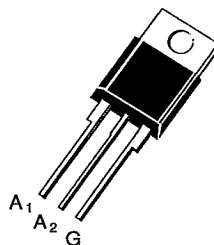


- $I_{TRMS} = 12\text{ A}$ at $T_c = 85^\circ\text{C}$.
- $V_{DRM} : 200\text{ V to } 800\text{ V}$.
- $I_{GT} = 75\text{ mA}$ (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : $I_{TSM} = 120\text{ A}$.
- HIGH COMMUTATION CAPABILITY :
 $(di/dt)_c > 16\text{ A / ms}$ without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS} .
- UL RECOGNIZED (E81734).



TO 220 AB
 (CB-415 Plastic)

DESCRIPTION

New range suited for applications such as phase control and static switching on inductive or resistive load.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{TRMS}	RMS on-state current (360 ° conduction angle)	$T_c = 85^\circ\text{C}$	12	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t = 8.3\text{ ms}$	126	A
		$t = 10\text{ ms}$	120	
$I^2 t$	$I^2 t$ value	$t = 10\text{ ms}$	72	$\text{A}^2\text{ s}$
di/dt	Critical rate of rise of on-state current (1)	Repetitive $F = 50\text{ Hz}$	20	A / μs
		Non Repetitive	100	
T_{sig} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	$^\circ\text{C}$ $^\circ\text{C}$

Symbol	Parameter	BTA 12-					Unit
		200 AW	400 AW	600 AW	700 AW	800 AW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : $I_G = 750\text{ mA}$ — $dI_G / dt = 1\text{ A / } \mu\text{s}$.

(2) $T_j = 125^\circ\text{C}$.

February 1989

1/4

243

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient	60	$^{\circ}\text{C/W}$
$R_{th(j-c)} \text{ DC}$	Junction to case for DC	3.3	$^{\circ}\text{C/W}$
$R_{th(j-c)} \text{ AC}$	Junction to case for 360 $^{\circ}$ conduction angle ($F = 50 \text{ Hz}$)	2.5	$^{\circ}\text{C/W}$

GATE CHARACTERISTICS (maximum values)

$P_{GM} = 40 \text{ W}$ ($t = 10 \mu\text{s}$) $P_{G(AV)} = 1 \text{ W}$ $I_{GM} = 4 \text{ A}$ ($t = 10 \mu\text{s}$) $V_{GM} = 16 \text{ V}$ ($t = 10 \mu\text{s}$).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	$T_j = 25^{\circ}\text{C}$ $V_D = 12 \text{ V}$ $R_L = 33 \Omega$ Pulse duration $> 20 \mu\text{s}$	I-II-III	2		75	mA
V_{GT}	$T_j = 25^{\circ}\text{C}$ $V_D = 12 \text{ V}$ $R_L = 33 \Omega$ Pulse duration $> 20 \mu\text{s}$	I-II-III			1.5	V
V_{GD}	$T_j = 125^{\circ}\text{C}$ $V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$ Pulse duration $> 20 \mu\text{s}$	I-II-III	0.2			V
I_H^*	$T_j = 25^{\circ}\text{C}$ $I_T = 100 \text{ mA}$ Gate open $R_L = 140 \Omega$				75	mA
I_L	$T_j = 25^{\circ}\text{C}$ $V_D = 12 \text{ V}$ $I_G = 500 \text{ mA}$ Pulse duration $> 20 \mu\text{s}$	I-III		75		mA
		II		150		
V_{TM}^*	$T_j = 25^{\circ}\text{C}$ $I_{TM} = 17 \text{ A}$ $t_p = 10 \text{ ms}$				1.6	V
I_{DRM}^*	$T_j = 25^{\circ}\text{C}$	V_{DRM} rated Gate open			0.01	mA
	$T_j = 125^{\circ}\text{C}$				2	
dv/dt^*	$T_j = 125^{\circ}\text{C}$ Gate open Linear slope up to 0.67 V_{DRM}		750	1000		V/ μs
$(di/dt)_c^*$	$T_j = 125^{\circ}\text{C}$ V_{DRM} rated Without snubber		16	32		A/ms
t_{gt}	$T_j = 25^{\circ}\text{C}$ $di_G/dt = 3.5 \text{ A}/\mu\text{s}$ $I_G = 500 \text{ mA}$ $I_T = 17 \text{ A}$ $V_D = V_{DRM}$	I-II-III		2		μs

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

S G S-THOMSON

T-25-15

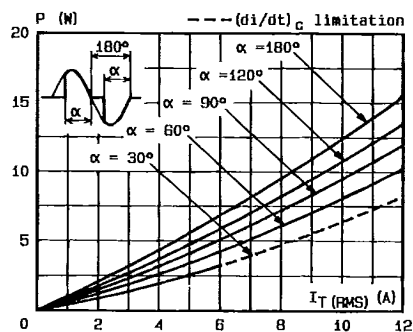


Fig.1 - Maximum mean power dissipation versus RMS on-state current ($F = 60$ Hz).

