Four quadrant Triacs BTA16-800C

1、Description

BTA16 series triacs, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interface. With high commutation performances, 4 quadrants products especially recommended for use on inductive load.

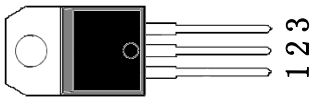
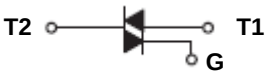
2、Applications

- Motor control
- Industrial and domestic lighting
- Heating
- Static switching

3、Features

- Blocking voltage to 800 V
- On-state RMS current to 16 A
- Ultra low gate trigger current
- Low cost package.

4、Pinning information

PIN	Description	Simplified outline	Symbol
1	main terminal 1(T1)	 TO-220A	
2	main terminal 2(T2)		
3	gate (G)		

5、Quick reference data

SYMBOL	PARAMETER	MAX	UNIT
V_{DRM} V_{RRM}	Repetitive peak off-state voltages	800	V
$I_{T(RMS)}$	RMS on-state current	16	A
I_{TSM}	Non-repetitive peak on-state current	160	A

6、Thermal characteristics

SYMBOL	PARAMETER		Value	UNIT
Rth(j-c)	junction to case(AC)	TO-220A	3.9	°C/W

7、Limiting value

Limiting values in accordance with the Maximum System(IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V_{DRM} V_{RRM}	Repetitive peak off-state voltages		-	800	V
$I_{T(RMS)}$	RMS on-state current	Full Cycle Sine Wave 50 to 60 Hz (TC = 86°C)	-	16	A
I_{TSM}	Non-repetitive peak Surge current	One Full cycle, 60 Hz, T_J = +110°C	-	160	A
I^2t	I^2t for fusing	t =8.3ms	-	128	A^2s
I_{GM}	Peak gate current	Pulse Width ≤ 1.0 μs, TC = 85°C	-	4	A
P_{GM}	Peak gate power	Pulse Width ≤1.0 μs, TC = 85°C	-	5	W
$P_{G(AV)}$	Average gate power	Pulse Width ≤1.0 μs, TC = 85°C	-	1	W
T_{stg}	Storage temperature		-40	150	°C
T_j	Operating junction temperature		-40	125	°C

8、Characteristics

T_J = 25℃ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
I_{GT}	Gate trigger current	V_D = 12 V; I_T = 0.1A T2+ G+ T2+ G- T2- G- T2- G+	 - - - -	 - - - -	 25 25 25 50	 mA mA mA mA
I_L	Latching current	V_D = 12 V; I_{GT} = 0.1A T2+ G+ T2+ G- T2- G- T2- G+	 - - - -	 - - - -	 50 80 50 50	 mA mA mA mA
I_H	Holding current	Main Terminal Voltage = 12 Vdc, Gate Open, Initiating Current ≤1 Adc T_J = 25°C	-	-	40	mA
V_{TM}	On-state voltage	I_{TM} = 22.5A,tp=380us	-	-	1.65	V
V_{GT}	Gate trigger voltage (Continuous dc)	Main Terminal Voltage = 12 Vdc, R_L = 100 Ohms, T_J = –40°C All Quadrants	-	-	1.5	V
V_{GD}	Gate Non–Trigger Voltage	VD=VDRM Tj=125℃ RL=3.3KΩ	0.2	-	-	V
Dynamic Characteristics						
dV/dt	Critical rate of rise of off-state voltage	V_{DM} = 67% $V_{DRM(max)}$; T_j = 125 °C; Exponential wave form; RGK=1KΩ	200	-	-	V/μs

