



BT138/BTA12/BTB12 Series

12A Triacs

三象限

3quadrants

主要描述

GENERAL DESCRIPTION

BT138/BTA12/BTB12 双向可控硅采用穿通隔离台面结构，复合玻璃钝化PN结表面保护工艺技术，dv/dt高，可靠性高，适用于调温调速调光，电机控制，变频电路等其它开关控制电路。

BT138/BTA12/BTB12 Triacs is fabricated using separation diffusion processes , the junction termination areas are passivated with glass. Thanks to highly dv/dt and reliability,the Triacs series is suitable for domestic lighting , heating , motor speed controllers, frequency conversion and other switch controllers.

主要特性

MAIN FEATURES

参数 Parameter	数值 Value	单位 Unit
V_{DRM}/V_{RRM}	600/800	V
$I_{T(RMS)}$	12	A
$I_{GT(III)}$	2-50	mA

应用领域

APPLICATIONS

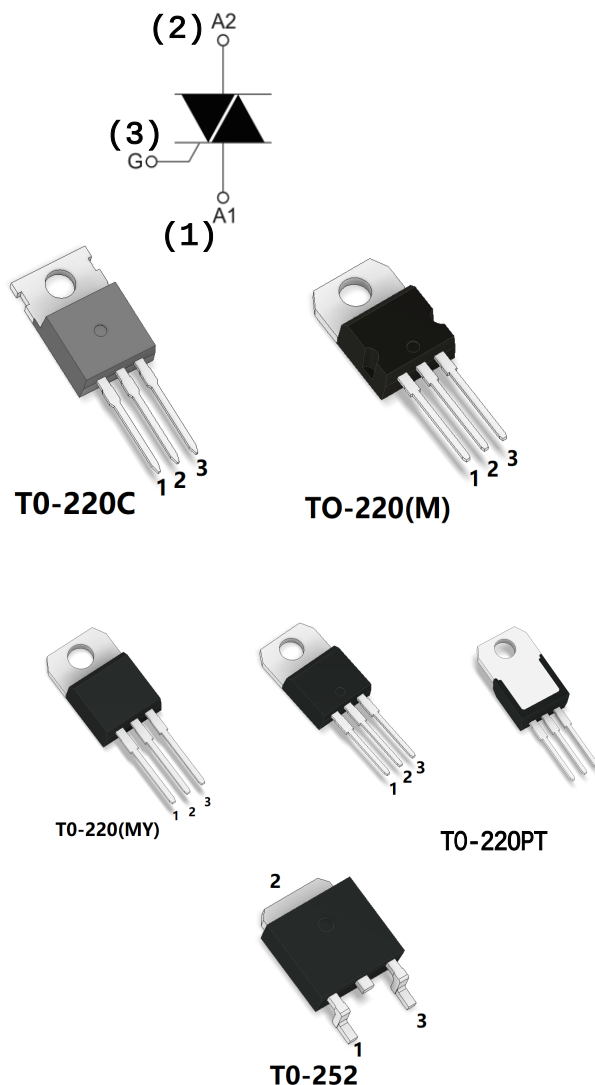
主要应用于调光、控温、马达控制。

domestic lighting ,heating and motor speed controllers.

封装形式

PACKAGE

TO-220C,TO-220M,TO-220MY,TO-220PT,TO-252





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极限参数(除非另有规定, $T_j=25^\circ\text{C}$) ABSOLUTE RATINGS

($T_j=25^\circ\text{C}$, unless otherwise specified)

符号 Symbol	参数 Parameter			数值 Value	单位 Unit
$I_{T(RMS)}$	RMS 通态电流 RMS on-state current(full sine wave)		$T_c \leq 102^\circ\text{C}$	12	A
I_{TSM}	通态峰值浪涌电流 Non repetitive peak on-state current(full cycle)	$f=50\text{HZ}$	$t=20\text{ms}$	120	A
I_{2t}	I_{2t} 耗散值 I_{2t} value for fusing		$t=10\text{ms}$	78	A_2s
di/dt	通态电流上升率 Critical rate of rise of on-state current($I_G=2 \times I_{GT}, tr \leq 100\text{ns}$)	$f=120\text{HZ}$	$T_j=125^\circ\text{C}$	50	A/us
I_{GM}	门极峰值电流 Peak gate current	$t_p=20\mu\text{s}$	$T_j=125^\circ\text{C}$	4	A
$P_{G(AV)}$	平均门极耗散功率 Average gate power dissipation		$T_j=125^\circ\text{C}$	1	w
T_{stg}	贮存结温范围 Storage junction temperature range			-40- +150	$^\circ\text{C}$
T_j	工作结温范围 Operating junction temperature range			-40- +150	$^\circ\text{C}$

