



YIHUA

PART NAME: BTA/B24

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Establishment: Carolyn

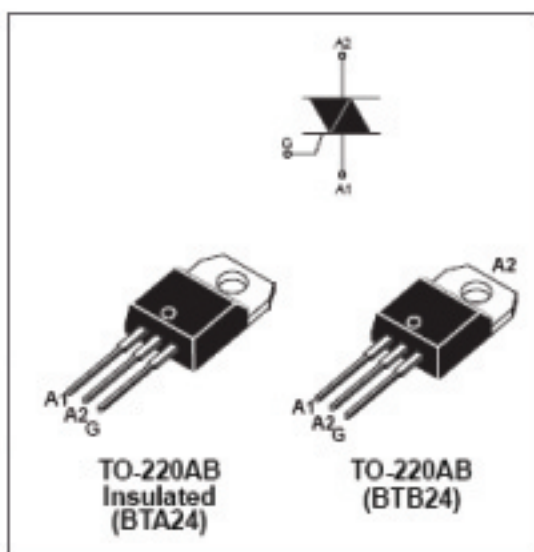
绍兴怡华电子科技有限公司

■ 主要特点:

符号	数值	单位
I_T (RMS)	25	A
V_{DRM}/V_{RRM}	600&800	V
IGT (Q1)	30~50	mA

■ 用途:

BTB/BTA24 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	$T_c=100^\circ\text{C}$	25	A
I_{TSM}	通态峰值浪涌电流	$F=50\text{Hz}, t=20\text{ms}$	250	A
I_t	I_t 耗散值	$T_p=10\text{ms}$	340	A^2s
di/dt	通态电流上升值	$F=120\text{Hz}, T_j=125^\circ\text{C}$	50	$\text{A}/\mu\text{s}$
I_{GM}	门极峰值电流	$TP=20\mu\text{s}, T_j=125^\circ\text{C}$	4	A
$P_{G(AV)}$	平均门极耗散功率	$T_j=125^\circ\text{C}$	1	W
T_{stg}	贮存结温范围		-40~+150	$^\circ\text{C}$
T_j	工作结温范围		-40~+125	$^\circ\text{C}$

■ 电特性

Symbol	Test Conditions	Quadrant		T25	BTA/BTB		Unit
				T2535	CW	BW	
$I_{GT}^{(1)}$	$V_D = 12\text{ V}$ $R_L = 33\ \Omega$	I - II - III	MAX.	35	35	50	mA
V_{GT}		I - II - III	MAX.	1.3			V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\text{ k}\Omega$ $T_j = 125^\circ\text{ C}$	I - II - III	MIN.	0.2			V
$I_H^{(2)}$	$I_T = 500\text{ mA}$		MAX.	50	50	75	mA
I_L	$I_G = 1.2 I_{GT}$	I - III	MAX.	70	70	80	mA
		II		80	80	100	
$dV/dt^{(2)}$	$V_D = 67\% V_{DRM}$ gate open	$T_j = 125^\circ\text{ C}$	MIN.	500	500	1000	V/ μs
$(dI/dt)_C^{(2)}$	Without snubber	$T_j = 125^\circ\text{ C}$	MIN.	13	13	22	A/ms

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
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	
$V_T^{(1)}$	$I_{TM} = 35\text{ A}$	$t_p = 380\ \mu\text{s}$	$T_j = 25^\circ\text{ C}$	MAX.	1.55	V
$V_{to}^{(1)}$	Threshold voltage		$T_j = 125^\circ\text{ C}$	MAX.	0.85	V
$R_d^{(1)}$	Dynamic resistance		$T_j = 125^\circ\text{ C}$	MAX.	16	m Ω
I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM}$		$T_j = 25^\circ\text{ C}$	MAX.	5	μA
		$T_j = 125^\circ\text{ C}$	3		mA	

