

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)

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
					B	C	
I _{GT}	V _D =12V (DC) R _L =33Ω	T _j =25°C	I-II-III	MAX	50	25	mA
			IV	MAX	100	50	
V _{GT}	V _D =12V (DC) R _L =33Ω	T _j =25°C	I-II-III-IV	MAX	1.5		V
V _{GD}	V _D =V _{DRM} R _L =3.3kΩ	T _j =110°C	I-II-III-IV	MIN	0.2		V
tgt	V _D =V _{DRM} I _G = 500mA dI _G /dt = 3A/μs	T _j =25°C	I-II-III-IV	TYP	2		μs
I _L	I _G =1.2 I _{GT}	T _j =25°C	I-III-IV	TYP	40	20	mA
			II		70	35	
I _H *	I _T = 500mA gate open	T _j =25°C		MAX	50	25	mA
V _{TM} *	I _{TM} = 17A tp= 380μs	T _j =25°C		MAX	1.5		V
I _{DRM} I _{RRM}	V _{DRM} Rated V _{RRM} Rated	T _j =25°C		MAX	0.01		mA
		T _j =110°C		MAX	0.5		
dV/dt *	Linear slope up to V _D =67%V _{DRM} gate open	T _j =110°C		MIN	250	100	V/μs
(dV/dt)c *	(dI/dt)c = 5.3A/ms	T _j =110°C		MIN	10	5	V/μs

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

ORDERING INFORMATION

Package	I _T (RMS)	V _{DRM} / V _{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	X	X
		600	X	X
		700	X	X
		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)

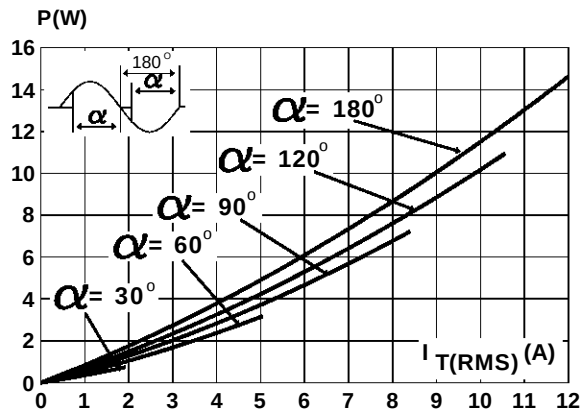


Fig.3 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTB).

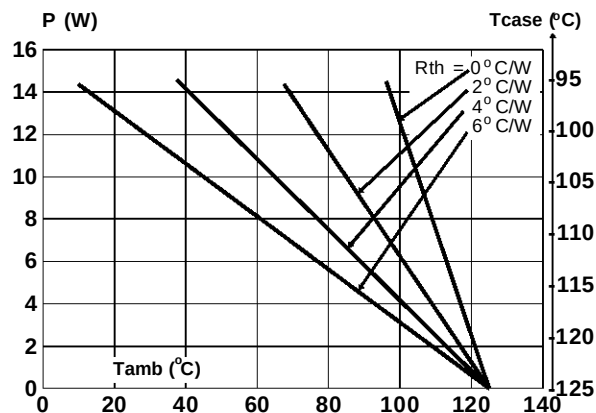


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (BTA).

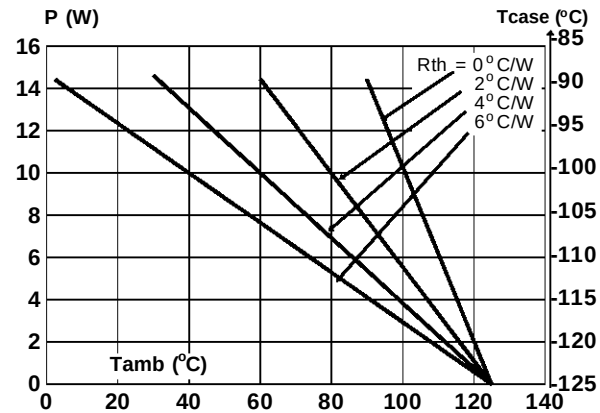


Fig.4 : RMS on-state current versus case temperature.

