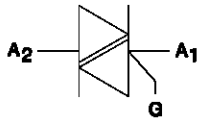
SGS-THOMSON MICROELECTRONICS

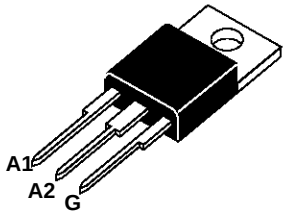
BTA10 GP

TRIACS

FEATURES

- LOW I_H = 13mA max
- HIGH SURGE CURRENT : I_{TSM} = 120A
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- INSULATING VOLTAGE = 2500$V_{(RMS)}$ (UL RECOGNIZED : E81734)





TO220AB
(Plastic)

DESCRIPTION

The BTA10 GP's use high performance, glass passivated chips.
The insulated TO220AB package, the high surge current and low holding current make this family well adapted to LIGHT DIMMER applications.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	Tc = 90 °C	10	A
I_{TSM}	Non repetitive surge peak on-state current (Tj initial = 25°C)	tp = 8.3 ms	126	A
		tp = 10 ms	120	
I^2t	I^2t value	tp = 10 ms	72	A^2s
dI/dt	Critical rate of rise of on-state current Gate supply : I_G = 500mA di_G/dt = 1A/µs	Repetitive F = 50 Hz	10	A/µs
		Non Repetitive	50	
Tstg Tj	Storage and operating junction temperature range		- 40 to + 150 - 40 to + 125	°C °C
Tl	Maximum lead temperature for soldering during 10 s at 4.5 mm from case		260	°C

Symbol	Parameter	BTA10-		Unit
		400 GP	600 GP	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage Tj = 125 °C	400	600	V

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth (j-a)	Junction to ambient	60	°C/W
Rth (j-c) DC	Junction to case for DC	4	°C/W
Rth (j-c) AC	Junction to case for 360° conduction angle (F= 50 Hz)	3	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{G\ (AV)}$ = 1W P_{GM} = 10W (tp = 20 µs) I_{GM} = 4A (tp = 20 µs) V_{GM} = 16V (tp = 20 µs).

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrant		Suffix	Unit
					GP	
I_{GT}	V_D=12V (DC) R_L=33Ω	Tj=25°C	I-II-III	MAX	50	mA
			IV	MAX	75	
V_{GT}	V_D=12V (DC) R_L=33Ω	Tj=25°C	I-II-III-IV	MAX	1.5	V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ	Tj=110°C	I-II-III-IV	MIN	0.2	V
tgt	V_D=V_{DRM} I_G = 500mA dI_G/dt = 3A/µs	Tj=25°C	I-II-III-IV	TYP	2	µs
I_L	I_G=1.2 I_{GT}	Tj=25°C	I-III-IV	TYP	20	mA
			II		40	
I_H *	I_T= 100mA gate open	Tj=25°C		MAX	13	mA
V_{TM} *	I_{TM}= 14A tp= 380µs	Tj=25°C		MAX	1.5	V
I_{DRM} I_{RRM}	V_{DRM} Rated V_{RRM} Rated	Tj=25°C		MAX	0.01	mA
		Tj=110°C		MAX	0.5	
dV/dt *	Linear slope up to V_D=67%V_{DRM} gate open	Tj=110°C		MIN	30	V/µs
				TYP	100	
(dV/dt)c *	(dI/dt)c= 2.2A/ms	Tj=110°C		MIN	1	V/µs
				TYP	10	

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

Fig.1 : Maximum RMS power dissipation versus RMS on-state current (F=50Hz).
(curves are cut off by (dI/dt)c limitation)

