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MICROELECTRONICS
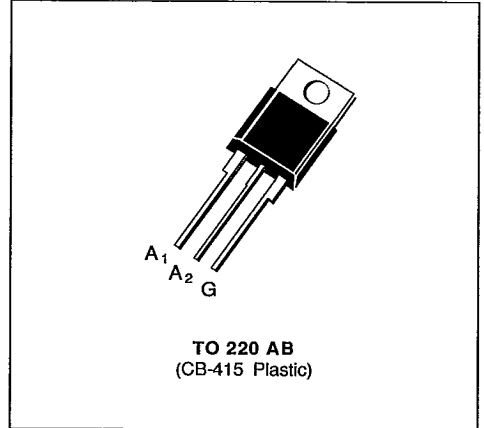
S G S-THOMSON

BTA 06 CW

SNUBBERLESS TRIACS

- $I_{TRMS} = 6$ A at $T_c = 95$ °C.
- V_{DRM} : 200 V to 800 V.
- $I_{GT} = 35$ mA (QI-II-III).
- GLASS PASSIVATED CHIP.
- HIGH SURGE CURRENT : $I_{TSM} = 60$ A.
- HIGH COMMUTATION CAPABILITY :
  $(di/dt)_c > 3.5$ A / ms without snubber.
- INSULATING VOLTAGE : 2500 V_{RMS}.

A_1
A_2
G

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)	$T_c = 95$ °C	6	A
I_{TSM}	Non repetitive surge peak on-state current (T_l initial = 25 °C)	t = 8.3 ms	63	A
		t = 10 ms	60	
$I^2 t$	$I^2 t$ value	t = 10 ms	18	A^2 s
di/dt	Critical rate of rise of on-state current (1)	Repetitive F = 50 Hz	20	A /µs
		Non Repetitive	100	
T_{stg} T_l	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	°C °C

Symbol	Parameter	BTA 06-					Unit
		200 CW	400 CW	600 CW	700 CW	800 CW	
V_{DRM}	Repetitive peak off-state voltage (2)	± 200	± 400	± 600	± 700	± 800	V

(1) Gate supply : $I_G = 350$ mA $-$ dI_G / dt = 1 A / µs.
(2) $T_l = 125$ °C.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\,(j-a)}$	Junction to ambient	60	°C/W
$R_{th\,(j-c)}$ DC	Junction to case for DC	4.3	°C/W
$R_{th\,(j-c)}$ AC	Junction to case for 360° conduction angle (F = 50 Hz)	3.2	°C/W

GATE CHARACTERISTICS (maximum values)

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

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	$T_j = 25\ °C$ $V_D = 12\ V$ Pulse duration > 20 μs		$R_L = 33\ \Omega$	I-II-III	1		35	mA
V_{GT}	$T_j = 25\ °C$ $V_D = 12\ V$ Pulse duration > 20 μs		$R_L = 33\ \Omega$	I-II-III			1.5	V
V_{GD}	$T_j = 125\ °C$ $V_D = V_{DRM}$ Pulse duration > 20 μs		$R_L = 3.3\ k\Omega$	I-II-III	0.2			V
I_H*	$T_j = 25\ °C$ $I_T = 100\ mA$ Gate open $R_L = 140\ \Omega$						35	mA
I_L	$T_j = 25\ °C$ $V_D = 12\ V$ Pulse duration > 20 μs		$I_G = 350\ mA$	I-III			50	mA
				II			80	
V_{TM}*	$T_j = 25\ °C$ $I_{TM} = 8.5\ A$		$t_p = 10\ ms$				1.75	V
I_{DRM}*	$T_j = 25\ °C$	V_{DRM} rated	Gate open				0.01	mA
	$T_j = 125\ °C$						2	
dv/dt*	$T_j = 125\ °C$ Gate open Linear slope up to 0.67 V_{DRM}					250	500		V/μs
$(di/dt)_c$*	$T_j = 125\ °C$ V_{DRM} rated Without snubber				3.5	7		A / ms
t_{gt}	$T_j = 25\ °C$ $di_G/dt = 1\ A/\mu s$ $I_T = 8.5\ A$ $V_D = V_{DRM}$		$I_G = 350\ mA$	I-II-III		2		μs

* For either polarity of electrode A$_2$ voltage with reference to electrode A$_1$.
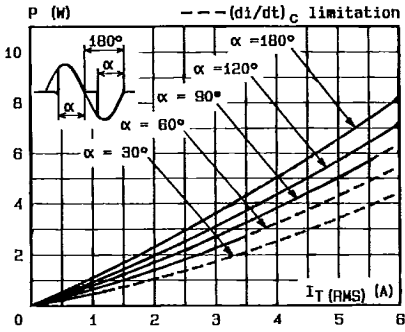
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Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).
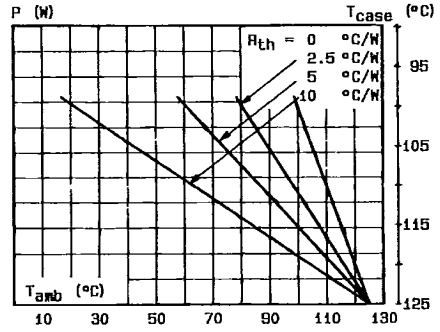

Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.
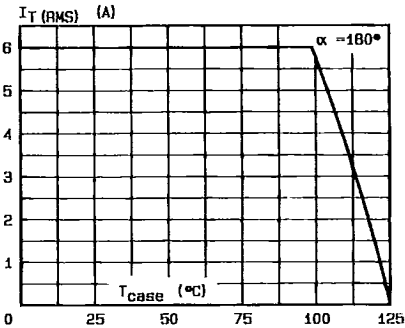

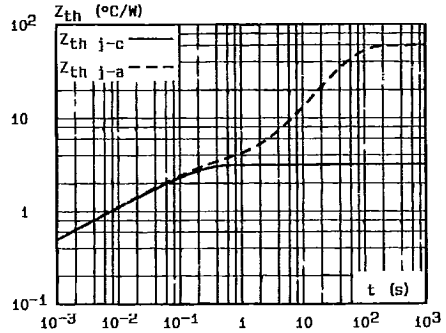Fig.3 - RMS on-state current versus case temperature.

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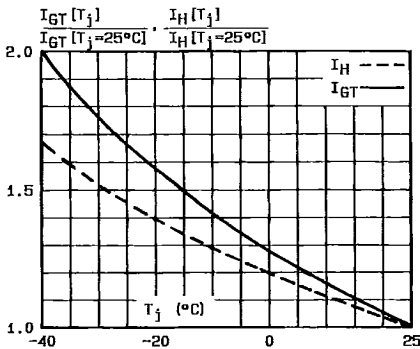

Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.
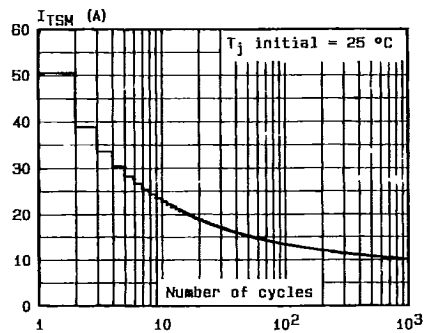

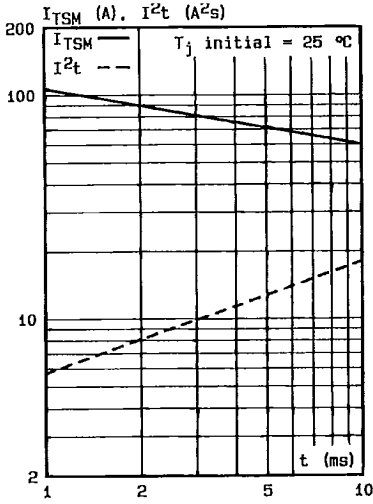Fig 6 - Non repetitive surge peak on-state current versus number of cycles.

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I_TSM (A), I²t (A²s)

Fig.7 — Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ⩽ 10 ms, and corresponding value of I²t.

I_TM (A)

@ T_j = 125°C
V_TO = 1.15 V
r_T = .055 Ω
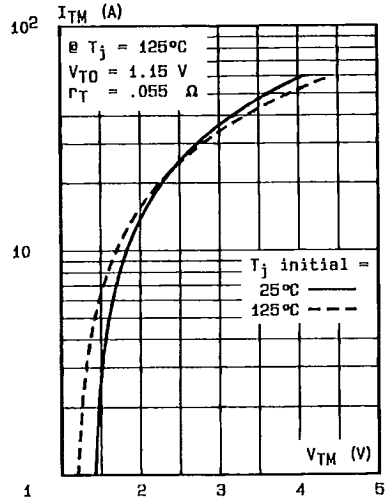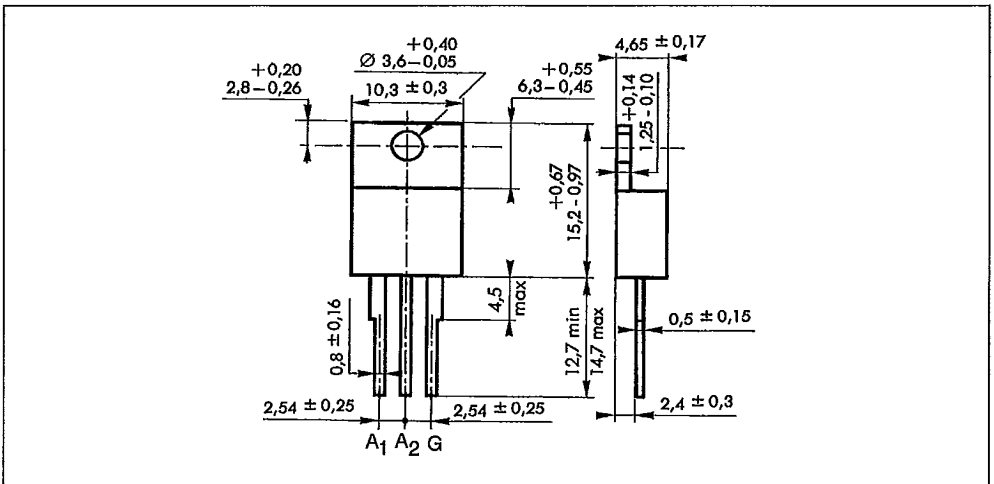
T_j initial =
25°C ———
125°C ---

V_TM (V)

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

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