TO-220AB Silicon Controlled Rectifier

MAIN CHARACTERISTICS

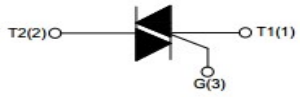
$I_{T(RMS)}$		16A
V_{DRM}/V_{RRM}	BTA16-600(T/S/C)	600V
	BTA16-800(T/S/C)	800V
V_{TM}		1.55V

FEATURES

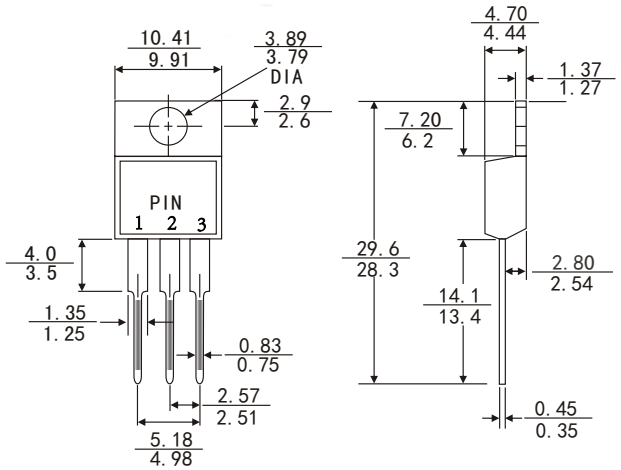
- NPNPN 5-layer Structure TRIACs
- Mesa Glass Passivated Technology
- Multi Layers Metal Electrodes
- High Junction Temperature
- Good Commutation Performance
- High dV/dt and dI/dt
- Insulating Voltage=2500V(RMS)

■ SYMBOL

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



Unit: mm



ABSOLUTE RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Test condition		Value		Unit
V_{DRM}/ V_{RRM}	Repetitive peak off-state voltage	T_j=25℃	BTA16-600(S/C/B)	600		V
			BTA16-800(S/C/B)	800		V
$I_{T(RMS)}$	RMS on-state current	TO-220AB(T_C≤85 ℃)，Fig. 1,2		16		A
I_{TSM}	Non repetitive surge peak on-state current	Full sine wave，T_j(init)=25℃, tp=20ms; Fig. 3,5		160		A
I^2t	I^2t value	tp=10ms		140		A^2s
dI_T/dt	Critical rate of rise of on-state current	I_G=2*I_{GT}, tr≤10ns, F=120Hz, T_j=125℃		Ⅰ-Ⅱ-Ⅲ	50	A/μs
I_{GM}	Peak gate current	tp=20μs, T_j=125℃		4		A
$P_{G(AV)}$	Average gate power	T_j=125℃		1		W
T_{STG}	Storage temperature			-40~+150		℃
T_j	Operating junction temperature			-40~+125		℃

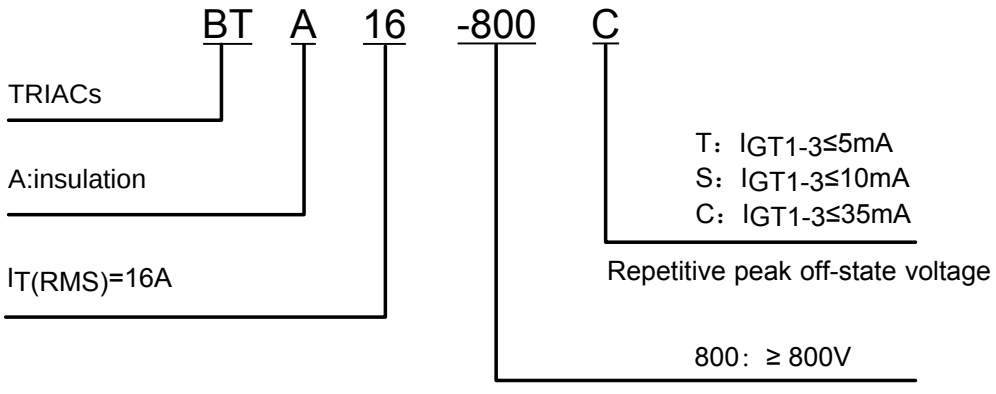
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

Symbol	Parameter	Test condition		Value			Unit
				SW	CW	BW	
I_{GT}	Gate trigger current	V_D=12V, R_L=33Ω, T_j=25℃, Fig. 6	Ⅰ-Ⅱ-Ⅲ	≤10	≤35	≤50	mA
V_{GT}	Gate trigger voltage		Ⅰ-Ⅱ-Ⅲ	≤1.3			V
V_{GD}	Non-triggering gate voltage	VD=VDRM, T_j=125℃		≥0.2			V
I_H	Holding current	I_T=500mA, Fig. 6		≤15	≤30	≤50	mA
I_L	Latching current	I_G=1.2I_{GT}, Fig. 6	Ⅰ-Ⅲ	≤25	≤50	≤70	mA
			Ⅱ	≤30	≤60	≤80	mA
dV_D/dt	Critical rate of rise of off-state	V_D=67%V_{DRM}, Gate Open T_j=125℃		≥40	≥500	≥1000	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	2.3	℃/W
Rth (j-a)	Junction to ambient	TO-220AB	60	℃/W

