

BTA20 Series

Tables 4: Electrical Characteristics ($T_j = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Test Conditions	Quadrant		BTA20		Unit
				BW	CW	
$I_{GT} (1)$	$V_D = 12\text{ V}$ $R_L = 33\ \Omega$	ALL	MIN.	2	1	mA
			MAX.	50	35	
V_{GT}		ALL	MAX.	1.5		V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\text{ k}\Omega$ $T_j = 125^\circ\text{C}$	ALL	MIN.	0.2		V
$I_H (2)$	$I_T = 500\text{ mA}$ gate open		MAX.	75	50	mA
I_L	$I_G = 1.2\ I_{GT}$	I - III	TYP.	50	-	mA
		II		90	-	
		I - II - III	MAX.	-	80	
$dV/dt (2)$	$V_D = 67\ \%V_{DRM}$ gate open	$T_j = 125^\circ\text{C}$	TYP.	750	500	V/ μs
			MIN.	500	250	
$(dV/dt)_c (2)$	$(dI/dt)_c = 20\text{ A/ms}$	$T_j = 125^\circ\text{C}$	TYP.	36	22	V/ μs
			MIN.	18	11	

Table 5: Static Characteristics

Symbol	Test Conditions			Value	Unit
$V_{TM} (2)$	$I_{TM} = 28\text{ A}$	$t_p = 380\ \mu\text{s}$	$T_j = 25^\circ\text{C}$ MAX.	1.70	V
I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM}$	$T_j = 25^\circ\text{C}$	MAX.	10	μA
		$T_j = 125^\circ\text{C}$		3	mA

Note 1: minimum I_{GT} is guaranteed at 5% of I_{GT} max.

Note 2: for both polarities of A2 referenced to A1.

Table 6: Thermal resistance

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case (AC)	2.1	$^\circ\text{C/W}$
$R_{th(j-c)}$	Junction to case (DC)	2.8	
$R_{th(j-a)}$	Junction to ambient	60	$^\circ\text{C/W}$

Figure 1: Maximum power dissipation versus RMS on-state current (full cycle)

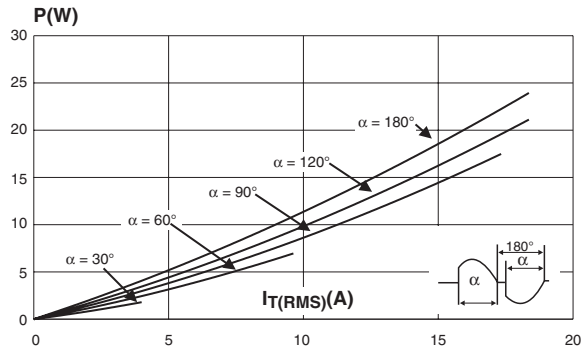


Figure 2: Correlation between maximum RMS power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heatsink + contact

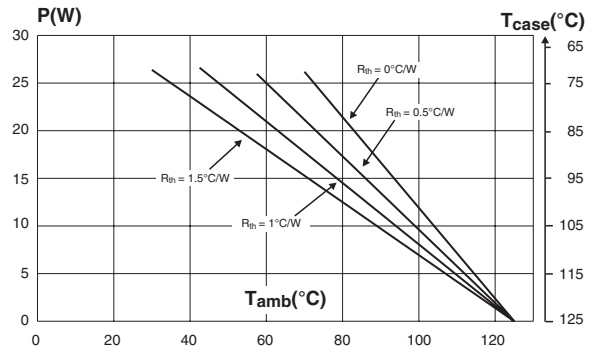


Figure 3: RMS on-state current versus case temperature (full cycle)

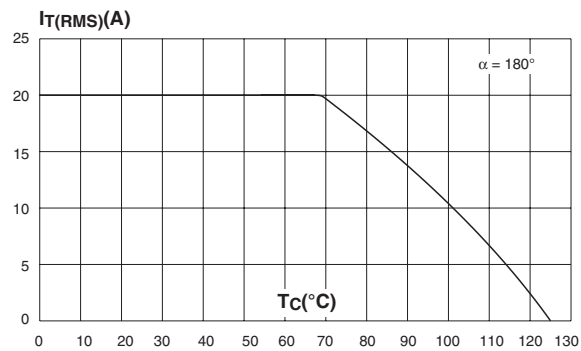


Figure 4: Relative variation of thermal impedance versus pulse duration

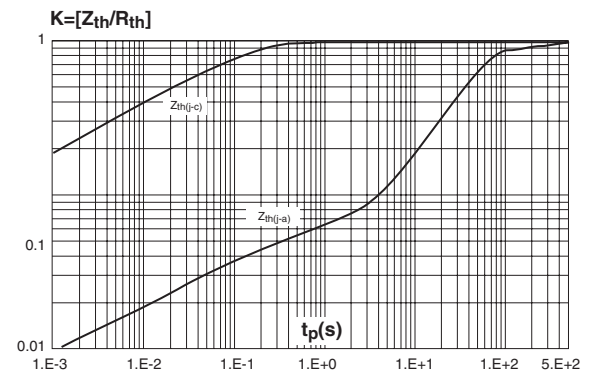


Figure 5: On-state characteristics (maximum values)