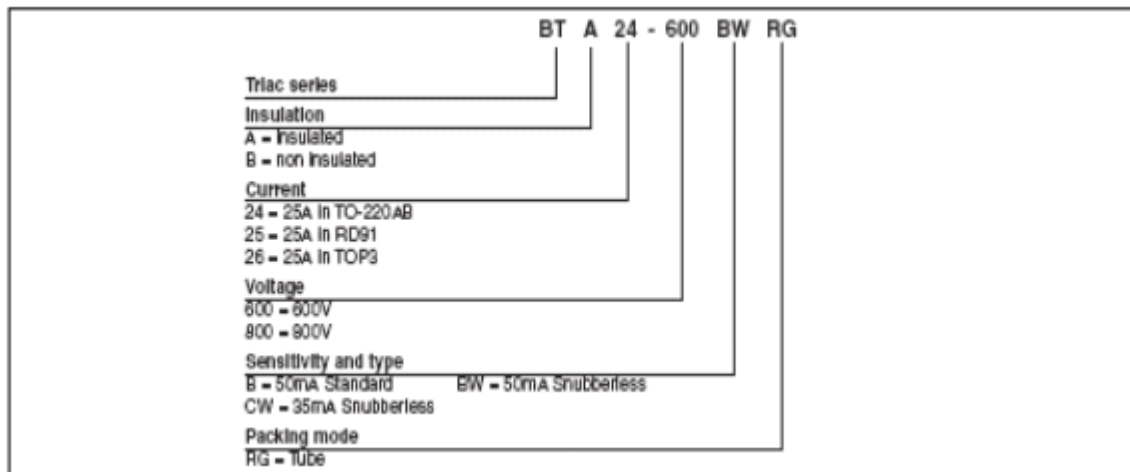
1. for both polarities of A2 referenced to A1.

■ 热阻:

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case (AC)	D ² PAK / TO-220AB	0.8	$^\circ\text{ C/W}$
		RD91 (Insulated) / TOP3 Insulated	1.1	
		TO-220AB Insulated	1.7	
$R_{th(j-a)}$	Junction to ambient	(¹)S = 1 cm ² D ² PAK	45	$^\circ\text{ C/W}$
		TOP3 Insulated	50	
		TO-220AB / TO-220AB Insulated	60	

1. S = Copper surface under tab.

■ 命名方式:



■ 特性曲线:

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

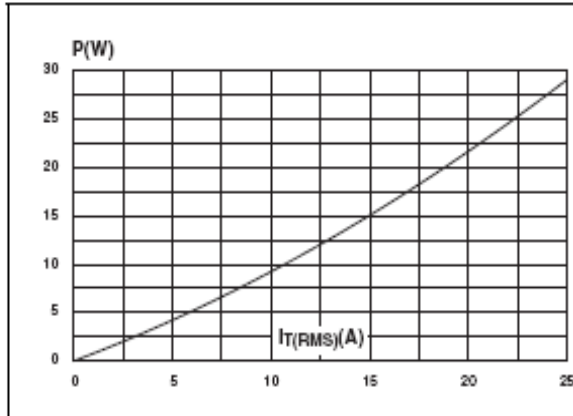


Figure 2. RMS on-state current versus case temperature (full cycle)

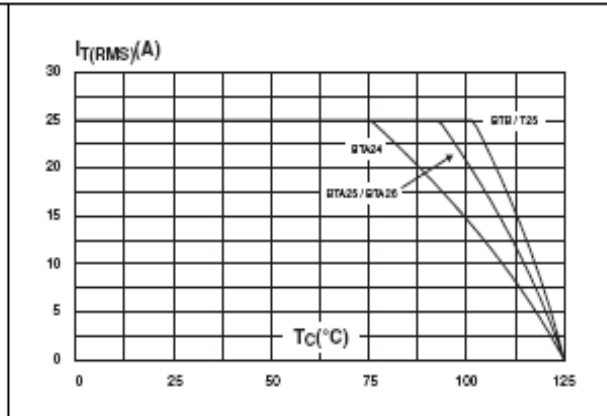


Figure 3. D²PAK RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35μm) (full cycle)

