

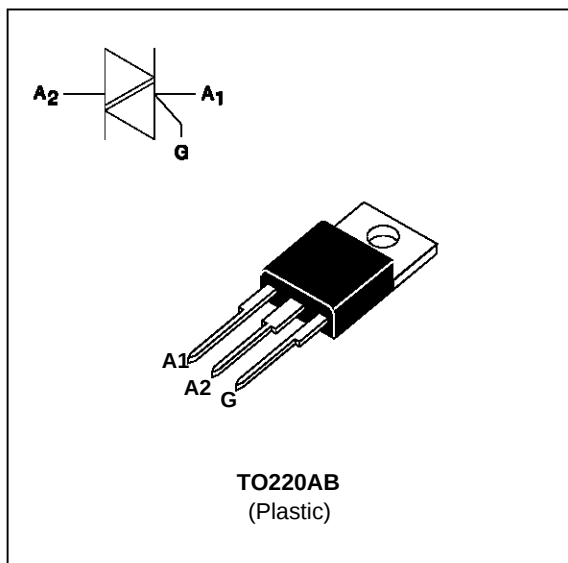
FEATURES

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

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)	$T_c = 90\text{ }^{\circ}\text{C}$	10	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t_p = 8.3\text{ ms}$	126	A
		$t_p = 10\text{ ms}$	120	
I_{2t}	I_{2t} value	$t_p = 10\text{ ms}$	72	$A2s$
di/dt	Critical rate of rise of on-state current Gate supply : $I_G = 500\text{mA}$ $di_G/dt = 1\text{A}/\mu\text{s}$	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 + 125	$^{\circ}\text{C}$ $^{\circ}\text{C}$
T_l	Maximum lead temperature for soldering during 10 s at 4.5 mm from case		260	$^{\circ}\text{C}$

Symbol	Parameter	BTA10-		Unit
		400 GP	600 GP	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125\text{ }^{\circ}\text{C}$	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 μ s) I_{GM} = 4A (tp = 20 μ s) V_{GM} = 16V (tp = 20 μ s).

ELECTRICAL CHARACTERISTICS

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

* For either polarity of electrode A₂ voltage with reference to electrode A₁.

Fig.1 : Maximum RMS power dissipation versus RMS on-state current ($F=50\text{Hz}$).
(curves are cut off by $(di/dt)_c$ limitation)

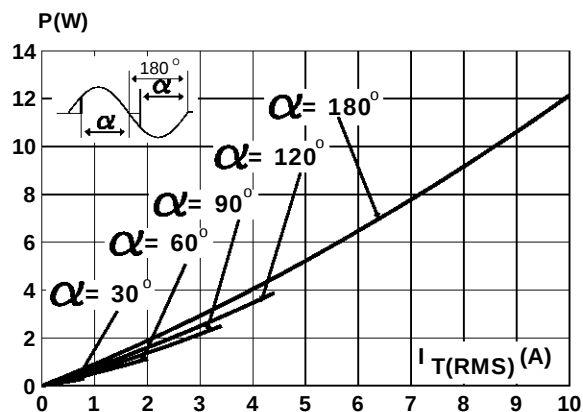


Fig.3 : RMS on-state current versus case temperature.

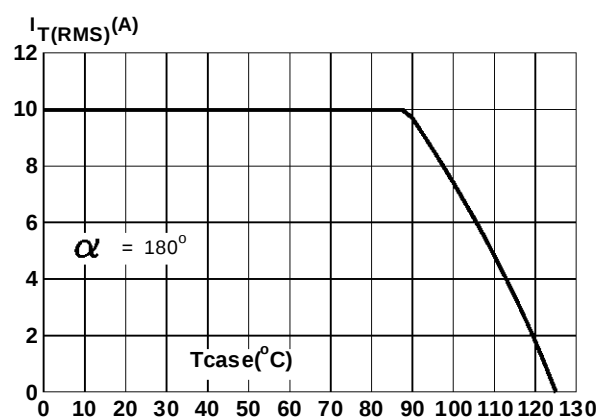


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

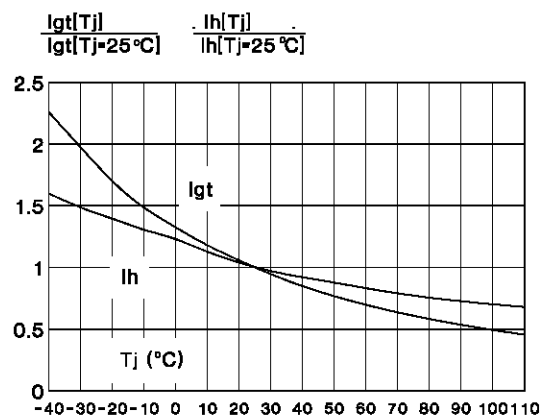


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

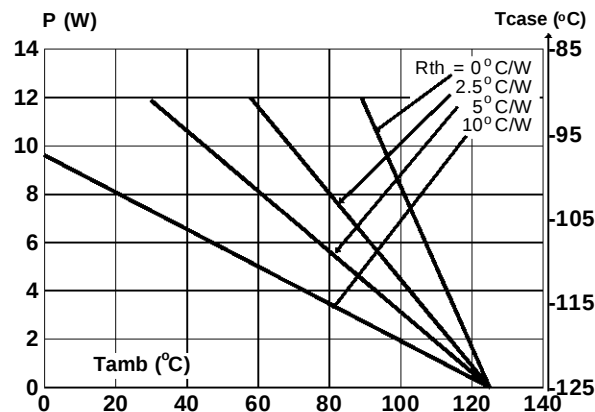


Fig.4 : Relative variation of thermal impedance versus pulse duration.