电参数(除非另有规定, $T_j=25^\circ\text{C}$) ELECTRICAL CHARACTERISTICS

($T_j=25^\circ\text{C}$, unless otherwise specified)

参数 Parameter	符号 Symbol	象限 Quadrant	规范值 Value				单位 Unit	测试条件 Test Conditions
			TW	SW	CW	BW		
触发电流 Gate trigger current	I_{GT}	I ~ III	≤ 5	≤ 10	≤ 35	≤ 50	mA	$V_D=12V, I_T=0.1A$
		IV						
触发电压 Gate trigger voltage	V_{GT}	I ~ III	≤ 1.3				V	$V_D=12V, I_T=0.1A$
维持电流 Holding current	I_H	I ~ III	≤ 15	≤ 20	≤ 40	≤ 60	mA	$V_D=12V, I_T=0.1A$
擎住电流 Latching current	I_L		≤ 30	≤ 40	≤ 60	≤ 80	mA	$V_D=12V, I_T=0.1A$
电压上升率 Rise of off- state voltage	dv/dt		≥ 100	≥ 200	≥ 500	≥ 1000	V/ μS	$V_D=2/3V_{DRM}$
通态压降 Peak on-state voltage	V_{TM}		≤ 1.50				V	$I_T=18A$
断态漏电流 Peak repetitive forward blocking current	$I_{DRM} \quad I_{RM}$		≤ 5				μA	$V_{RRM}=V_{DRM}, T_j=25^\circ\text{C}$
			≤ 0.5				mA	$V_{RRM}=V_{DRM}, T_j=125^\circ\text{C}$



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热阻特性 THERMAL RESISTANCES

符号 Symbol	参数 Parameter		数值 Value	单位 Unit
Rth(j-c)	Junction to case(AC) 芯片对管壳热阻	T0-220C/MY/M	1.3	℃/W
		T0-220PT	2.3	
		T0-252	2.4	

图1 最大耗散功率与RMS通态电流关系
Fig.1.Maximum Power Dissipation Versus

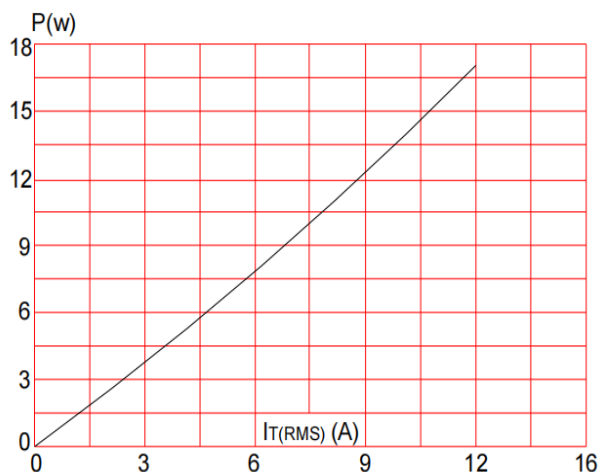


图2 IGT、IH、IL相对值（相对于25℃）与结温关系Fig.2.Relative Variation Of Gate Trigger Current Holding Current And Latching Current Versus Junction Temperature(Typical Value)

