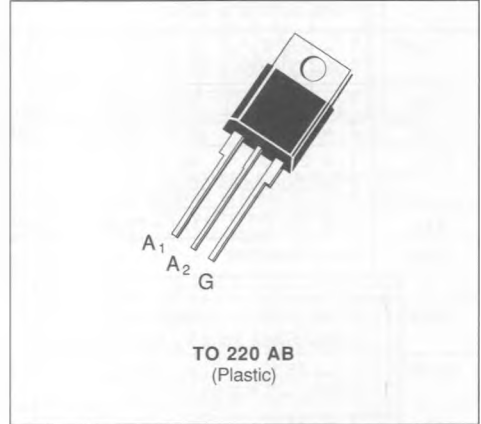# SGS-THOMSON
MICROELECTRONICS

BTA/BTB 08 A

SENSITIVE GATE TRIACS

- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION →
  BTA SERIES (INSULATING VOLTAGE
  2500 V_{RMS}) OR IN UNINSULATED VERSION
  → BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)

TO 220 AB
(Plastic)

DESCRIPTION
New range suited for applications such as phase
control and static switching.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state Current (360° conduction angle)	$T_C = 75$ °C	8	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave)	t = 8.3 ms	84	A
		t = 10 ms	80	
I^2t	I^2t Value for Fusing	t = 10 ms	32	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive F = 50 Hz	10	A/μs
		Non Repetitive	50	
T_{stg} T_j	Storage and Operating Junction Temperature Range		-40 to 150 -40 to 110	°C °C

Symbol	Parameter	BTA/BTB 08-					Unit
		200A	400A	600A	700A	800A	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) I_G = 250 mA di_G/dt = 1 A/μs
(2) T_j = 110 °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	5.1	°C/W
$R_{th (j-c)}$ AC	Junction to Case for 360 ° Conduction Angle (F = 50 Hz)	3.8	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{GM} = 40$ W ($t_p = 10$ μs) $I_{GM} = 4$ A ($t_p = 10$ μs)

$P_{G(AV)} = 1$ W $V_{GM} = 16$ V ($t_p = 10$ μs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	$T_j = 25$ °C $V_D = 12$ V Pulse Duration > 20 μs		$R_L = 33$ Ω	I-II-III			10	mA
				IV			25	
V_{GT}	$T_j = 25$ °C $V_D = 12$ V Pulse Duration > 20 μs		$R_L = 33$ Ω	I-II-III-IV			1.5	V
V_{GD}	$T_j = 110$ °C	$V_D = V_{DRM}$	$R_L = 3.3$ kΩ	I-II-III-IV	0.2			V
I_H^*	$T_j = 25$ °C	$I_T = 100$ mA	Gate Open				25	mA
I_L	$T_j = 25$ °C $V_D = 12$ V Pulse Duration > 20 μs		$I_G = 50$ mA	I-III-IV		25		mA
				II		50		
V_{TM}^*	$T_j = 25$ °C	$I_{TM} = 11$ A	$t_p = 10$ ms				1.75	V
I_{DRM}^*	V_{DRM} Specified		$T_j = 25$ °C				0.01	mA
			$T_j = 110$ °C				0.5	
dv/dt*	$T_j = 110$ °C Gate Open Linear Slope up to $V_D = 67$ % V_{DRM}				10			V/μs
$(dv/dt)_c^*$	$T_C = 75$ °C $V_D = V_{DRM}$ $I_T = 11$ A $(di/dt)_c = 3.5$ A/ms					5		V/μs
t_{gt}	$T_j = 25$ °C $V_D = V_{DRM}$ $I_T = 11$ A $I_G = 40$ mA $di_G/dt = 0.45$ A/μs			I-II-III-IV		2		μs

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

PACKAGE MECHANICAL DATA

TO 220 AB Plastic

Trioc   : 1 2 3 = A_1 A_2 G

Cooling method : by conduction (method C)
Marking : type number
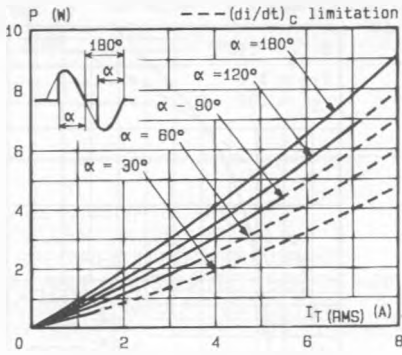Weight : 2 g