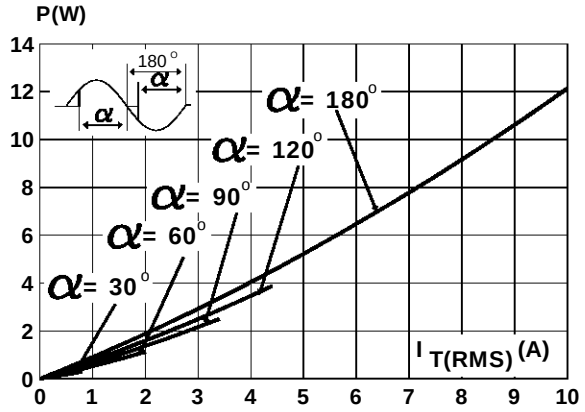


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

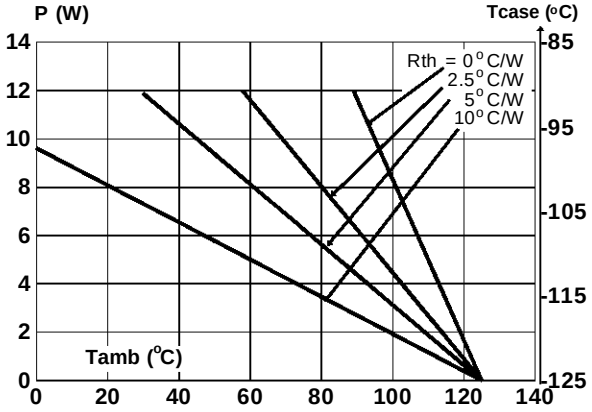


Fig.3 : RMS on-state current versus case temperature.

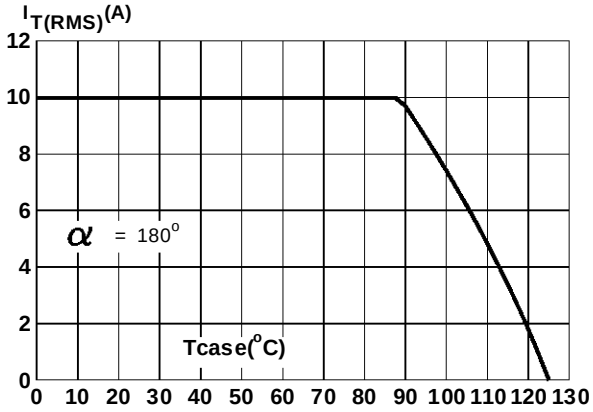


Fig.4 : Relative variation of thermal impedance versus pulse duration.