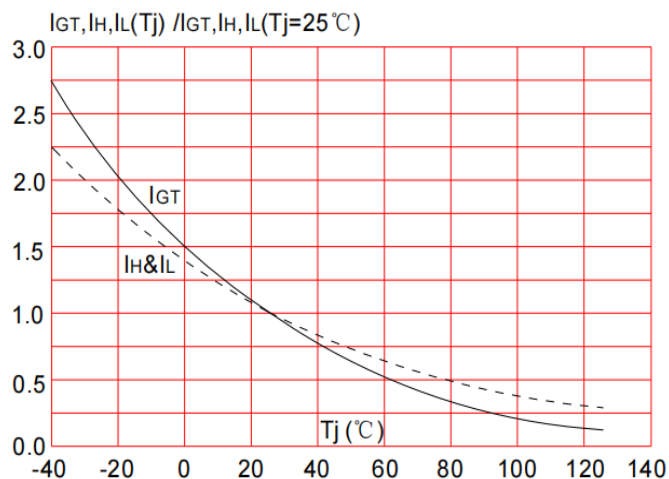


图3 通态特性
Fig.3.On-State Characteristics

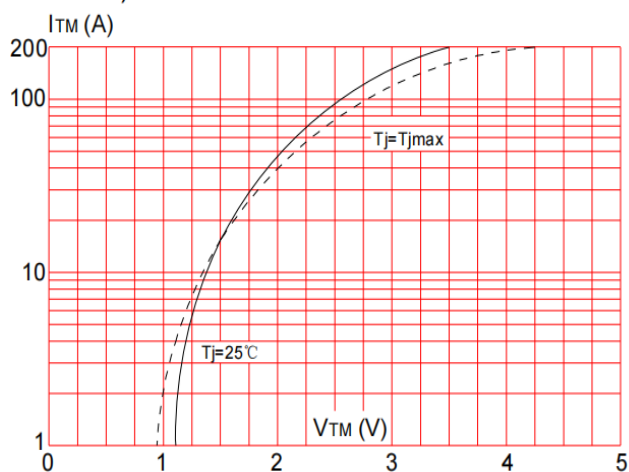
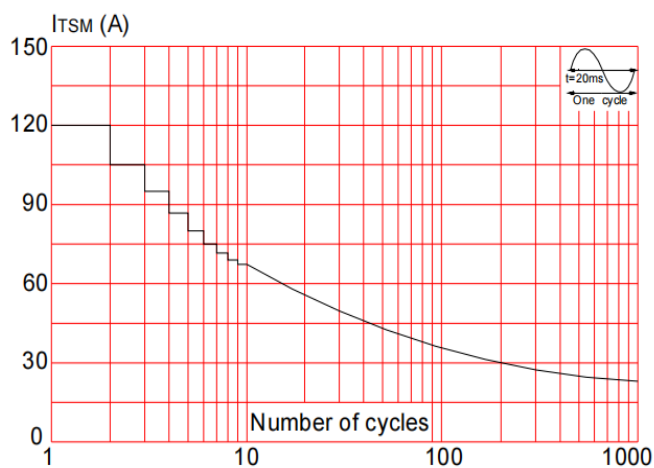


图4 通态浪涌峰值电流与周期数关系
Fig.4.Surge Peak On-state Current Versus Number of cycle at 50Hz



