

T-25-17

General purpose SCR suited for power supplies up to 400 Hz on resistive or inductive loads.

- V<sub>RRM</sub> up to 1 200 V.
- Glass passivated chips.
- High stability and reliability.

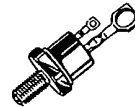
Thyristors à usage général, pour des alimentations jusqu'à 400 Hz sur charges résistives ou inductives.

- V<sub>RRM</sub> jusqu'à 1 200 V.
- Pastilles glassivées.
- Grande stabilité des caractéristiques.

$$I_T(RMS) = 35 \text{ A} / T_{case} = 75^\circ\text{C}$$

$$100 \text{ V} \leq \begin{matrix} V_{DRM} \\ = \\ V_{RRM} \end{matrix} \leq 1200 \text{ V}$$

Case : TO 48 metal (CB-267)  
Boîtier



ABSOLUTE RATINGS (LIMITING VALUES) VALEURS LIMITES ABSOLUES D'UTILISATION	Symbol	Value	Unit
RMS on-state current* Courant efficace à l'état passant*	I <sub>T(RMS)</sub>	35 @ T <sub>case</sub> = 75 °C	A
Mean on-state current* Courant moyen à l'état passant*	I <sub>T(AV)</sub>	22,5 @ T <sub>case</sub> = 75 °C	A
Non repetitive surge peak on-state current** Courant non répétitif de surcharge crête accidentelle à l'état passant**	I <sub>TSM</sub> I <sub>TSM</sub>	360 (t = 8,3 ms) 330 (t = 10 ms) @ T <sub>j</sub> ≤ 125 °C	A A
i <sup>2</sup> t for fusing Valeur de la constante i <sup>2</sup> t	i <sup>2</sup> t	545 (t = 10 ms) @ T <sub>j</sub> ≤ 125 °C	A <sup>2</sup> s
Critical rate of rise of on-state current*** Vitesse critique de croissance du courant à l'état passant***	di/dt	100	A/μs
Storage and operating junction temperatures Températures extrêmes de stockage et de jonction en fonctionnement	T <sub>stg</sub> T <sub>j</sub>	-40 , + 150 -40 , + 125	°C °C

@ T <sub>j</sub> = 125 °C	TS 135	TS 235	TS 435	TS 635	TS 835	TS 1035	TS 1235
V <sub>DRM</sub> = V <sub>RRM</sub> (V)	100	200	400	600	800	1000	1200

Thermal resistances Résistances thermiques	Symbol	Value	Unit
— Junction to case for D.C. Jonction-boîtier en continu	R <sub>th(j-c)</sub>	1,1	°C/W
— Contact (case to heatsink) Contact (boîtier-radiateur)	R <sub>th(c-h)</sub>	0,4	°C/W

\* Single phase circuit, 180° conduction angle  
\* Circuit monophasé, angle de conduction 180°

\*\* Half sine wave  
\*\* Demi-onde sinusoïdale

\*\*\* Gate supply 20 V/20 Ω - t<sub>r</sub> ≤ 0,1 μs - Half sine wave of 6,3 μs  
\*\*\* Générateur de gâchette Demi-sinusoidale

May 1984 - 1/5

**GATE CHARACTERISTICS (Maximum values)**  
**CARACTÉRISTIQUES DE GÂCHETTE (Valeurs maximales)**

$P_{GM} = 60\text{ W}$  ( $t = 500\ \mu\text{s}$ )  
 $P_{G(AV)} = 1\text{ W}$

$I_{FGM} = 10\text{ A}$  ( $t = 500\ \mu\text{s}$ )  
 $V_{FGM} = 15\text{ V}$  ( $t = 500\ \mu\text{s}$ )

