 60 Hz	I_{TSM}	315	A
	F = 60 Hz		300	
I_{2t} value Valeur de la constante I_{2t}	$t = 10 \text{ ms}$	I_{2t}	450	A _{2s}
Critical rate of rise of on-state current** Vitesse critique de croissance du courant à l'état passant	Repetitive F = 60 Hz	di/dt	10	A/μs
	Non Repetitive		50	
Storage and operating junction temperature range Températures extrêmes de stockage et de jonction en fonctionnement		T_{stg} T_j	- 40 → + 125 - 40 → + 110	°C

ABSOLUTE RATING (LIMITING VALUE) VALEUR LIMITE ABSOLUE D'UTILISATION	Symbol	BTA/BTB				Unit
		25-200, A	25-400, A	25-600, A	25-700, A	
Repetitive peak off-state voltage Tension de crête répétitive à l'état bloqué	V_{DRM}	± 200	± 400	± 600	± 700	V

*800 V on request
800 V sur demande

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

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

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343

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COMPONENTS

Thermal resistance <i>Résistance thermique</i>	Symbols	BTA/BTB 25, A	Units
— Contact (with grease) <i>Contact (avec graisse)</i>	$R_{th\ c-h}$	0,15	°C/W
— Junction to case for DC <i>Jonction - boîtier en continu</i>	$R_{th\ j-c\ DC}$	1,57	°C/W
— Junction to case for 360° conduction angle (F = 50 Hz) <i>Jonction - boîtier pour angle de conduction 360° (F = 50 Hz)</i>	$R_{th\ j-c\ AC}$	1,18	°C/W

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

PGM* = 40 W (t = 10 μs)

PG(AV) = 1 W

IGM* = 6 A (t = 10 μs)

VGM* = 16 V (t = 10 μs)

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

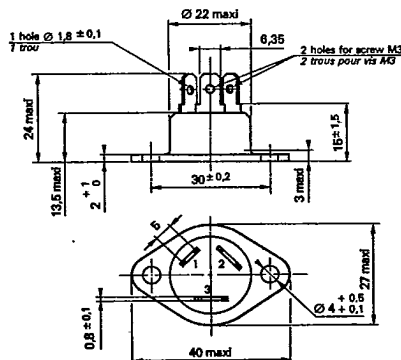
Symbols	Suffix	Quadrants	Values			Units	Test conditions
			min.	typ.	max.		
IGT*	A	I-II-III	1		50	mA	V _D = 12 V R _L = 33 Ω Pulse duration > 20 μs
		IV	1		80		
		I-II-III	1		100		
		IV	1		150		
VGT*				1,5	3	V	V _D = 12 V R _L = 33 Ω Pulse duration > 20 μs
VGD*			0,2			V	T _J = 110°C V _D = V _{DRM} R _L = 3 kΩ Pulse duration > 20 μs
I _H **	—			30	80	mA	V _D = 12 V I _T = 1 A Gate open
	A			30	100		
I _L **	—				100	mA	V _D = 12 V Gate pulse duration > 100 μs t _p = 1 ms
	A				150		
V _{TM} **					1,7	V	I _{TM} = 42 A t _p = 10 ms
I _{DRM} **			0,75	3		mA	T _J = 110°C V _D = V _{DRM} Gate open
dv/dt**			50	150		V/μs	T _J = 110°C Gate open Linear slope up to 0,67 V _{DRM}
(dv/dt) _C **	—			5		V/μs	T _C = 65°C (di/dt) _C = 13,3 A/ms I _{TRMS} and V _{DRM} rated
	A		5				
t _{gt} *				2,5		μs	dI _G /dt = 10 A/μs I _G = 1 A 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 : 15 g

1 2 3 = G A₁ A₂

RD 91 (CB-332)

2/4

THOMSON SEMICONDUCTORS

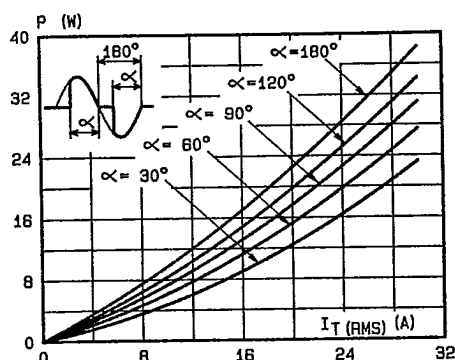


Fig.1 - Maximum mean power dissipation versus RMS on-state current.

