

TO-220AB Silicon Controlled Rectifier

MAIN CHARACTERISTICS

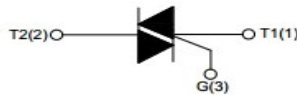
$I_{T(RMS)}$		12A
V_{DRM}/V_{RRM}	BTA12-600(T/S/C)	600V
	BTA12-800(T/S/C)	800V
V_{TM}		1.55V

FEATURES

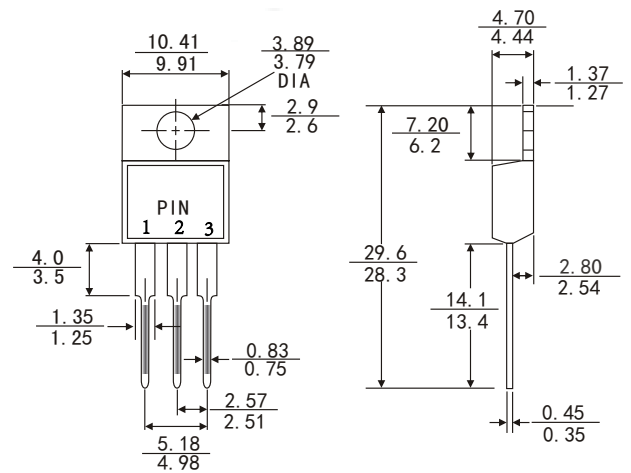
- NPNPN 5-layer Structure TRIACs
- Mesa Glass Passivated Technology
- Multi Layers Metal Electrodes
- High Junction Temperature
- Good Commutation Performance
- High dV/dt and dI/dt
- Insulating Voltage=2500V_(RMS)

SYMBOL

- 1.MAIN TERMINAL 1
2.MAIN TERMINAL 2
3.GATE



Unit: mm



ABSOLUTE RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

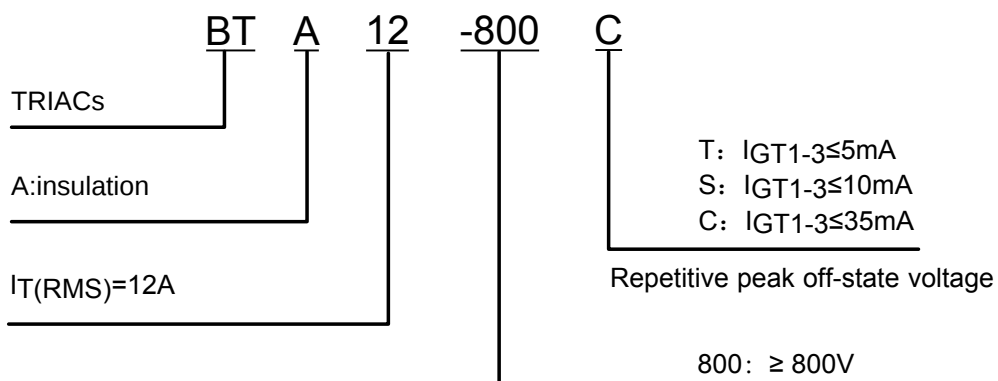
Symbol	Parameter	Test condition		Value		Unit
V_{DRM}/V_{RRM}	Repetitive peak off-state voltage	$T_j=25^\circ\text{C}$	BTA12-600(T/S/C)	600		V
			BTA12-800(T/S/C)	800		V
$I_{T(RMS)}$	RMS on-state current	TO-220AB($T_c \leq 09^\circ\text{C}$)Fig. 1,2		12		A
I_{TSM}	Non repetitive surge peak on-state current	Full sine wave , $T_j(\text{init})=25^\circ\text{C}$, $t_p=20\text{ms}$; Fig. 3,5		120		A
I^2t	I^2t value	$t_p=10\text{ms}$		78		A ² s
dI_T/dt	Critical rate of rise of on-state current	$I_G=2 \cdot I_{GT}$, $t_r \leq 10\text{ns}$, $F=120\text{Hz}$, $T_j=125^\circ\text{C}$		I - II - III	50	A/ μs
I_{GM}	Peak gate current	$t_p=20\mu\text{s}$, $T_j=125^\circ\text{C}$		4		A
$P_{G(AV)}$	Average gate power	$T_j=125^\circ\text{C}$		1		W
T_{STG}	Storage temperature			-40~+150		$^\circ\text{C}$
T_j	Operating junction temperature			-40~+125		

ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test condition		Value			Unit
				T	S	C	
I _{GT}	Gate trigger current	V _D =12V, R _L =30Ω,	I - II -III	≤5	≤10	≤35	mA
V _{GT}	Gate trigger voltage	T _j =25℃, Fig. 6	I - II -III	≤1.3			V
V _{GD}	Non-triggering gate voltage	V _D =V _{DRM} , T _j =125℃		≥0.2			V
I _H	Holding current	I _T =100mA, Fig. 6		≤10	≤15	≤35	mA
I _L	Latching current	I _G =1.2I _{GT} , Fig. 6	I -III	≤10	≤25	≤50	mA
			II	≤15	≤30	≤60	mA
dV _D /dt	Critical rate of rise of off-state	V _D =67%V _{DRM} , Gate Open T _j =125℃		≥20	≥40	≥400	V/μs
V _{TM}	On-state Voltage	I _{TM} =17A ,tp=380μs , Fig. 4		≤1.55			V
I _{DRM} / I _{RRM}	Repetitive peak off-state current	V _D =V _{DRM} /V _{RRM} , T _j =25℃		≤5	≤5	≤5	μA
		V _D =V _{DRM} /V _{RRM} , T _j =125℃		≤1.0	≤1.0	≤1.0	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
Rth (j-c)	Junction to case (AC)	TO-220AB	2.5	°C/W
Rth (j-a)	Junction to ambient	TO-220AB	60	°C/W