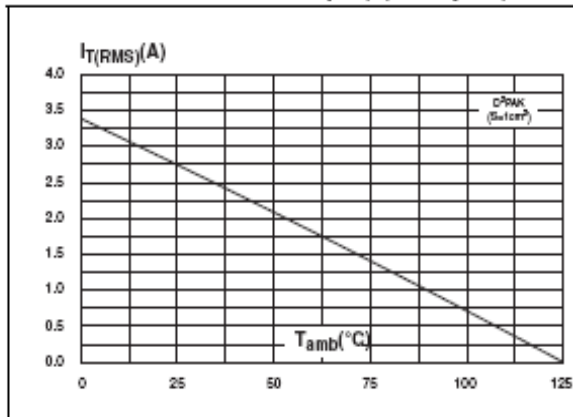


Figure 4. Relative variation of thermal impedance versus pulse duration

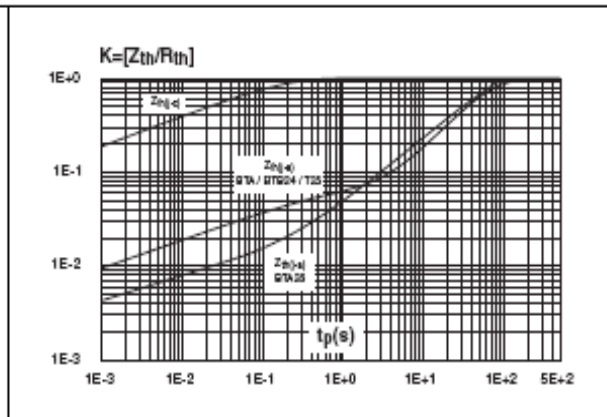


Figure 5. On-state characteristics (maximum values)

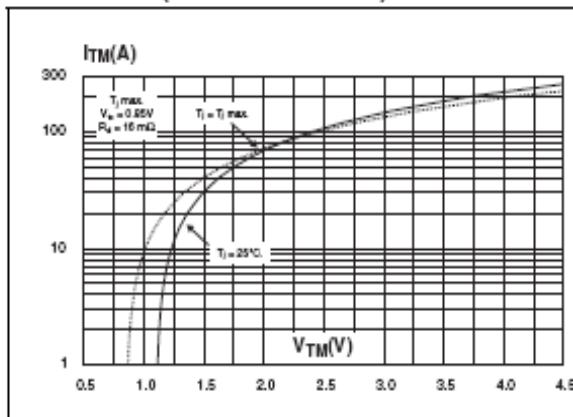
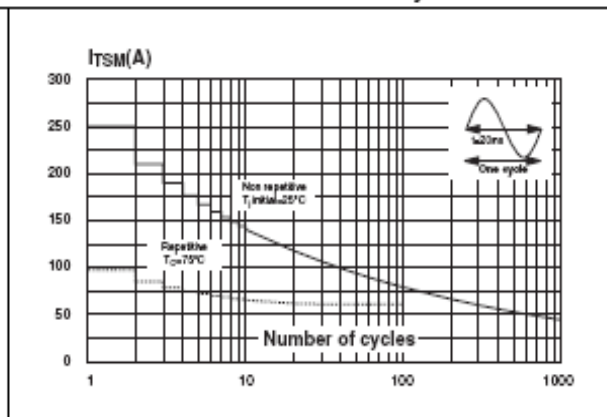


Figure 6. Surge peak on-state current versus number of cycles



■ 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

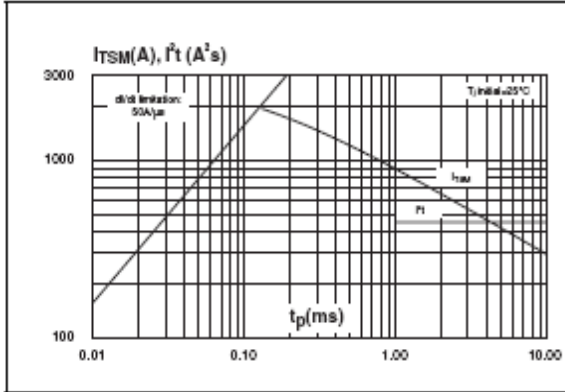


Figure 8. Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values)