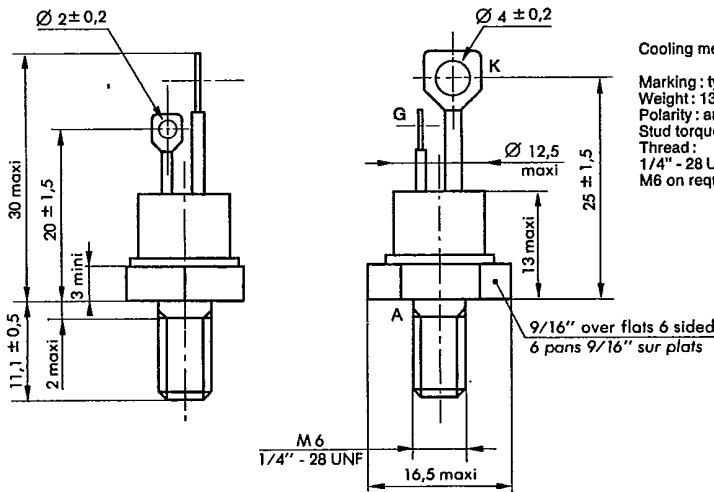
$V_{RGM} = 5\text{ V}$

**ELECTRICAL CHARACTERISTICS**  
**CARACTÉRISTIQUES ÉLECTRIQUES**

Symbol	Value			Unit	Test conditions			
	min	typ	max					
$I_{GT}$			80	mA	$T_J = 25^\circ\text{C}$	$V_D = 12\text{ V}$	$R_L = 33\ \Omega$	$t_p \geq 20\ \mu\text{s}$
$V_{GT}$			3	V	$T_J = 25^\circ\text{C}$	$V_D = 12\text{ V}$	$R_L = 33\ \Omega$	$t_p \geq 20\ \mu\text{s}$
$V_{GD}$	0,2			V	$T_J = 125^\circ\text{C}$	$V_D = V_{DRM}$	$R_L = 3,3\ \text{k}\Omega$	
$I_H$		20		mA	$T_J = 25^\circ\text{C}$	$I_T = 0,5\text{ A}$	Gate open	
$V_{TM}$			2,2	V	$T_J = 25^\circ\text{C}$	$I_{TM} = 70\text{ A}$	$t_p = 10\text{ ms}$	
$I_{DRM}$			3,3	mA	$T_J = 125^\circ\text{C}$	$V_{DRM}$ specified		
$I_{RRM}$			3,3	mA	$T_J = 125^\circ\text{C}$	$V_{RRM}$ specified		
$t_{gt}$		2		$\mu\text{s}$	$T_J = 25^\circ\text{C}$ $I_G = 200\text{ mA}$	$I_T = 70\text{ A}$ $di_G/dt = 2\text{ A}/\mu\text{s}$	$V_D = V_{DRM}$	
$t_q$		100		$\mu\text{s}$	$T_J = 125^\circ\text{C}$ $di_R/dt = 30\text{ A}/\mu\text{s}$	$I_T = 10\text{ A}$ $dv/dt = 20\text{ V}/\mu\text{s}$	$V_R = 30\text{ V}$	$V_D = 0,67 V_{DRM}$ Gate open
$dv/dt^*$	100			$\text{V}/\mu\text{s}$	$T_J = 125^\circ\text{C}$	Linear slope up to $0,67 V_{DRM}$ specified		Gate open

\* For higher guaranteed values, please consult us.

**CASE DESCRIPTION**  
**DESCRIPTION DU BOITIER**



Cooling method: by conduction (method C)  
 Marking: type number  
 Weight:  $13,5 \pm 1\text{ g}$   
 Polarity: anode to case  
 Stud torque:  $3,5\text{ m}\ \wedge\ \text{Nmin} - 3,8\text{ m}\ \wedge\ \text{Nmax}$   
 Thread:  
 $1/4'' - 28\text{ UNF}$ : type N°  
 M6 on request: type N° + suffix M

TO 48 metal (CB-267)

T-25-17

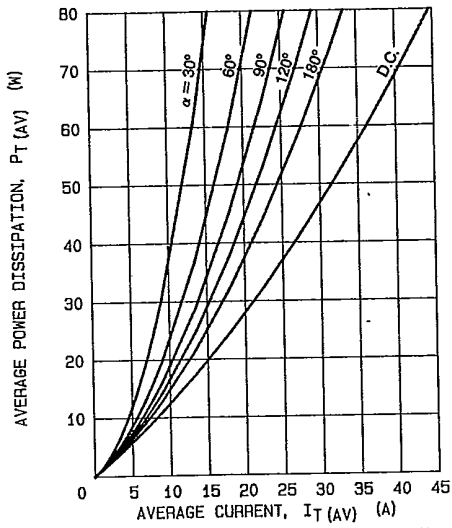
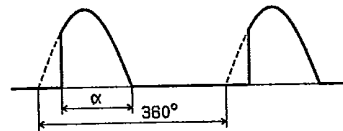