PART NUMBER



CHARACTERISTICS CURVES

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

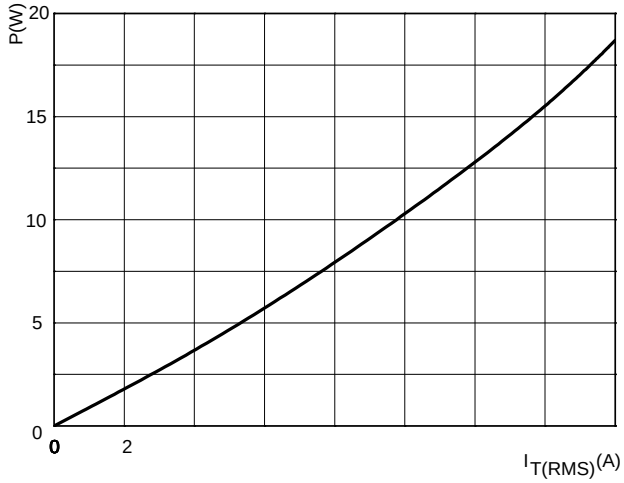


FIG.2: RMS on-state current versus case temperature (full cycle)

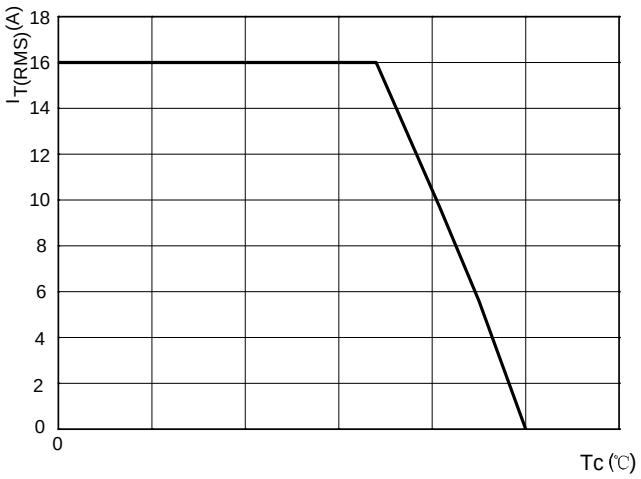


FIG.3: Surge peak on-state current versus number of cycles

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

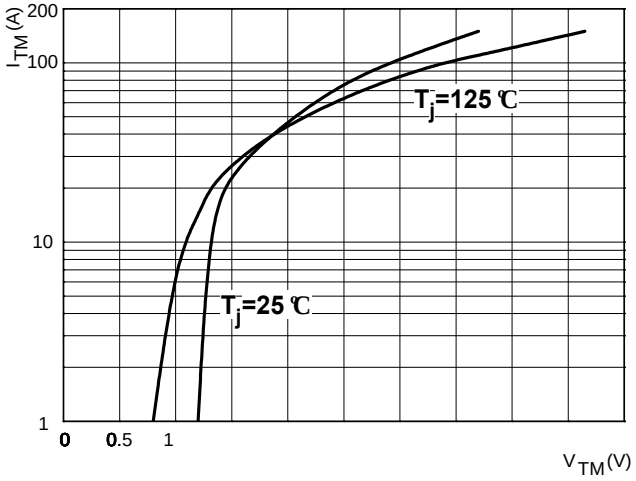


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms

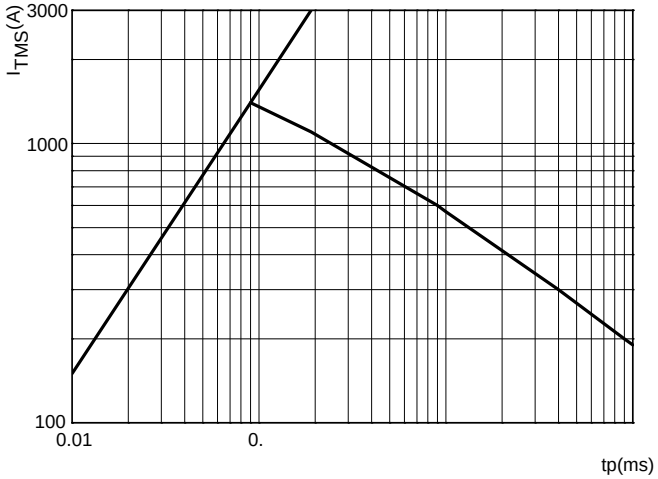


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)