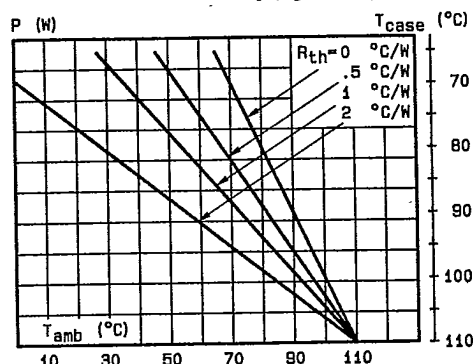


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

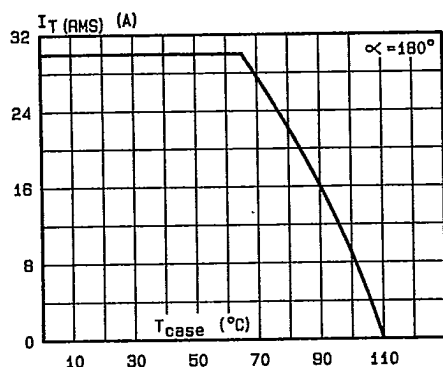


Fig.3 - RMS on-state current versus case temperature.

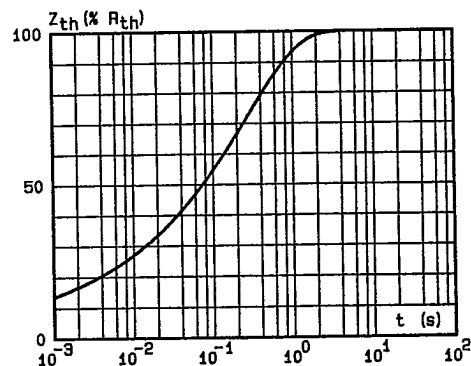


Fig.4 - Thermal transient impedance junction to case versus pulse duration.

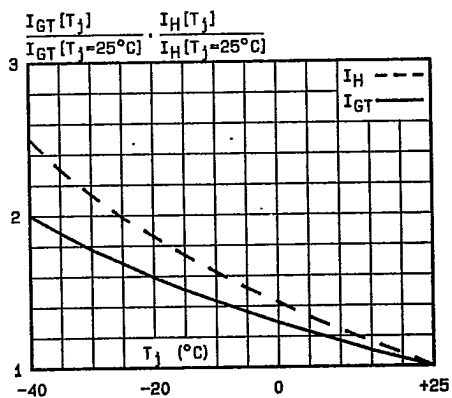


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

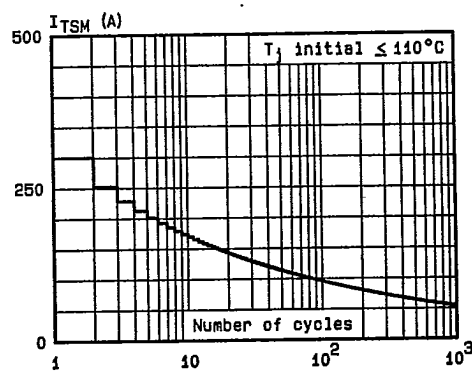


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

T-25-17

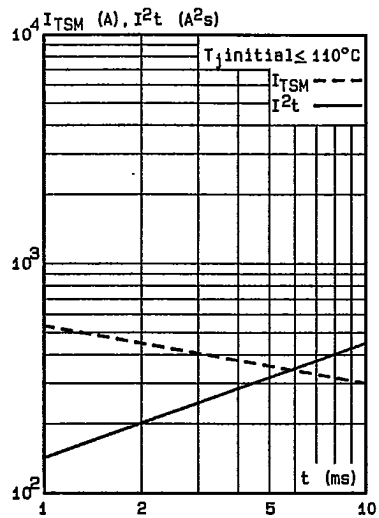


Fig. 7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t \leq 10$ ms, and corresponding value of I^2t .

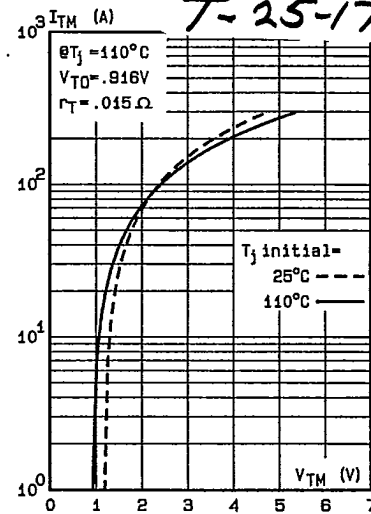


Fig. 8 - On-state characteristic (maximum values).