FIG.1 - MAXIMUM ON-STATE POWER DISSIPATION FOR SINUSOIDAL CURRENT WAVEFORM

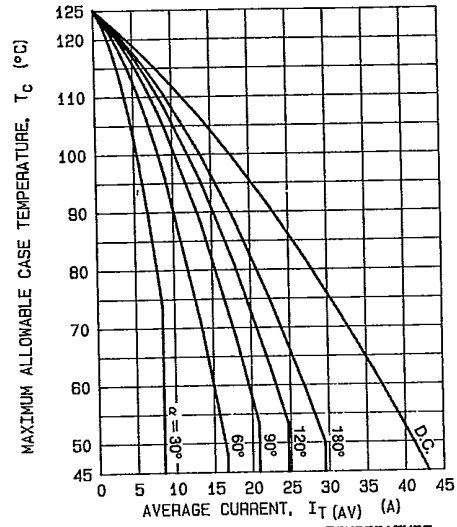


FIG.2 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR SINUSOIDAL CURRENT WAVEFORM

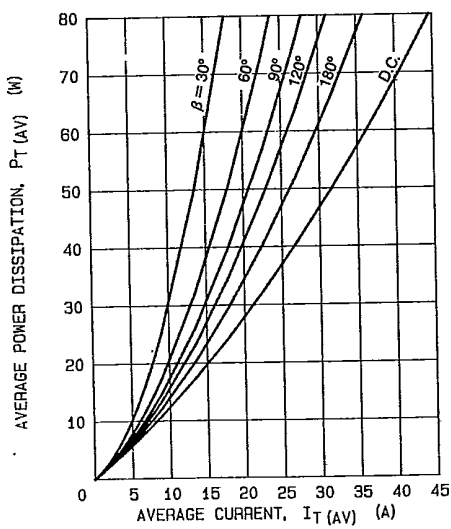
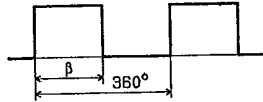


FIG.3 - MAXIMUM ON-STATE POWER DISSIPATION FOR RECTANGULAR CURRENT WAVEFORM

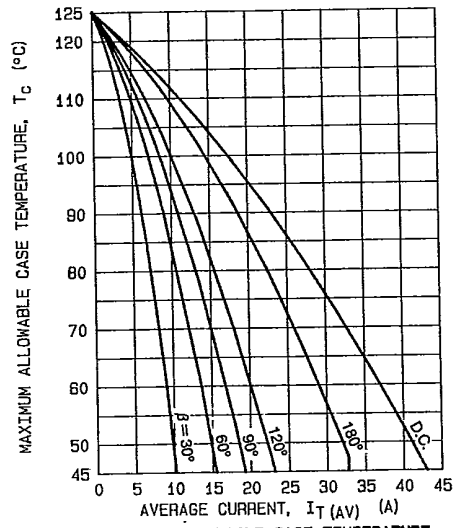


FIG.4 - MAXIMUM ALLOWABLE CASE TEMPERATURE FOR RECTANGULAR CURRENT WAVEFORM

T-25-17

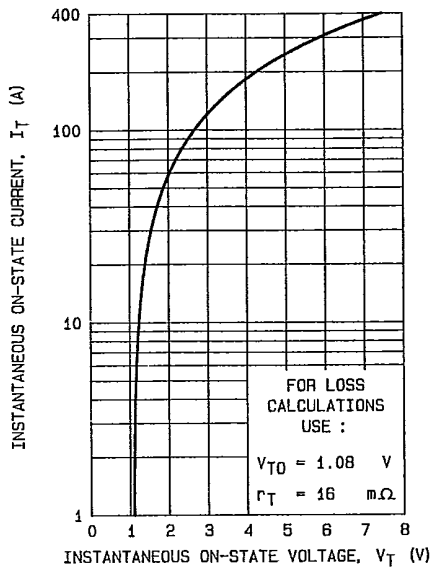


FIG.5 - MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC ( $T_J = 125^\circ\text{C}$ ).