9、Electrical Characteristics Curve

FIG.1 Maximum power dissipation versus RMS on-state current

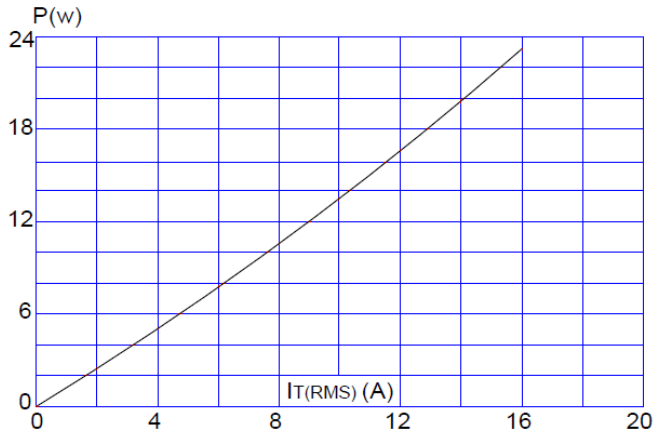


FIG.2: RMS on-state current versus case temperature

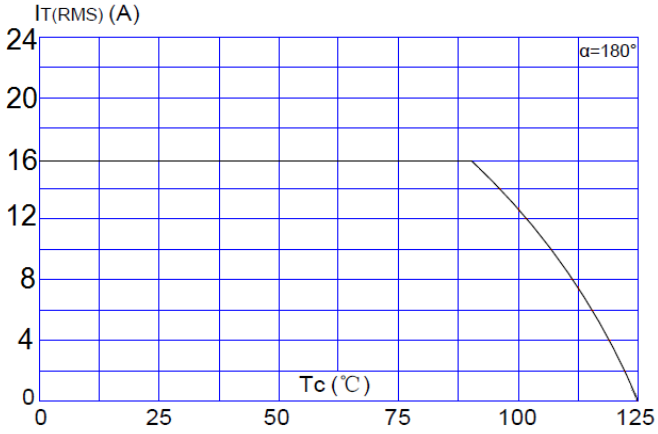


FIG.3: Surge peak on-state current versus number of cycles

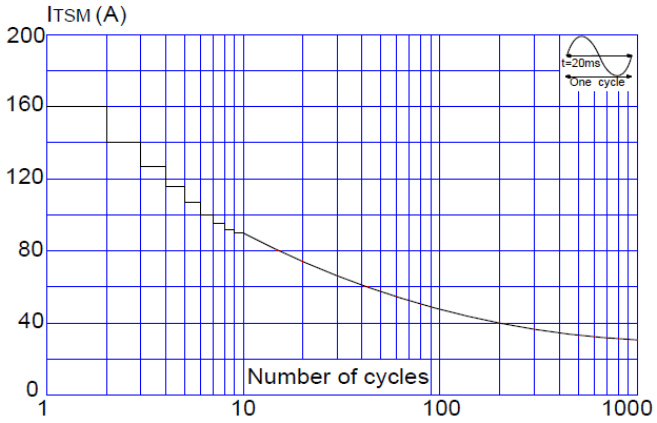


FIG.4: On-state characteristics (maximum values)

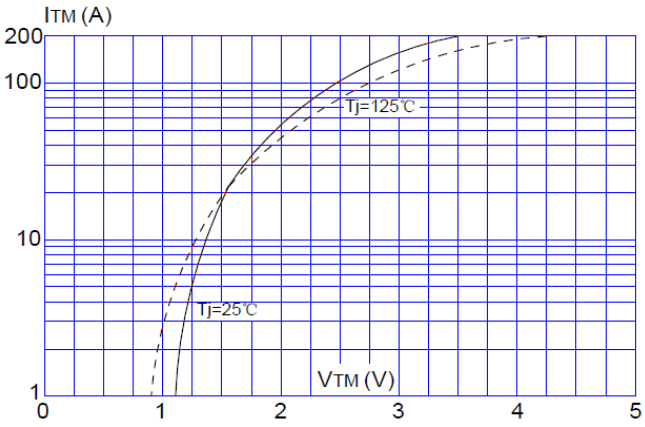


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I^2t (dI/dt < 50A/μs)