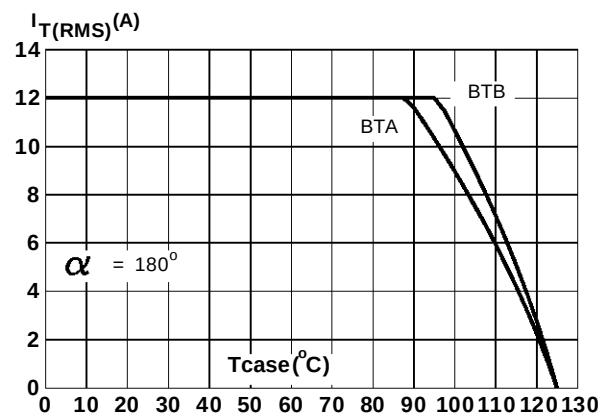


Fig.5 : Relative variation of thermal impedance versus pulse duration.

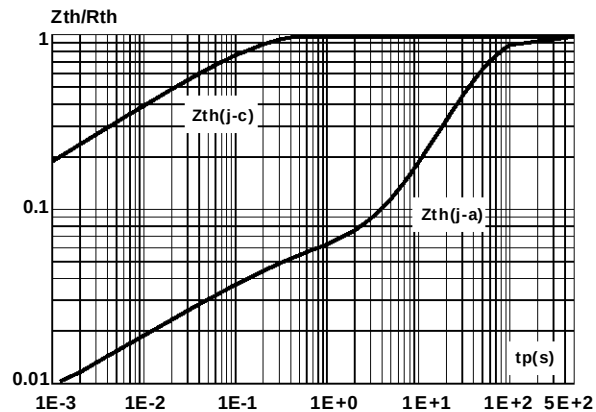


Fig.6 : Relative variation of gate trigger current and holding current versus junction temperature.

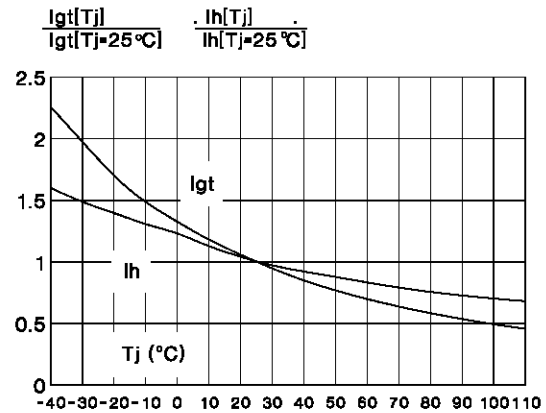


Fig.7 : Non Repetitive surge peak on-state current versus number of cycles.

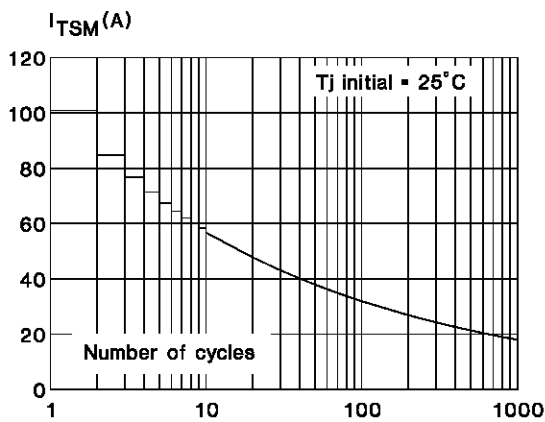


Fig.8 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10ms$, and corresponding value of I^2t .