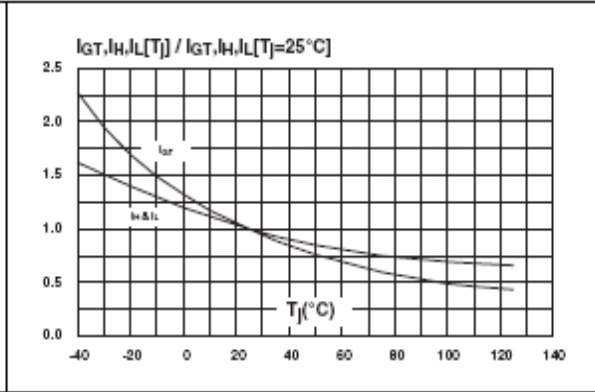


Figure 9. Relative variation of critical rate of decrease of main current versus $(dV/dt)_c$ (typical values)

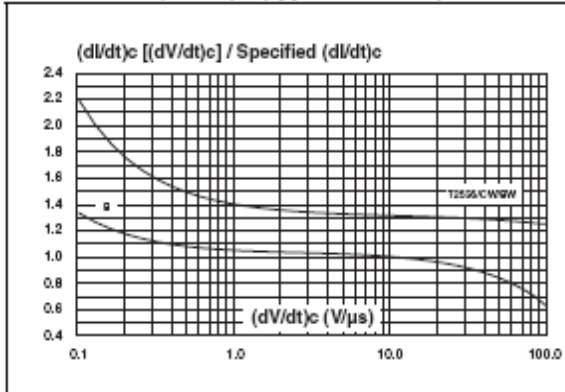


Figure 10. Relative variation of critical rate of decrease of main current versus $(dV/dt)_c$

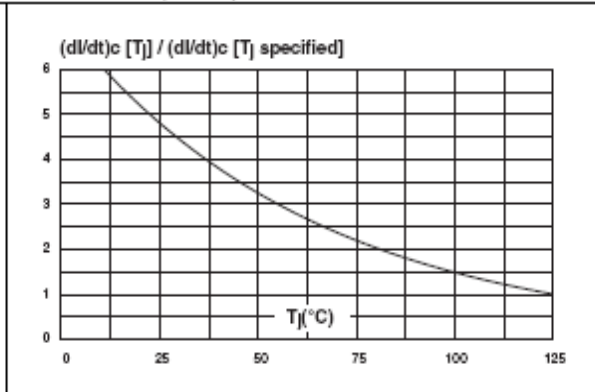
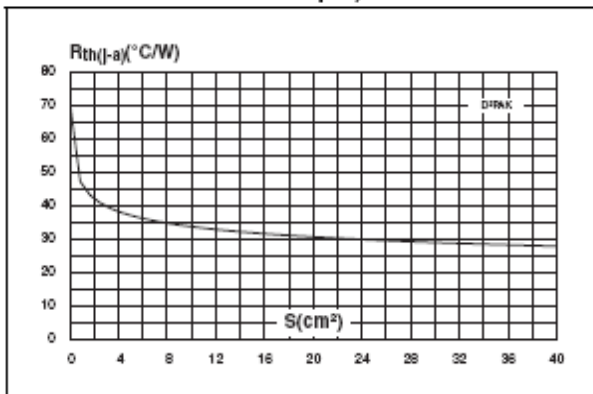


Figure 11. D²PAK Thermal resistance junction to ambient versus copper surface under tab (printed circuit board FR4, copper thickness: 35 μm)



■ TO-220AB/TO220ABInsulated 外形尺寸

