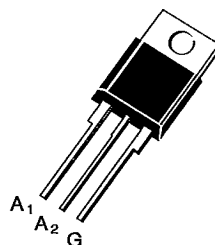


- GLASS PASSIVATED CHIP
- EXCELLENT $(dv/dt)_c > 5 \text{ V}/\mu\text{s}$
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION →
BTA SERIES (INSULATING VOLTAGE
2500 V_{RMS}) OR IN UNINSULATED VERSION
→ BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)



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)	$T_C = 75^\circ\text{C}$	10	A
I_{TSM}	Non Repetitive Surge Peak on-state Current (T_J initial = 25°C - Half sine wave)	$t = 8.3 \text{ ms}$	105	A
		$t = 10 \text{ ms}$	100	
I^2t	I^2t Value for Fusing	$t = 10 \text{ ms}$	50	A^2s
di/dt	Critical Rate of Rise of on-state Current (1)	Repetitive $F = 50 \text{ Hz}$	10	$\text{A}/\mu\text{s}$
		Non Repetitive	50	
T_{stg} T_J	Storage and Operating Junction Temperature Range		- 40 to 150 - 40 to 110	$^\circ\text{C}$ $^\circ\text{C}$

Symbol	Parameter	BTA/BTB 10--					Unit
		200C	400C	600C	700C	800C	
V_{DRM}	Repetitive Peak off-state Voltage (2)	200	400	600	700	800	V

(1) $I_G = 500 \text{ mA}$ $di/dt = 1 \text{ A}/\mu\text{s}$

(2) $T_J = 110^\circ\text{C}$.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to Ambient	60	$^\circ\text{C}/\text{W}$
$R_{th(j-c)} \text{ DC}$	Junction to Case for DC	3.9	$^\circ\text{C}/\text{W}$
$R_{th(j-c)} \text{ AC}$	Junction to Case for 360° Conduction Angle ($F = 50 \text{ Hz}$)	2.9	$^\circ\text{C}/\text{W}$

GATE CHARACTERISTICS (maximum values)

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

T-25-15

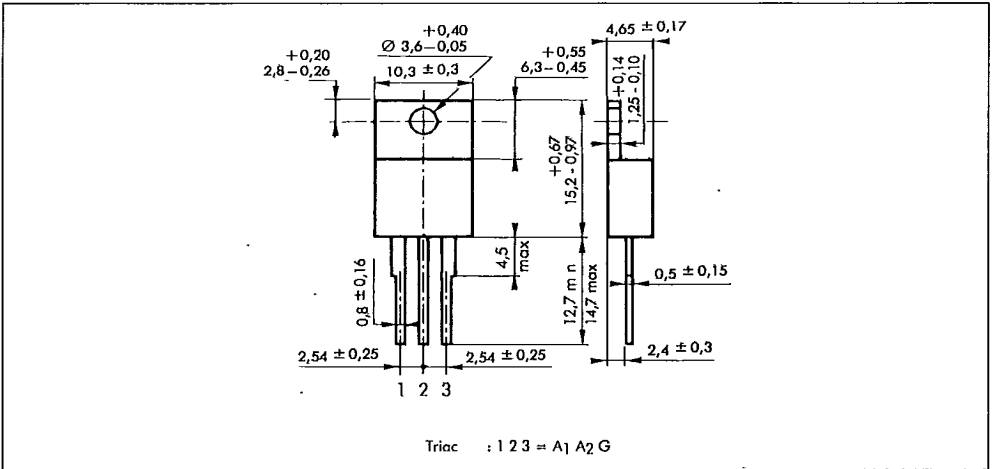
ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrants	Min.	Typ.	Max.	Unit
I_{GT}	$T_j = 25\text{ }^\circ\text{C}$ $V_D = 12\text{ V}$ $R_L = 33\text{ }\Omega$ Pulse Duration $> 20\text{ }\mu\text{s}$	I-II-III IV			25 50	mA
V_{GT}	$T_j = 25\text{ }^\circ\text{C}$ $V_D = 12\text{ V}$ $R_L = 33\text{ }\Omega$ Pulse Duration $> 20\text{ }\mu\text{s}$	I-II-III-IV			1.5	V
V_{GD}	$T_j = 110\text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $R_L = 3.3\text{ k}\Omega$	I-II-III-IV	0.2			V
I_H^*	$T_j = 25\text{ }^\circ\text{C}$ $I_T = 100\text{ mA}$ Gate Open				25	mA
I_L	$T_j = 25\text{ }^\circ\text{C}$ $V_D = 12\text{ V}$ $I_G = 100\text{ mA}$ Pulse Duration $> 20\text{ }\mu\text{s}$	I-III-IV II		50 100		mA
V_{TM}^*	$T_j = 25\text{ }^\circ\text{C}$ $I_{TM} = 14\text{ A}$ $t_p = 10\text{ ms}$				1.5	V
I_{DRM}^*	V_{DRM} Specified $T_j = 25\text{ }^\circ\text{C}$ $T_j = 110\text{ }^\circ\text{C}$				0.01 0.5	mA
dv/dt^*	$T_j = 110\text{ }^\circ\text{C}$ Gate Open Linear Slope up to $V_D = 67\text{ }\% V_{DRM}$		100	200		V/ μs
$(dv/dt)_c^*$	$T_C = 75\text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $I_T = 14\text{ A}$ $(di/dt)_c = 4.4\text{ A/ms}$		5			V/ μs
t_{gt}	$T_j = 25\text{ }^\circ\text{C}$ $V_D = V_{DRM}$ $I_T = 14\text{ A}$ $I_G = 80\text{ mA}$ $di_G/dt = 1\text{ A}/\mu\text{s}$	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