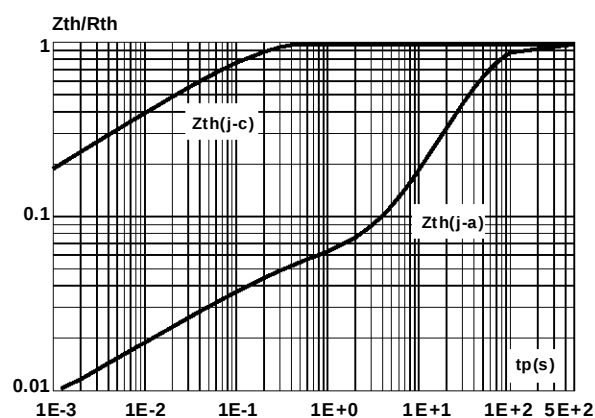
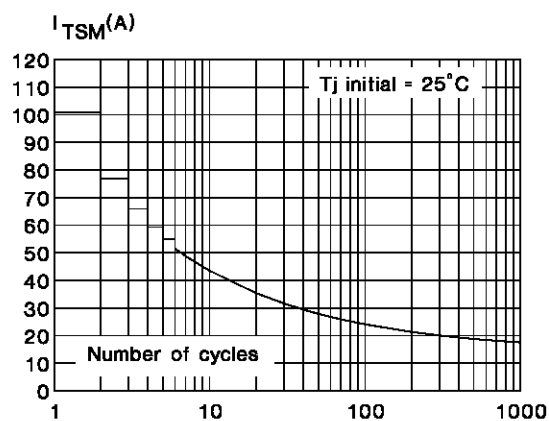


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



BTA10 GP

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

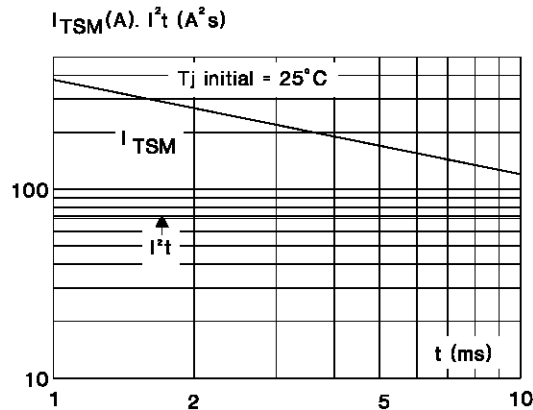
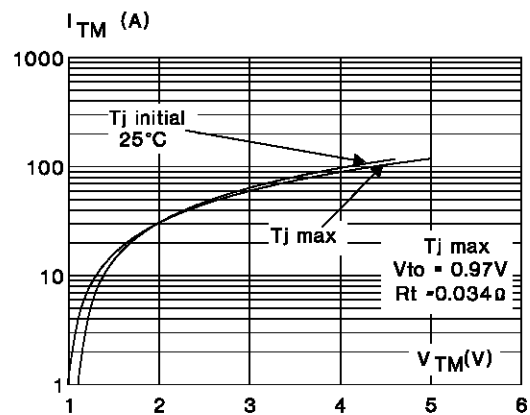
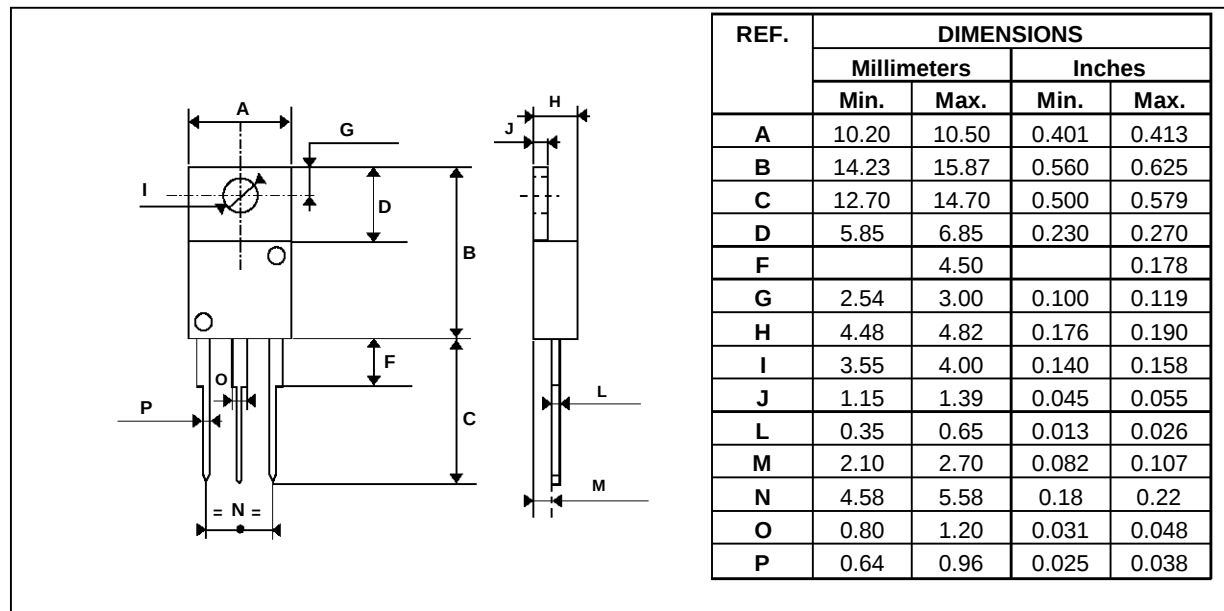


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TO220AB Plastic



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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