



YIHUA

PART NAME: BTA/B20

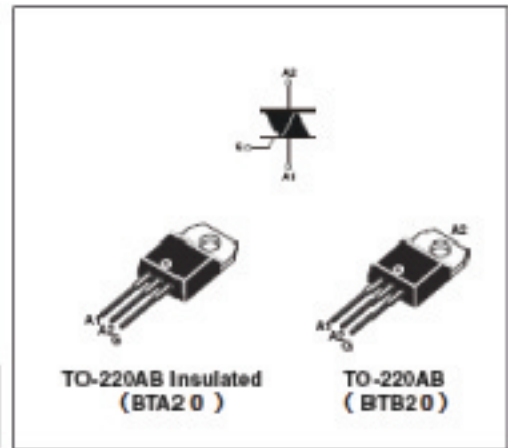
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Establishment: Carolyn

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■ 主要特点:

符号	数值	单位
IT (RMS)	20	A
V _{DRM} /V _{RRM}	600&800	V
IGT (Q1)	5~50	mA



■ 用途:

BTB/BTA20 双向可控硅系列适用于一般交流开关电路,如:固态继电器,感应马达启动控制,调温控制,调光控制,调速控制...等.

■ 极限值:

符号	参数		数值	单位
I _{T(RMS)}	RMS 通态电流	T _c =100℃	20	A
I _{TSM}	通态峰值浪涌电流	F=50Hz, t=20ms	210	A
I _t	I _t 耗散值	T _p =10ms	200	A ² s
di/dt	通态电流上升值	F=120Hz, T _j =125℃	50	A/μs
I _{GM}	门极峰值电流	TP=20μs, T _j =125℃	4	A
P _{G(AV)}	平均门极耗散功率	T _j =125℃	1	W
T _{stg}	贮存结温范围		-40~+150	℃
T _j	工作结温范围		-40~+125	℃

■ 电特性

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	

Symbol	Test Conditions	Quadrant		Value	Unit
$I_{GT}^{(1)}$	$V_D = 12\text{ V}$ $R_L = 33\ \Omega$	I - II - III - IV	MAX.	50 100	mA
V_{GT}		ALL	MAX.	1.3	
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\text{ k}\Omega$ $T_j = 125^\circ\text{C}$	ALL	MIN.	0.2	V
$I_H^{(2)}$	$I_T = 500\text{ mA}$		MAX.	80	mA
I_L	$I_G = 1.2\ I_{GT}$	I - III - IV	MAX.	70	mA
		II		160	
$dV/dt^{(2)}$	$V_D = 67\%V_{DRM}$ gate open	$T_j = 125^\circ\text{C}$	MIN.	500	V/ μs
$(dV/dt)c^{(2)}$	$(dI/dt)c = 13.3\text{ A/ms}$	$T_j = 125^\circ\text{C}$	MIN.	10	V/ μs

1. minimum I_{GT} is guaranteed at 5% of I_{GT} max.
2. for both polarities of A2 referenced to A1.

■ 静态特性:

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

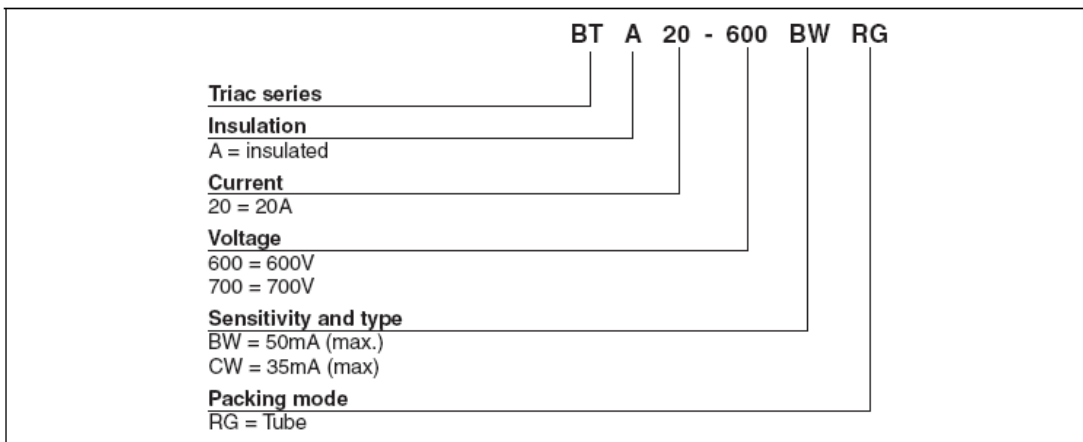
Note 1: minimum I_{GT} is guaranteed at 5% of I_{GT} max.