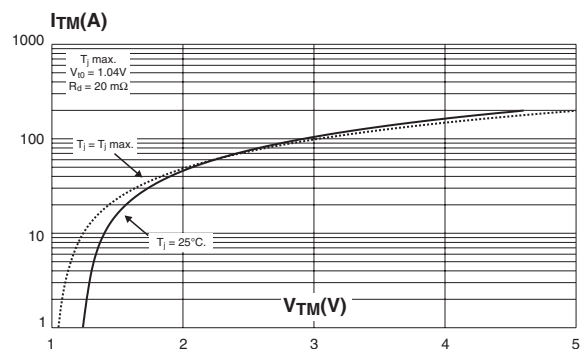
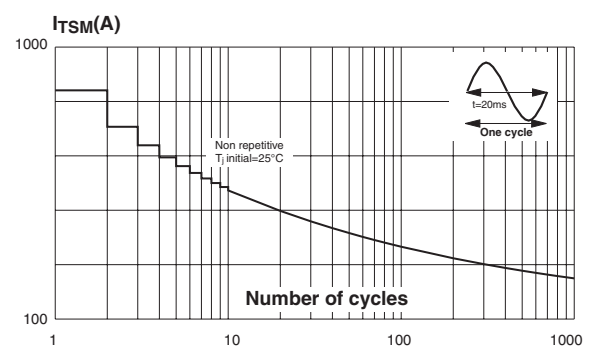


Figure 6: Non repetitive surge peak on-state current versus number of cycles



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Figure 7: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms and corresponding value of I^2t

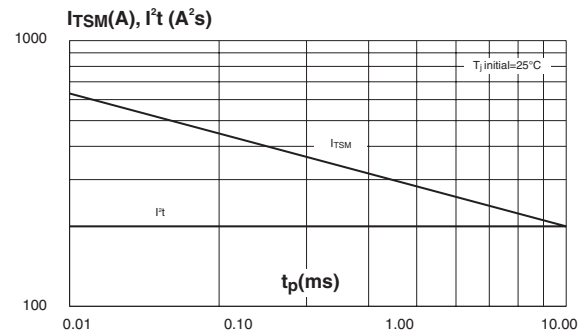


Figure 8: Relative variation of gate trigger current and holding current versus junction temperature