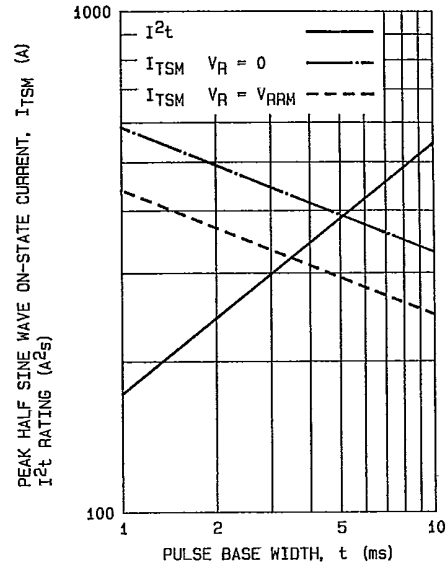


FIG.6 - NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND  $I^2t$  RATING (INITIAL  $T_J = 125^\circ\text{C}$ ).

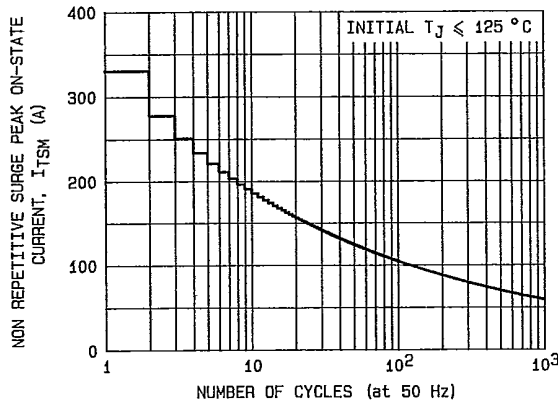


FIG.7 - NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS NUMBER OF CYCLES.

T.25-17

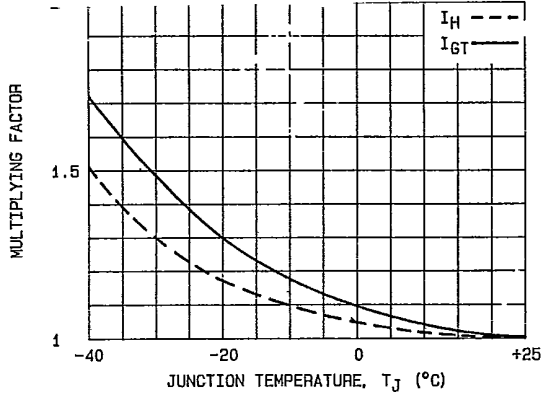


FIG.8 - RELATIVE VARIATION OF GATE TRIGGER CURRENT AND HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

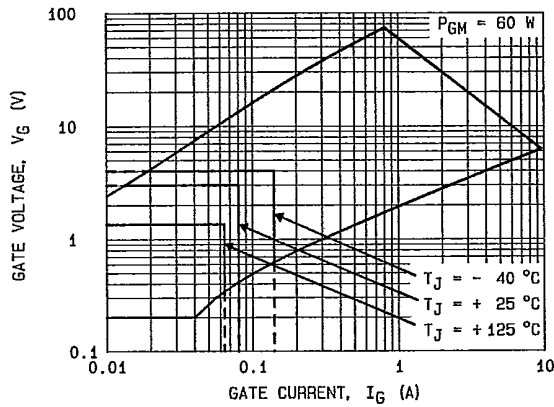
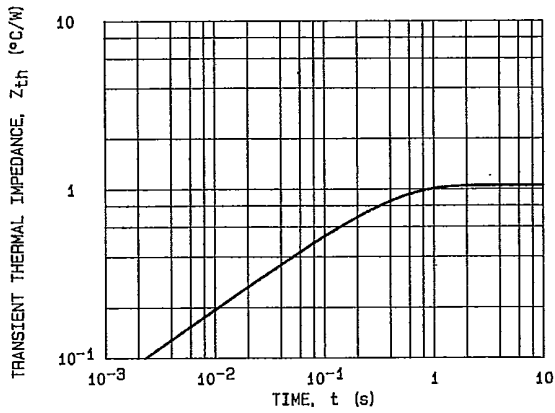


FIG.9 - GATE TRIGGER CHARACTERISTICS.



Conduction angle ( $\alpha, \beta$ )	Effective thermal resistance ( $^{\circ}\text{C}/\text{W}$ ) junction to case	
	Sinusoidal	Rectangular
180 $^{\circ}$	1.13	1.17
120 $^{\circ}$	1.23	1.65
90 $^{\circ}$	1.32	1.87
60 $^{\circ}$	1.54	2.09
30 $^{\circ}$	1.98	2.64

FIG.10 - TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE.