

## 1、Description

Glass passivated high commutation triacs in a full pack, plastic envelope intended for use in circuits where high static and dynamic  $dV/dt$  and high  $dI/dt$  can occur. These devices will commute the full rated rms current at the maximum rated junction temperature, without the aid of a snubber.

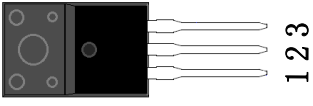

## 2、Applications

- 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-220F	
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	140	A

## 6、Thermal characteristics

SYMBOL	PARAMETER	Value	UNIT	
$R_{th(j-c)}$	junction to case(AC)	TO-220F	4.0	°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 = 100°C)	-	16	A
$I_{TSM}$	Non-repetitive peak Surge current	One Full cycle, 60 Hz, $T_J = +110^{\circ}C$	-	140	A
$I^2t$	$I^2t$ for fusing	$t = 8.3ms$	-	98	$A^2s$
$I_{GM}$	Peak gate current	Pulse Width $\leq 1.0 \mu s$ , TC = 85°C	-	2	A
$P_{GM}$	Peak gate power	Pulse Width $\leq 1.0 \mu s$ , TC = 85°C	-	5	W
$P_{G(AV)}$	Average gate power	Pulse Width $\leq 1.0 \mu s$ , TC = 85°C	-	0.5	W
$T_{stg}$	Storage temperature		-40	150	°C
$T_J$	Operating junction temperature		-40	125	°C

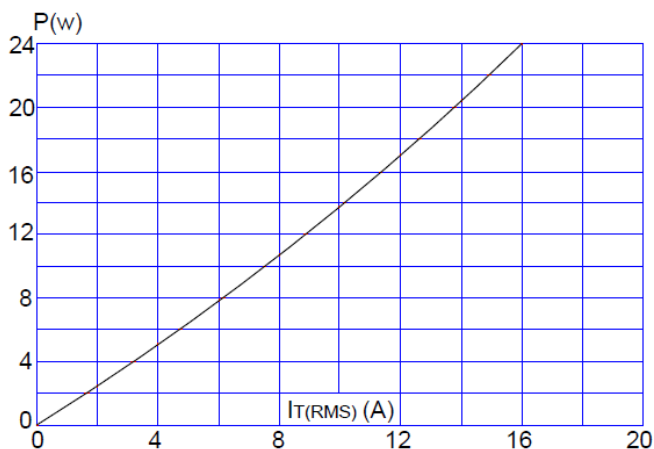
## 8、Characteristics

$T_J = 25^{\circ}C$  unless otherwise stated

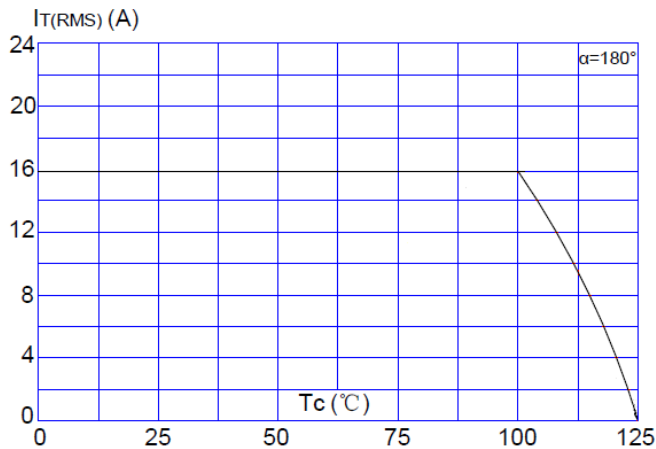
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
<b>Static characteristics</b>						
$I_{GT}$	Gate trigger current	$V_D = 12 V$ ; $I_T = 0.1A$ T2+ G+ T2+ G- T2- G- T2- G+	-	-	10 10 10 25	mA mA mA mA
$I_L$	Latching current	$V_D = 12 V$ ; $I_{GT} = 0.1A$ T2+ G+ T2+ G- T2- G- T2- G+	-	-	30 40 30 30	mA mA mA mA
$I_H$	Holding current	Main Terminal Voltage = 12 Vdc, Gate Open, Initiating Current $\leq 1 A$ dc $T_J = 25^{\circ}C$	-	-	25	mA
$V_{TM}$	On-state voltage	$I_{TM} = 20A$ , $t_p = 380\mu s$	-	-	1.65	V
$V_{GT}$	Gate trigger voltage (Continuous dc)	Main Terminal Voltage = 12 Vdc, $R_L = 100 \Omega$ , $T_J = -40^{\circ}C$ All Quadrants	-	-	1.5	V
$V_{GD}$	Gate Non-Trigger Voltage	$V_D = V_{DRM}$ $T_J = 125^{\circ}C$ $R_L = 3.3K\Omega$	0.2	-	-	V
<b>Dynamic Characteristics</b>						
dV/dt	Critical rate of rise of off-state voltage	$V_{DM} = 67\% V_{DRM(max)}$ ; $T_J = 125^{\circ}C$ ; Exponential wave form; $R_{GK} = 1K\Omega$	10	-	-	V/ $\mu s$