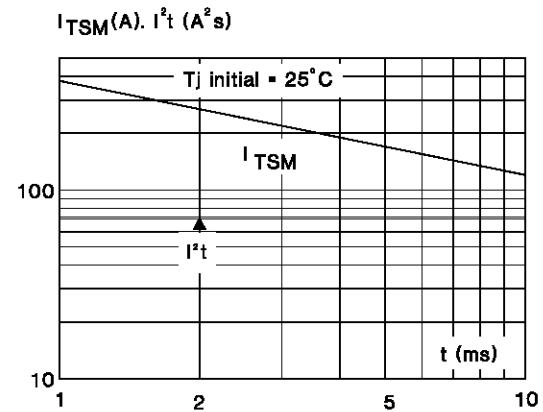
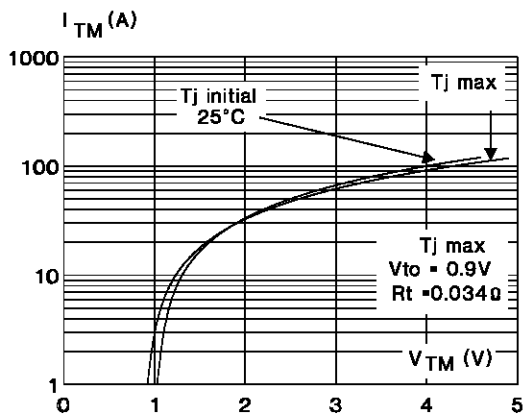
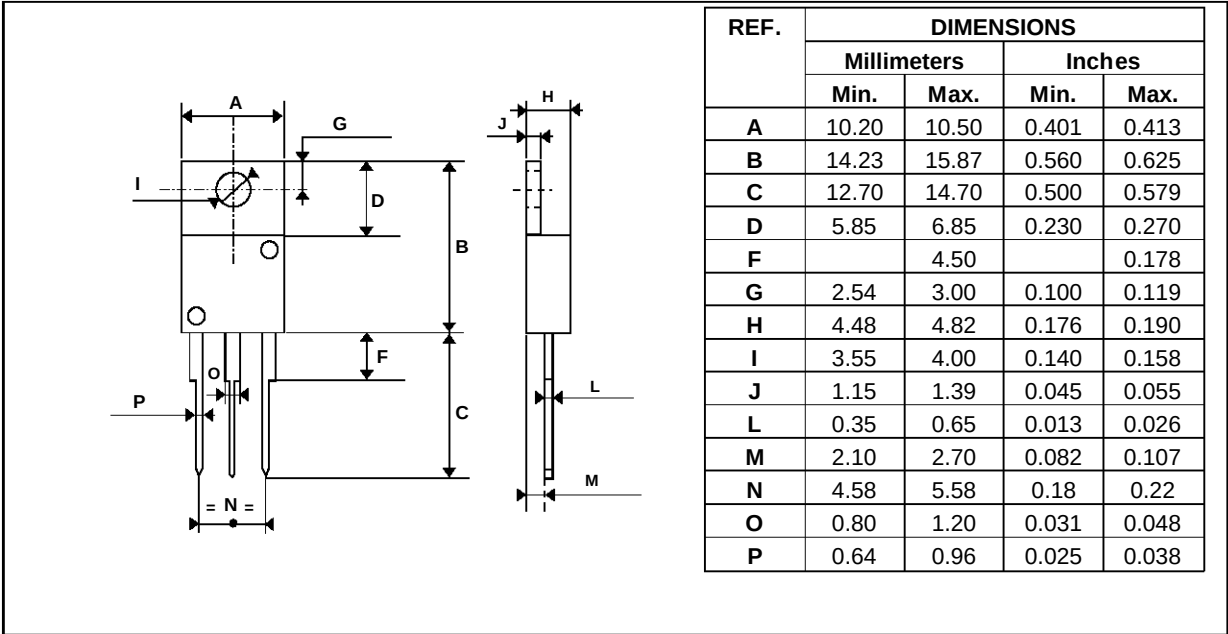


Fig.9 : On-state characteristics (maximum values).



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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