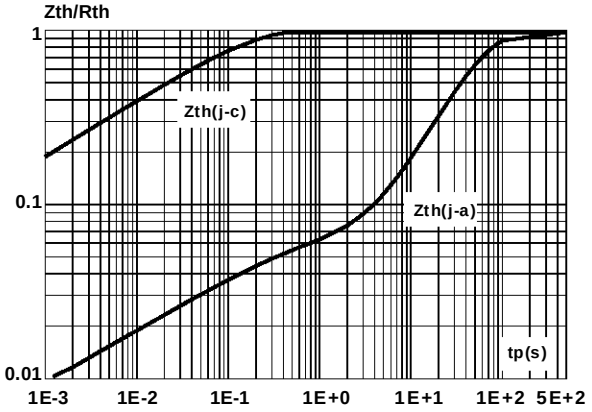


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

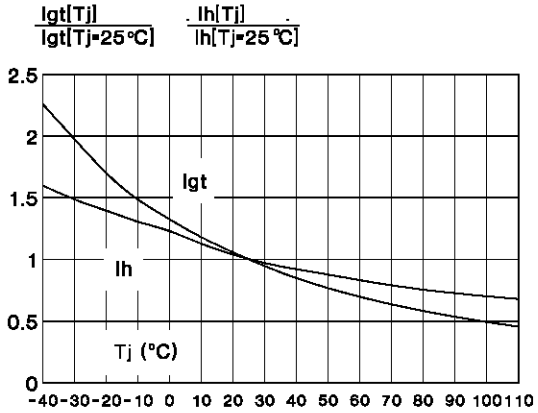


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

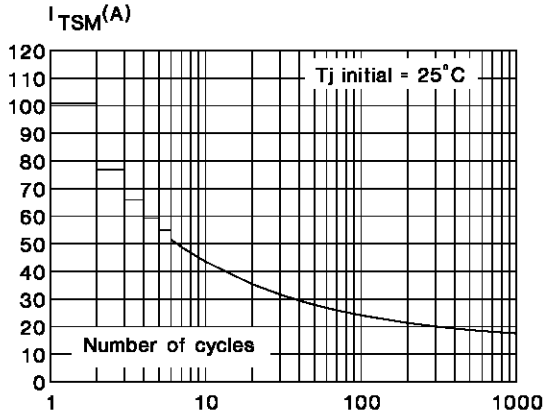


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : t ≤ 10ms, and corresponding values of I^2t.

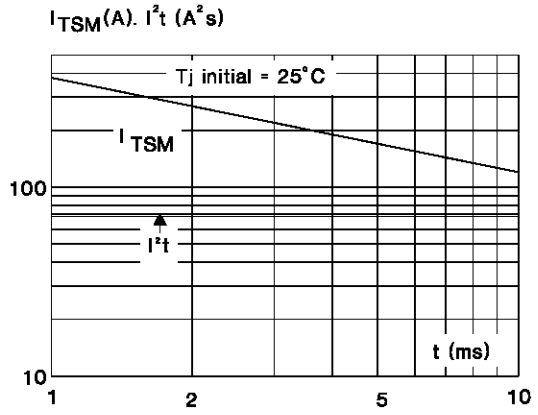
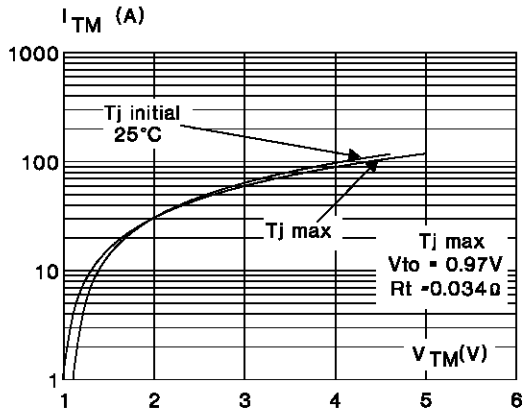
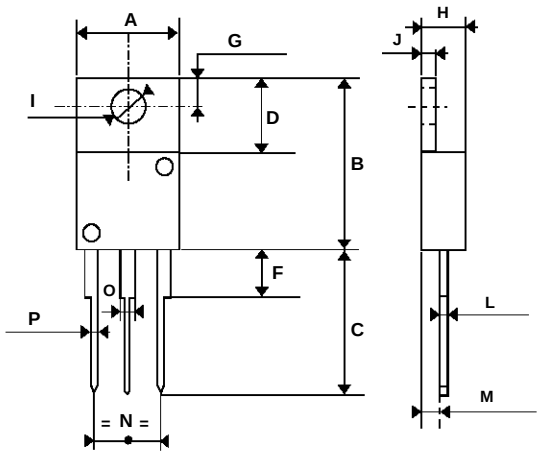


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TO220AB Plastic



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	10.20	10.50	0.401	0.413
B	14.23	15.87	0.560	0.625
C	12.70	14.70	0.500	0.579
D	5.85	6.85	0.230	0.270
F		4.50		0.178
G	2.54	3.00	0.100	0.119
H	4.48	4.82	0.176	0.190
I	3.55	4.00	0.140	0.158
J	1.15	1.39	0.045	0.055
L	0.35	0.65	0.013	0.026
M	2.10	2.70	0.082	0.107
N	4.58	5.58	0.18	0.22
O	0.80	1.20	0.031	0.048
P	0.64	0.96	0.025	0.038

Cooling method : C
Marking : type number
Weight : 2.3 g

Recommended torque value : 0.8 m.N.
Maximum torque value : 1 m.N.

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