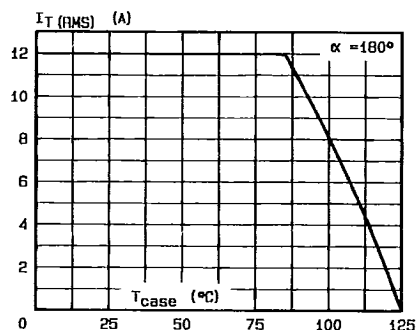


Fig.3 - RMS on-state current versus case temperature.

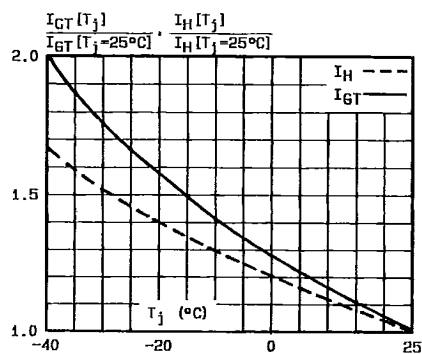


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

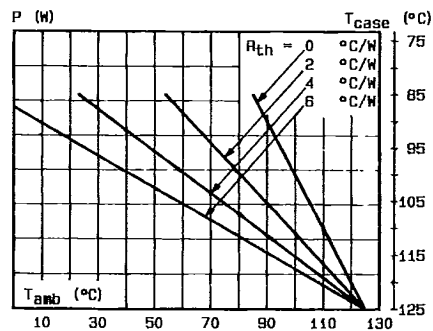


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

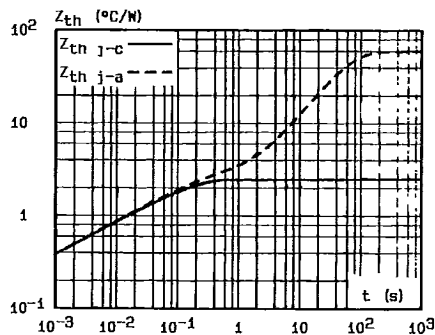


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

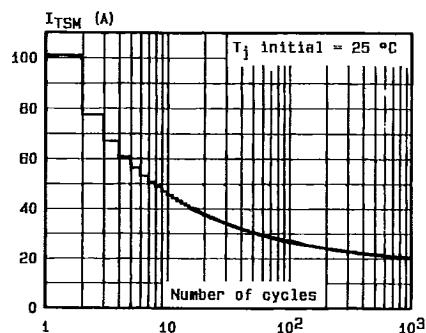


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

30E - D

7929237 0031527 4

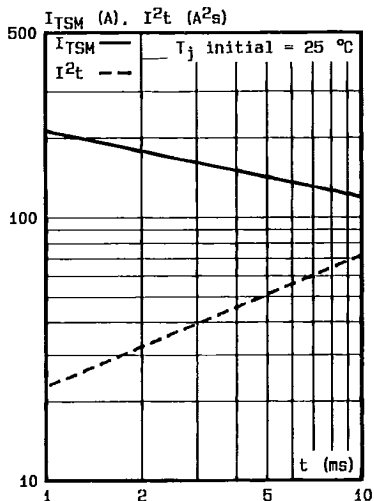


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

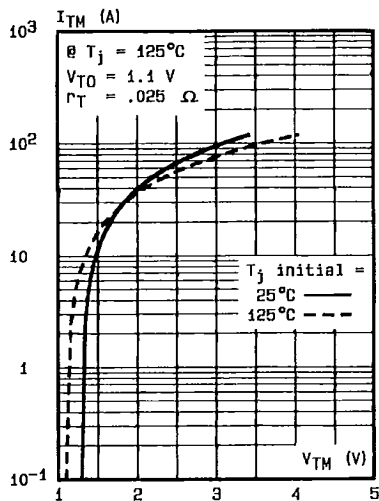
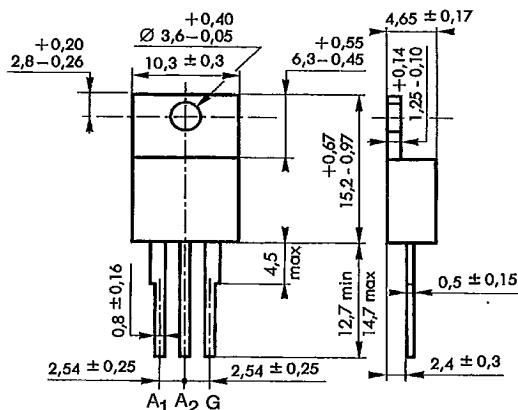


Fig.8 - On-state characteristics (maximum values).

PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic



Cooling method : by conduction (method C)

Marking : type number

Weight : 2 g