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

■ 热阻:

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	$^\circ\text{C/W}$

■ 命名方式:



■ 特性曲线:

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

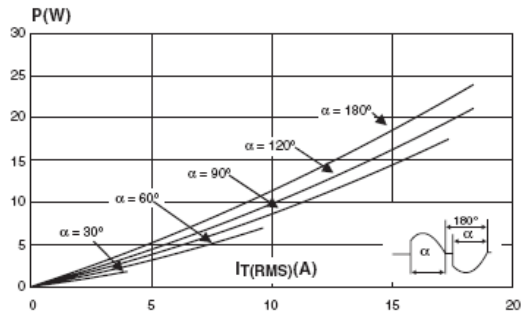


Figure 3: RMS on-state current versus case temperature (full cycle)

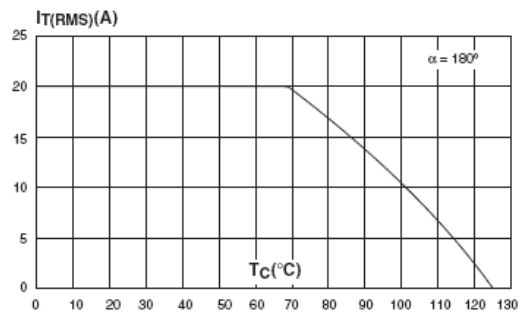


Figure 5: On-state characteristics (maximum values)

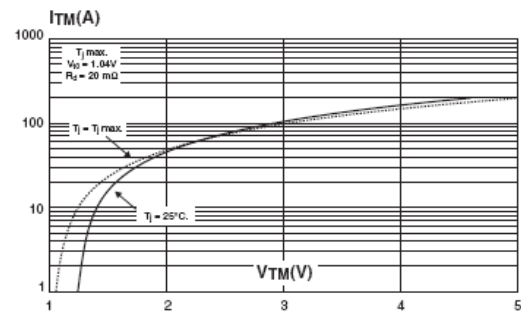


Figure 2: Correlation between maximum RMS power dissipation and maximum allowable temperatures (Tamb and Tcase) for different thermal resistances heatsink + contact

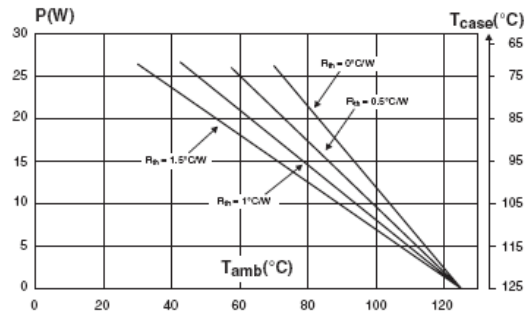


Figure 4: Relative variation of thermal impedance versus pulse duration

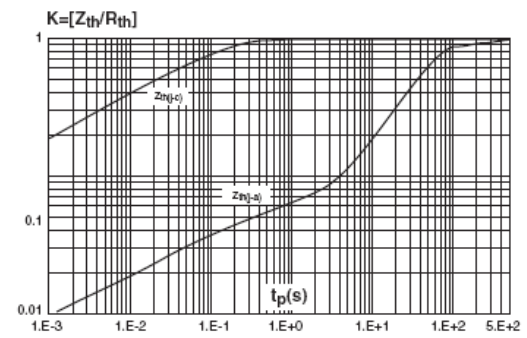
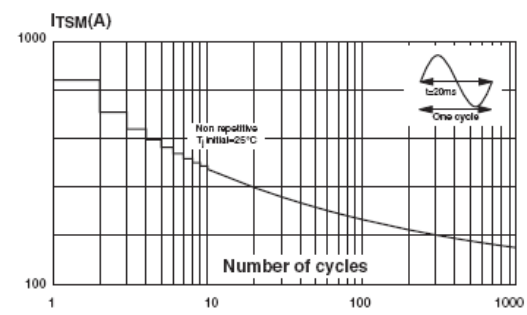


Figure 6: Non repetitive surge peak on-state current versus number of cycles



■ 特性曲线:

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

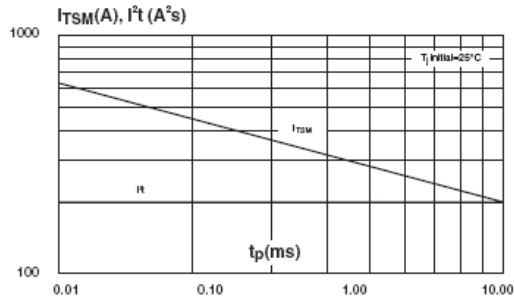
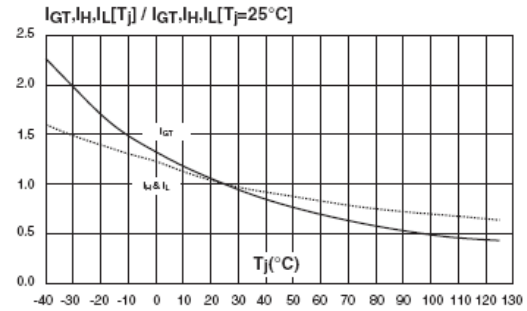


Figure 8: Relative variation of gate trigger current and holding current versus junction temperature



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		

■ TO-220AB/TO220ABInsulated 外形尺寸