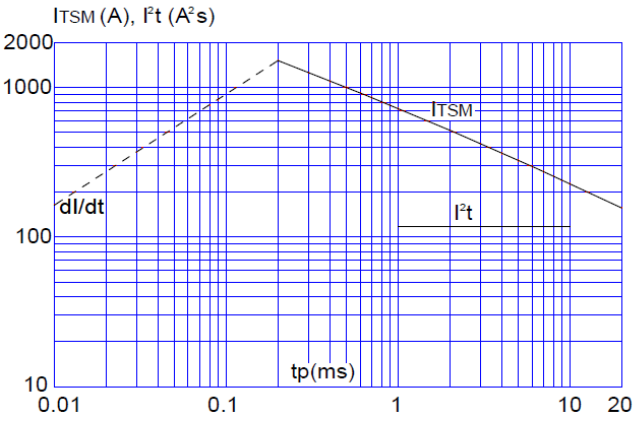
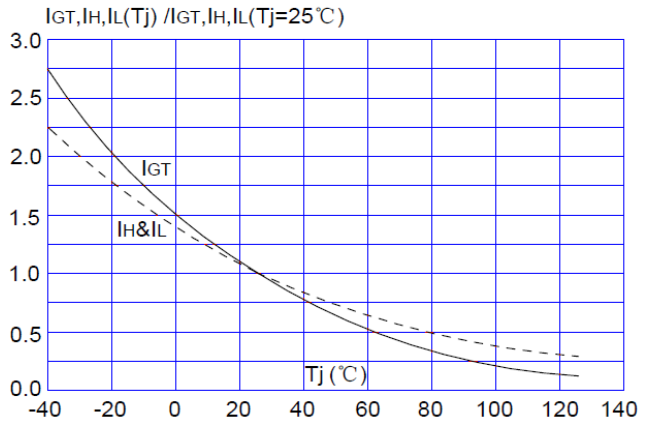
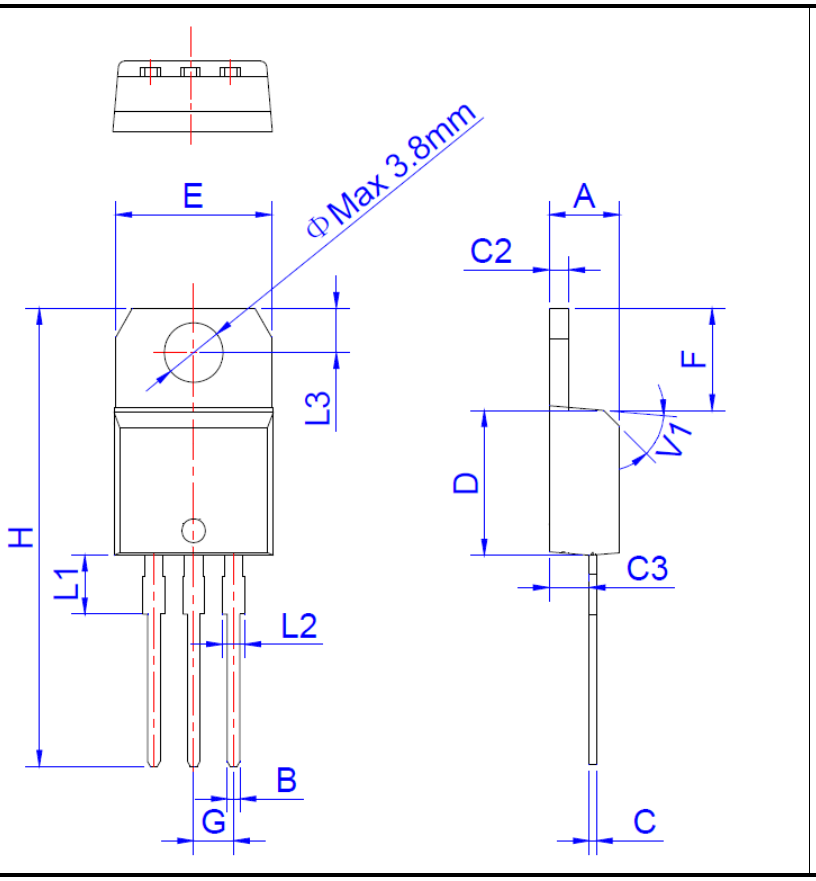


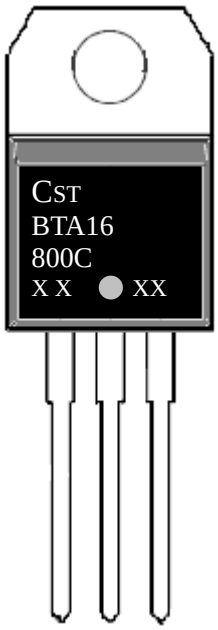
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



10、Package outline (TO-220A Ins)



Marking:



DIM	Milimeters			Inches		
	Min	Type	Max	Min	Type	Max
A	4.40	-	4.60	0.173	-	0.181
B	0.71	-	0.91	0.028	-	0.036
C	0.40	-	0.65	0.016	-	0.026
C2	1.25	-	1.35	0.049	-	0.053
C3	2.40	-	2.72	0.094	-	0.107
D	8.60	-	9.70	0.339	-	0.382
E	9.80	-	10.4	0.386	-	0.409
F	6.35	-	6.75	0.250	-	0.266
G		2.54			0.1	
H	28.0	-	29.8	1.102	-	1.173
L1		3.75			0.148	
L2	1.14	-	1.70	0.045	-	0.067
L3	2.65	-	2.95	0.104	-	0.116
V1		45°			45°	