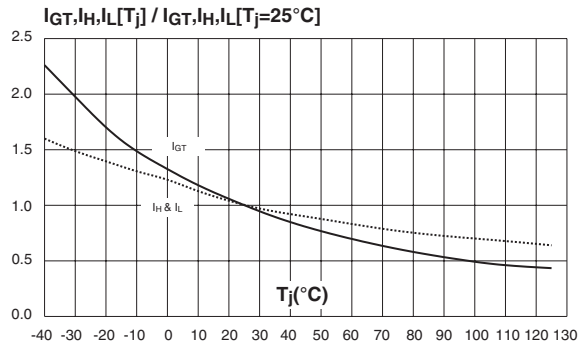


Figure 9: Ordering Information Scheme

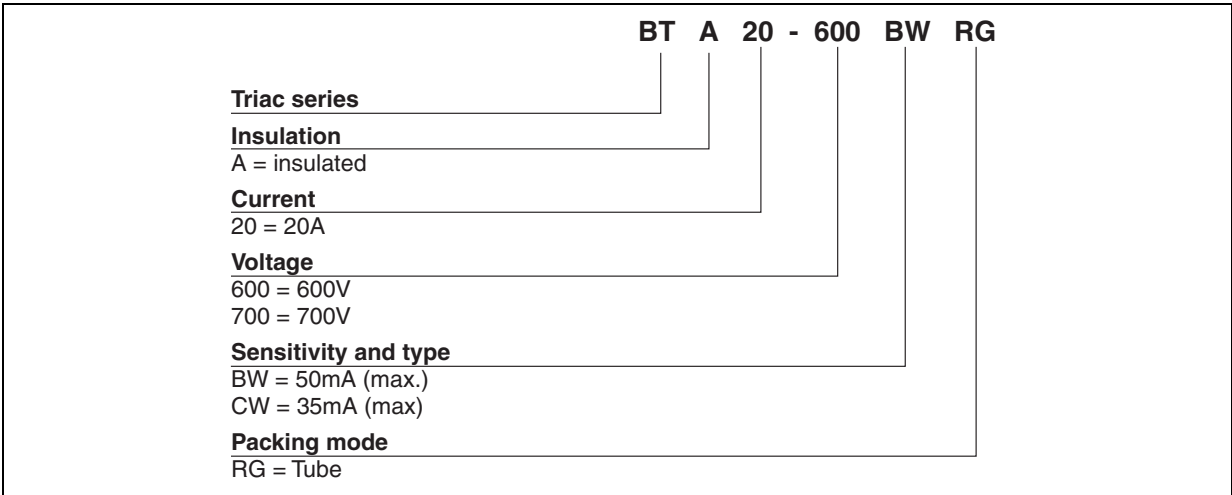


Table 7: Product Selector

Part Numbers	Voltage (xxx)		Sensitivity	Type	Package
	600 V	700 V			
BTA20-xxxBWRG	X	X	50 mA	Snubberless	TO-220AB Ins.
BTA20-xxxCWRG	X	X	35 mA		

Figure 10: TO-220AB Insulated Package Mechanical Data

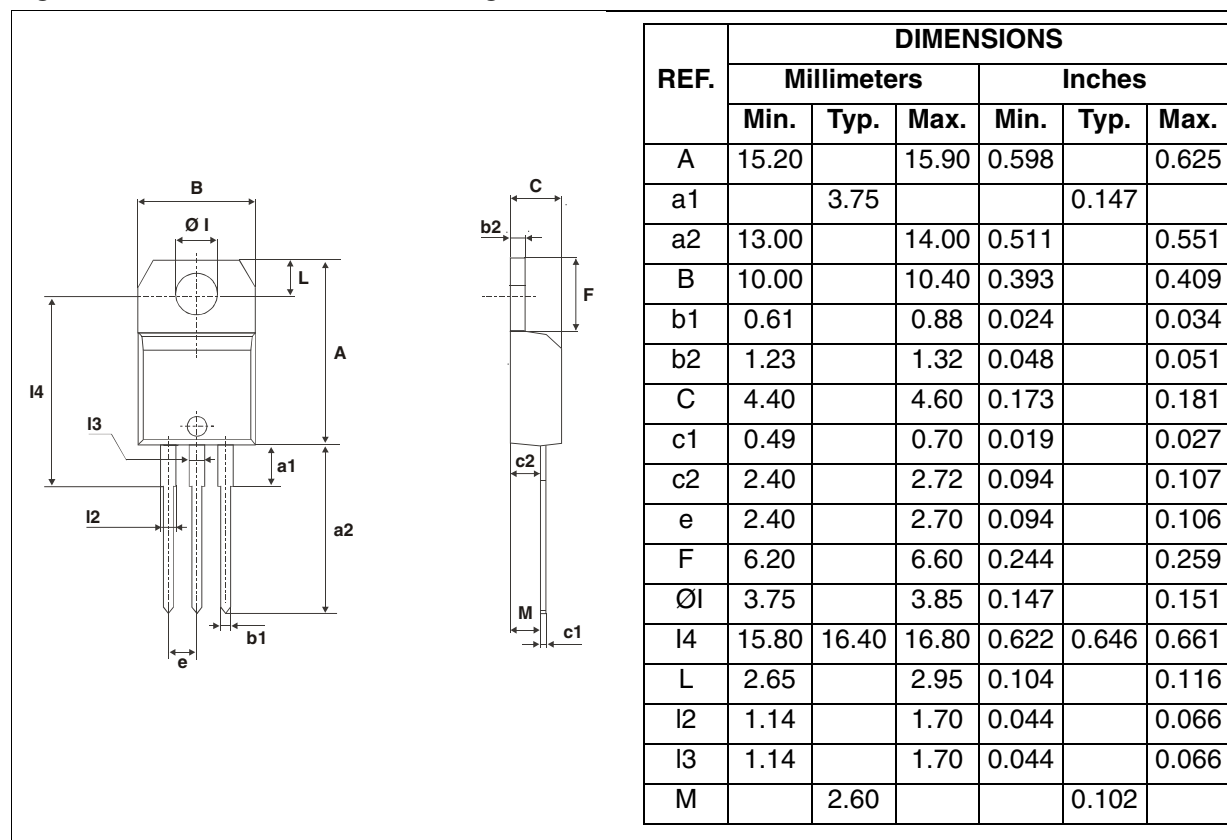


Table 8: Ordering Information

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
BTA20-600BWRG	BTA20-600BW	TO-220AB Ins.	2.3 g	50	Tube
BTA20-600CWRG	BTA20-600CW				
BTA20-700BWRG	BTA20-700BW				
BTA20-700CWRG	BTA20-700CW				

Table 9: Revision History

Date	Revision	Description of Changes
Sep-2001	1A	First issue.
08-Feb-2006	2	TO-220AB Ins. delivery mode changed from bulk to tube.

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