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

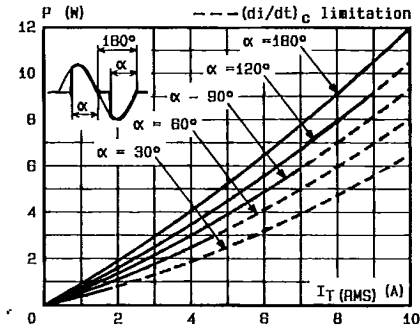


Fig.1 - Maximum mean power dissipation versus RMS on-state current ($F = 60$ Hz).

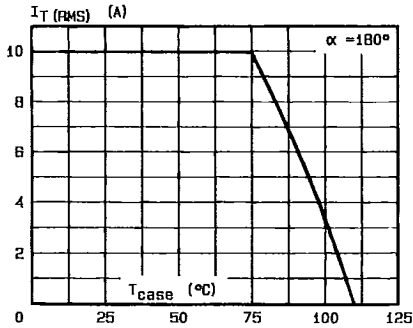


Fig.3 - RMS on-state current versus case temperature.

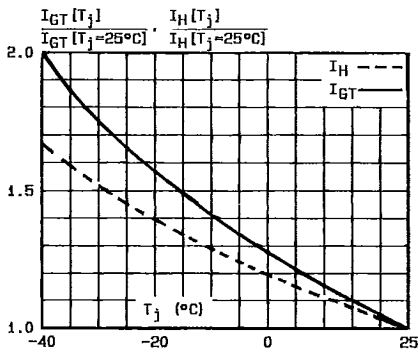


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

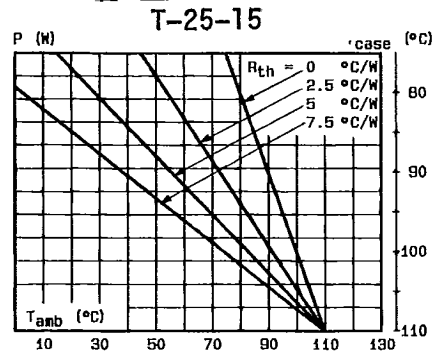


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

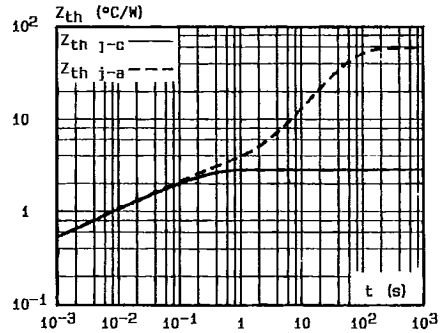


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

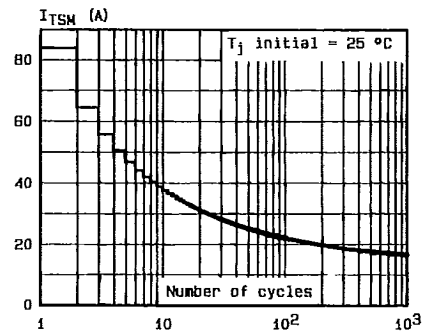


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

S G S-THOMSON

T-25-15

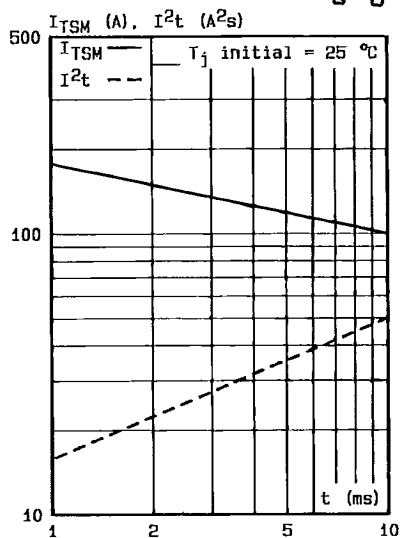


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

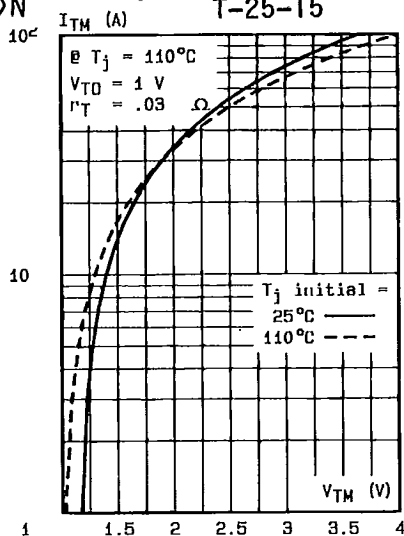


Fig.8 - On-state characteristics (maximum values).