

## BTA12 B/C / BTB12 B/C

### THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
Rth (j-a)	Junction to ambient		60	°C/W
Rth (j-c) DC	Junction to case for DC	BTA	3.3	°C/W
		BTB	2.7	
Rth (j-c) AC	Junction to case for 360° conduction angle (F = 50 Hz)	BTA	2.5	°C/W
		BTB	2.0	

### GATE CHARACTERISTICS (maximum values)

PG (AV) = 1W    PGM = 10W (tp = 20 μs)    IGM = 4A (tp = 20 μs)    VGM = 16V (tp = 20 μs).

### ELECTRICAL CHARACTERISTICS

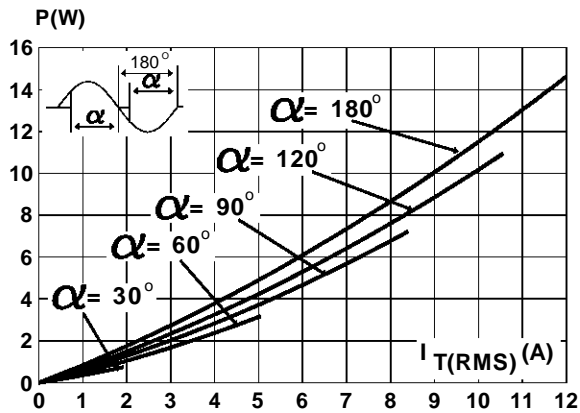
Symbol	Test Conditions		Quadrant		Suffix		Unit
					B	C	
IGT	VD=12V (DC) RL=33Ω	Tj=25°C	I-II-III	MAX	50	25	mA
			IV	MAX	100	50	
VGT	VD=12V (DC) RL=33Ω	Tj=25°C	I-II-III-IV	MAX	1.5		V
VGD	VD=VDRM RL=3.3kΩ	Tj=110°C	I-II-III-IV	MIN	0.2		V
tgt	VD=VDRM IG = 500mA dIG/dt = 3A/μs	Tj=25°C	I-II-III-IV	TYP	2		μs
IL	IG=1.2 IGT	Tj=25°C	I-III-IV	TYP	40	20	mA
			II		70	35	
IH *	IT= 500mA gate open	Tj=25°C		MAX	50	25	mA
VTM *	ITM= 17A tp= 380μs	Tj=25°C		MAX	1.5		V
IDRM IRRM	VDRM Rated VRRM Rated	Tj=25°C		MAX	0.01		mA
		Tj=110°C		MAX	0.5		
dV/dt *	Linear slope up to VD=67%VDRM gate open	Tj=110°C		MIN	250	100	V/μs
(dV/dt)c *	(dI/dt)c = 5.3A/ms	Tj=110°C		MIN	10	5	V/μs

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

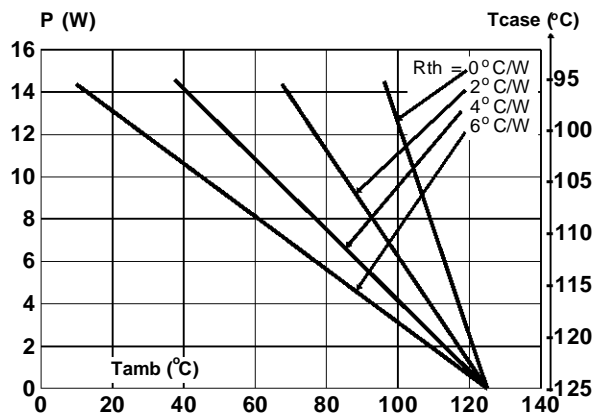
ORDERING INFORMATION

Package	$I_T(\text{RMS})$	$V_{\text{DRM}} / V_{\text{RRM}}$	Sensitivity Specification	
	A	V	B	C
BTA (Insulated)	12	400	X	X
		600	X	X
		700	X	X
		800	X	X
BTB (Uninsulated)	400	400	X	X
	600	600	X	X
	700	700	X	X
	800	800	X	X