9. Electrical Characteristics Curve

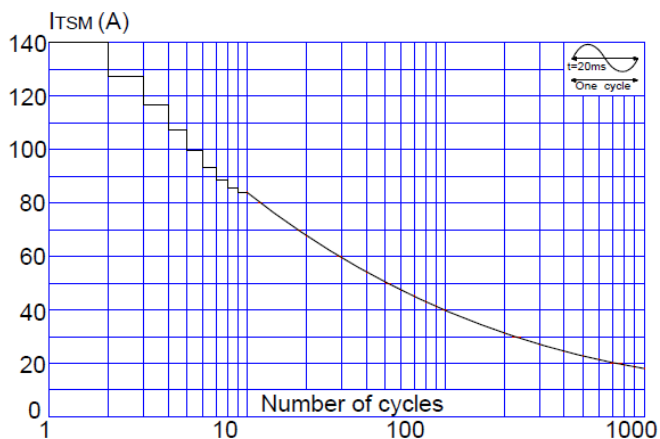
**FIG.1** Maximum power dissipation versus RMS on-state current



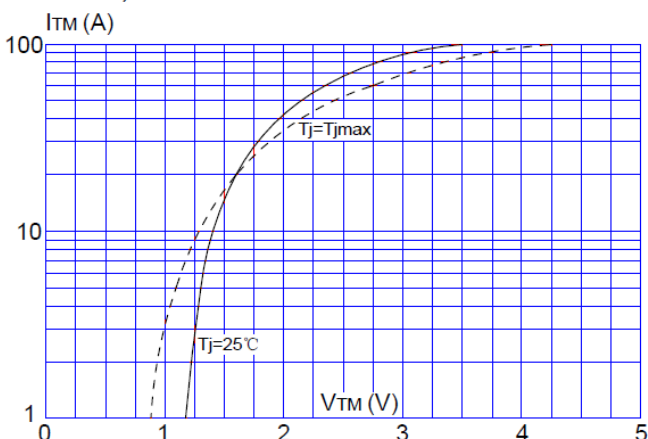
**FIG.2:** RMS on-state current versus case temperature



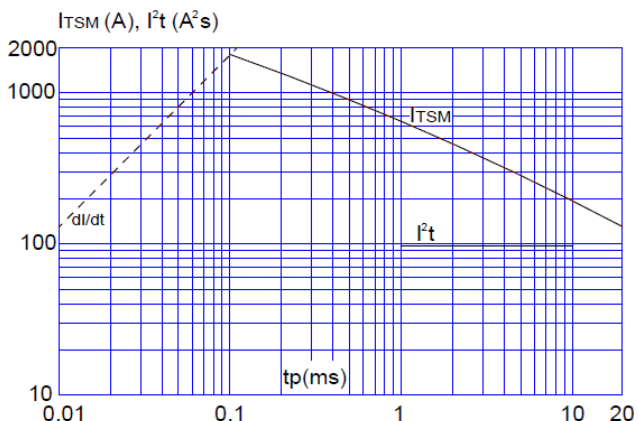
**FIG.3:** Surge peak on-state current versus number of cycles