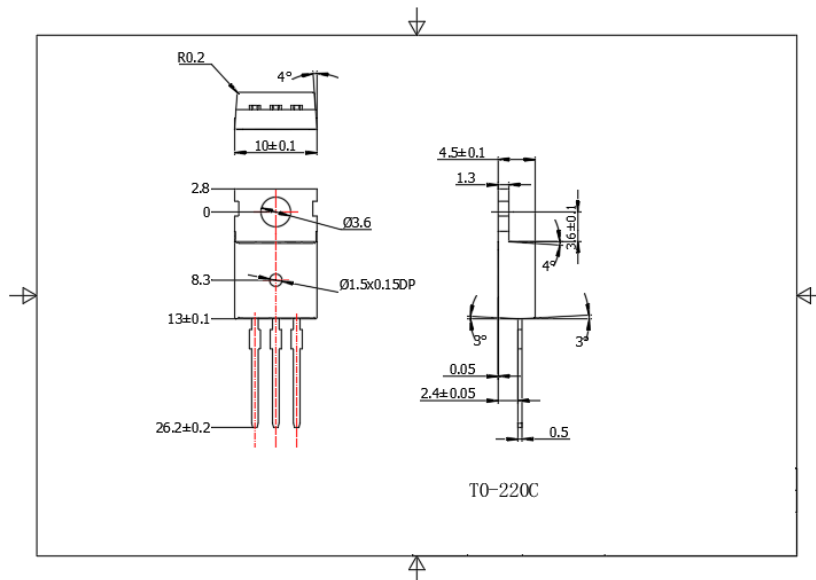


BT138/BTA12/BTB12 Series

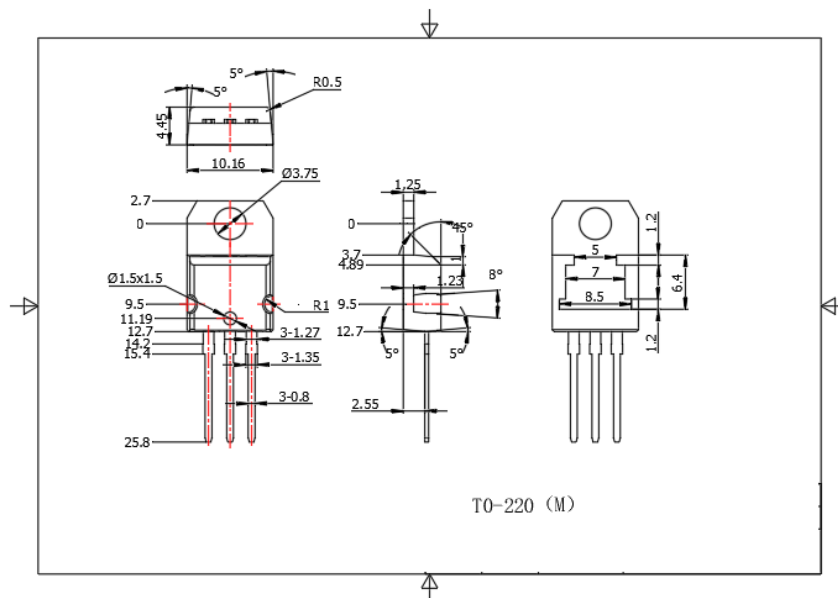
12A Triacs

封装尺寸 PACKAGE MECHANICAL DATA

T0-220C



T0-220M



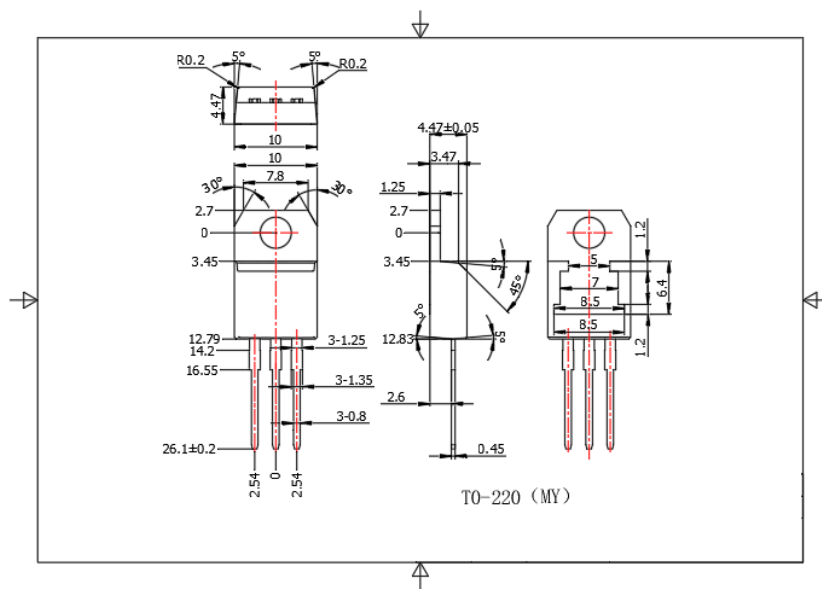


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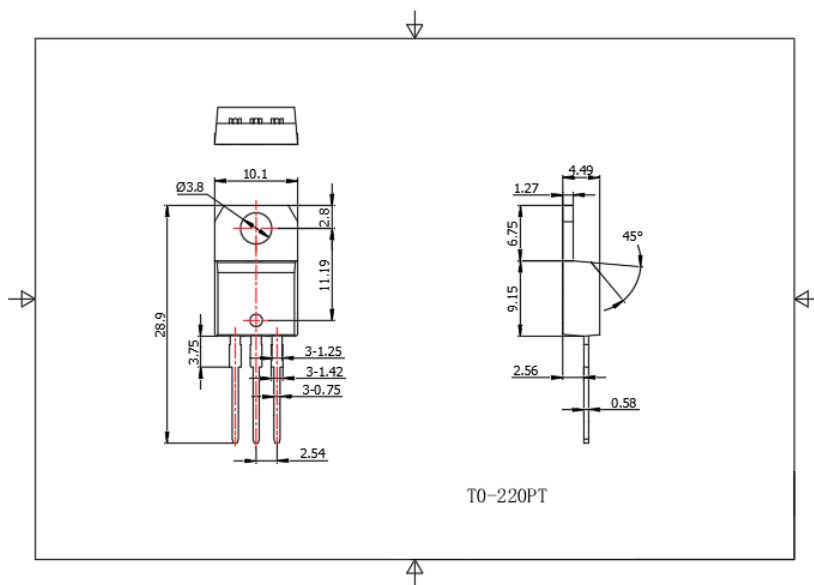
12A Triacs

封装尺寸 PACKAGE MECHANICAL DATA

T0-220MY



T0-220PT





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封装尺寸 PACKAGE MECHANICAL DATA

T0-252