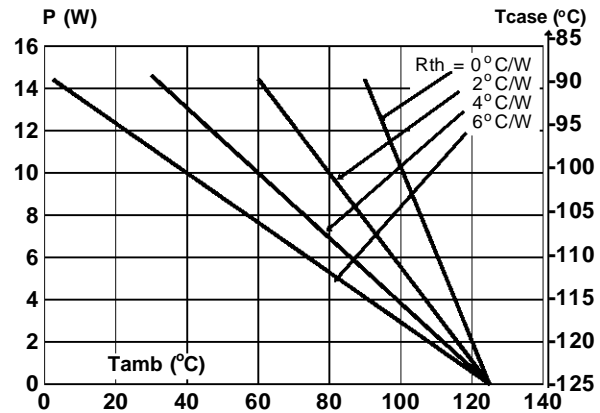
**Fig.1** : Maximum RMS power dissipation versus RMS on-state current ( $F=50\text{Hz}$ ).  
(Curves are cut off by  $(di/dt)_c$  limitation)



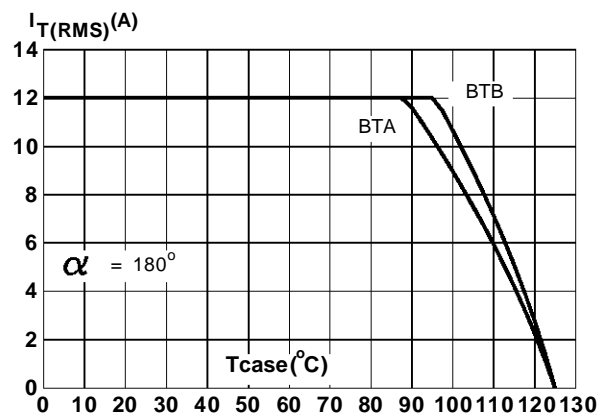
**Fig.3** : Correlation between maximum RMS power dissipation and maximum allowable temperatures ( $T_{\text{amb}}$  and  $T_{\text{case}}$ ) for different thermal resistances heatsink + contact (BTB).



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

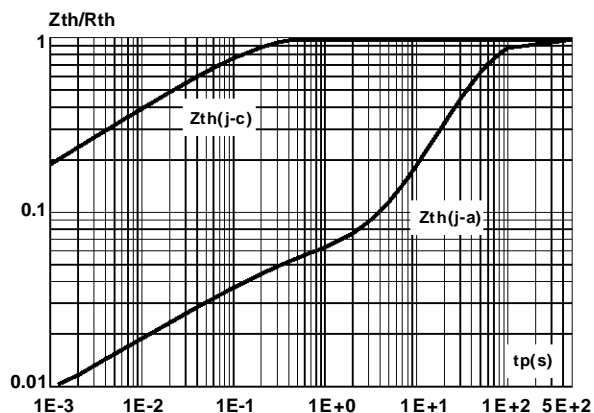


**Fig.4** : RMS on-state current versus case temperature.

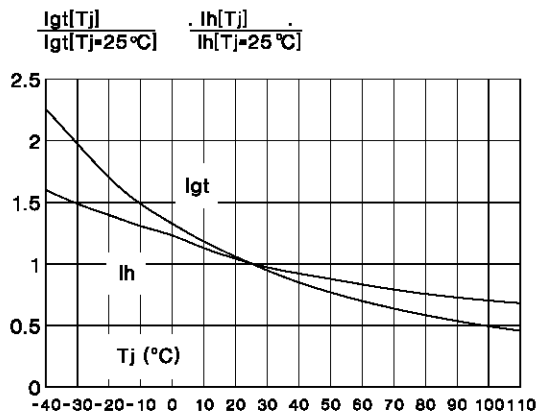


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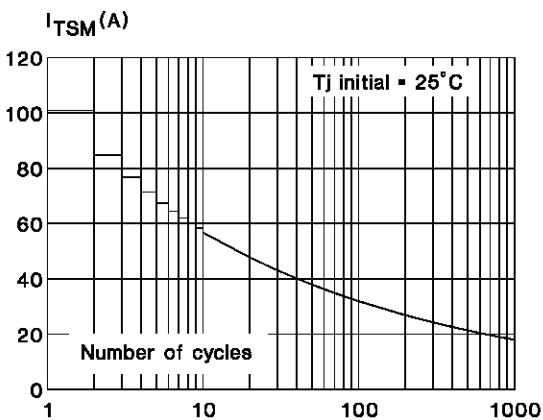
**Fig.5 :** Relative variation of thermal impedance versus pulse duration.