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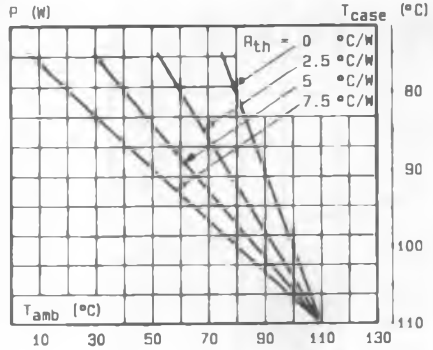

Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.
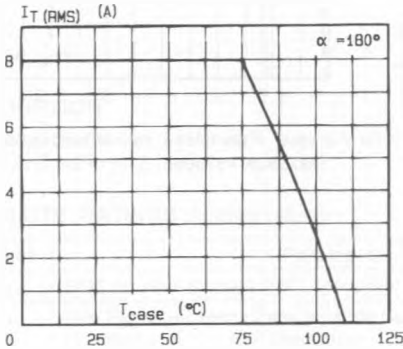

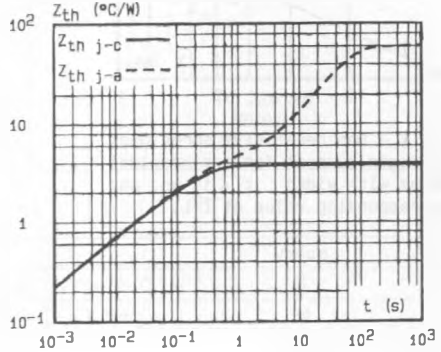
Fig.3 - RMS on-state current versus case temperature.

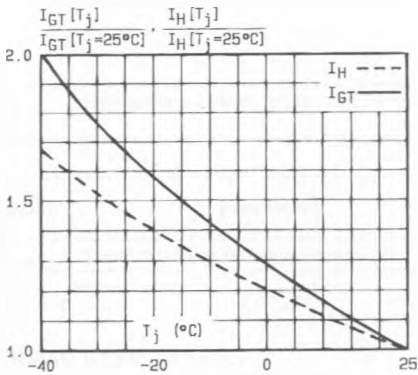Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

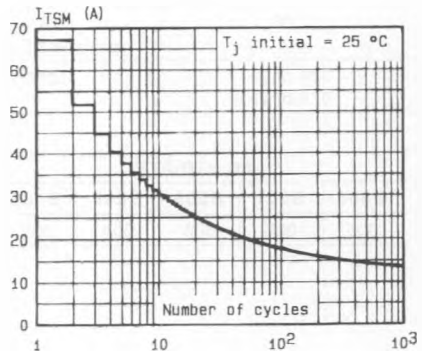Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

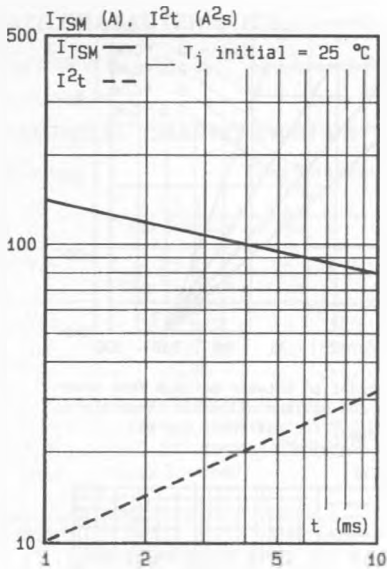Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

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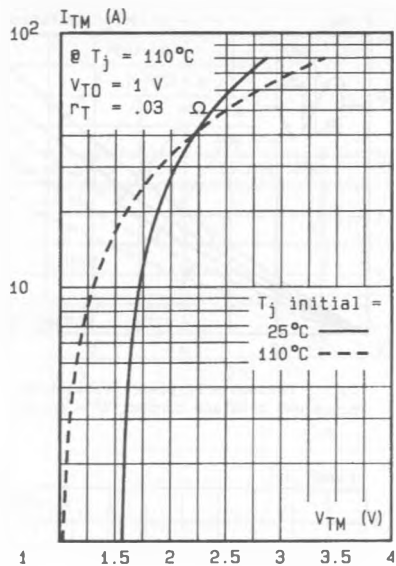pulse with width : t ⩽ 10 ms, and
corresponding value of I^2t.

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

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