PART NUMBER


CHARACTERISTICS CURVES

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

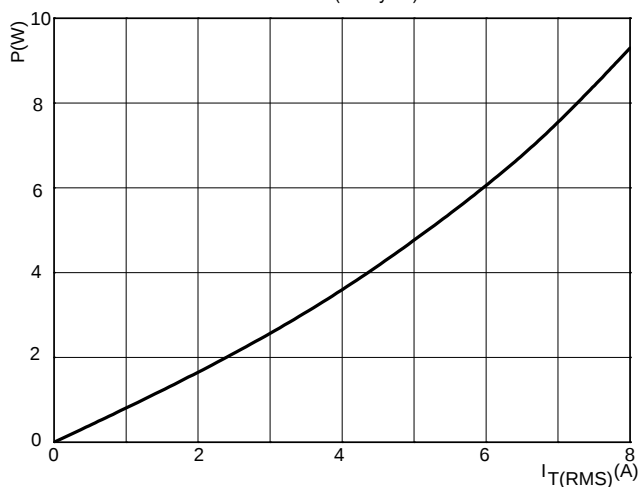


FIG.2: RMS on-state current versus case temperature (full cycle)

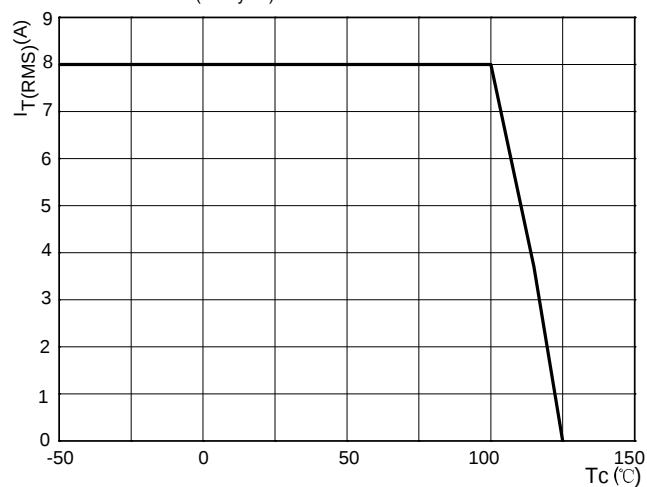


FIG.3: Surge peak on-state current versus number of cycles

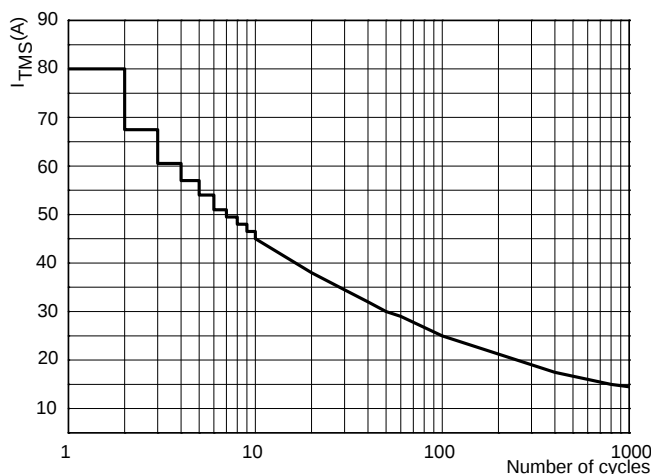


FIG.4: On-state characteristics (maximum values)

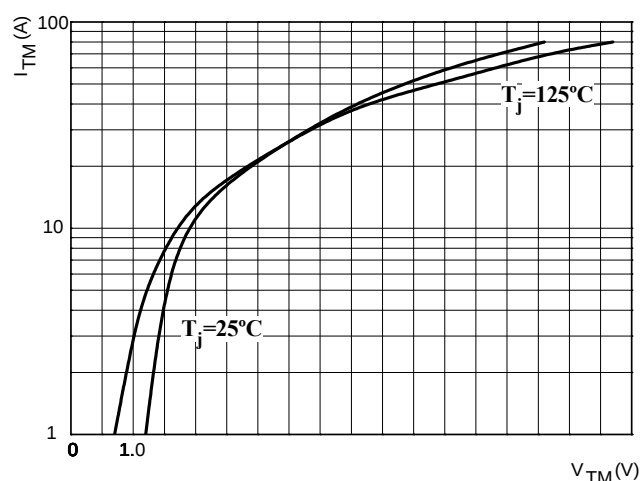


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$

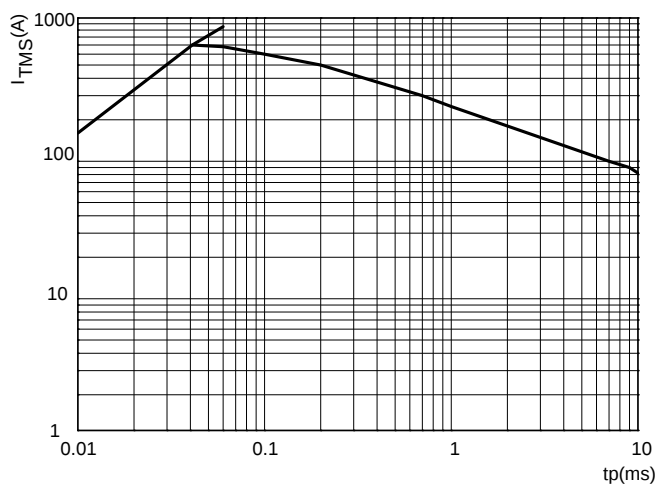


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)