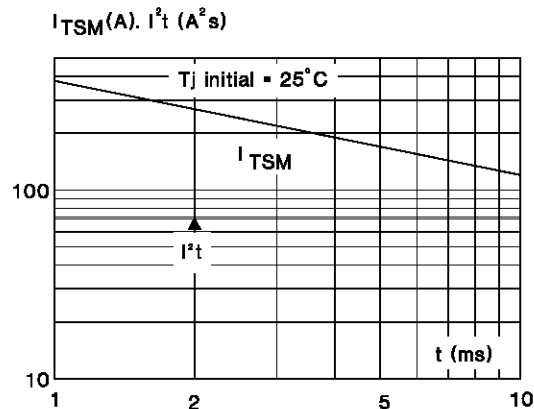
**Fig.6 :** Relative variation of gate trigger current and holding current versus junction temperature.



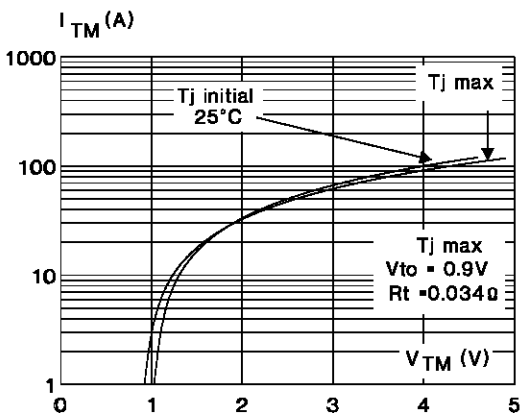
**Fig.7 :** Non Repetitive surge peak on-state current versus number of cycles.



**Fig.8 :** Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10$ ms, and corresponding value of  $I^2t$ .

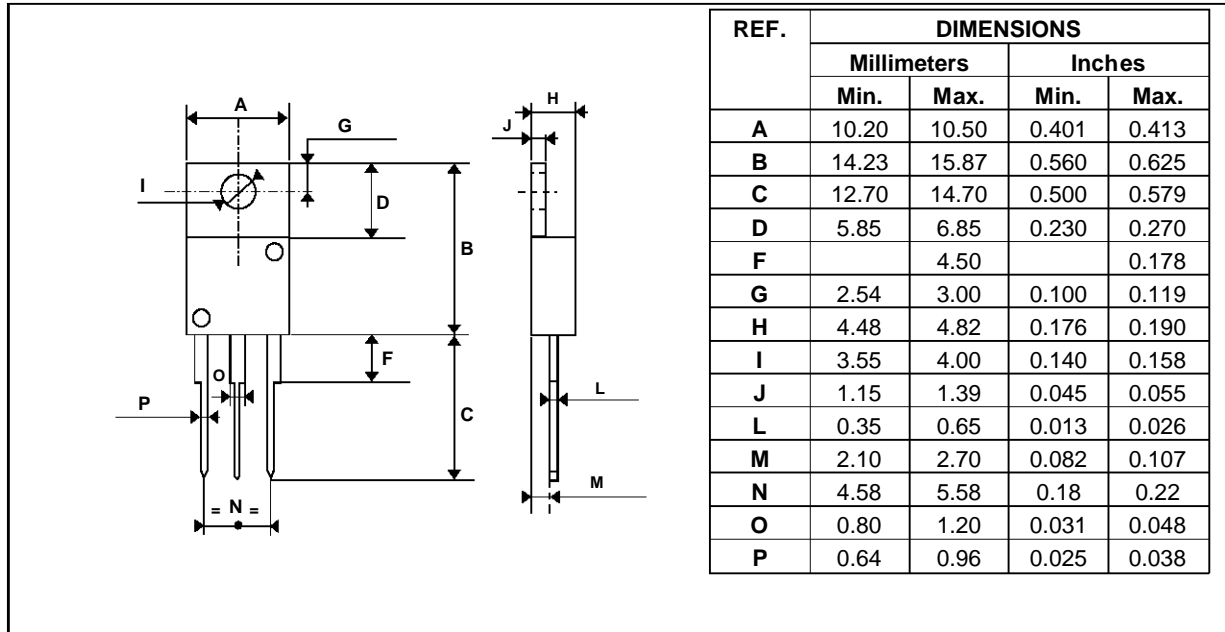


**Fig.9 :** On-state characteristics (maximum values).



**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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