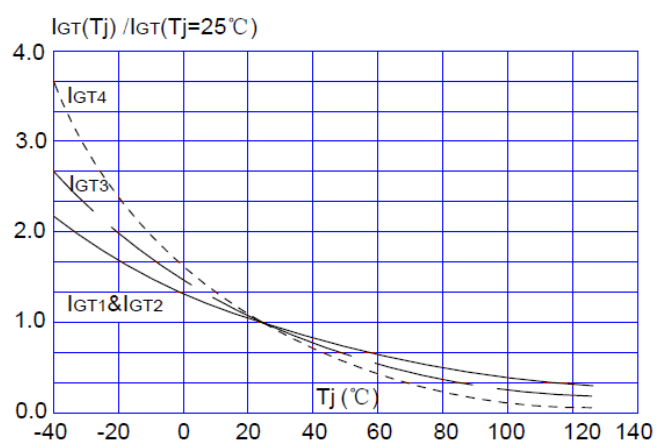
**FIG.4:** On-state characteristics (maximum values)



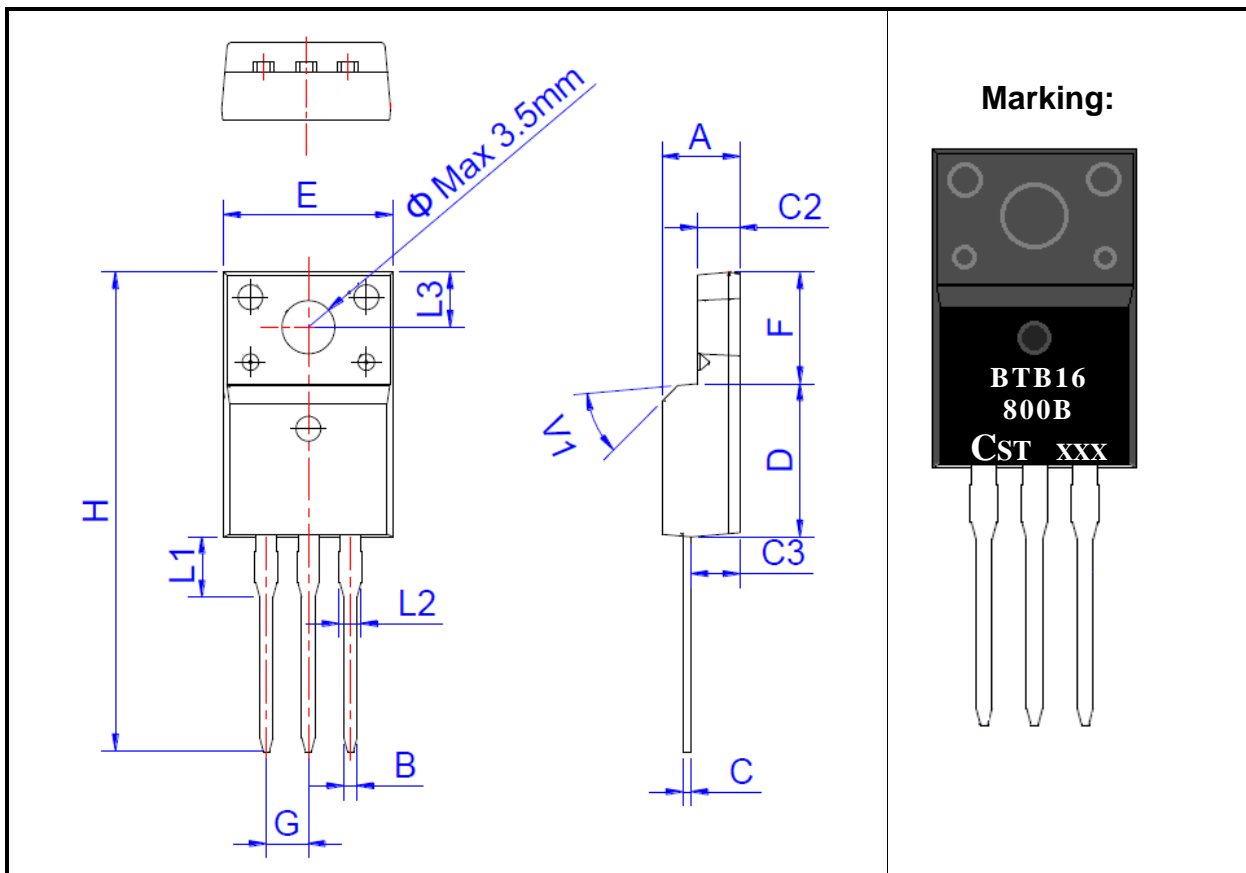
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I_t \dot{t}$  ( $dI/dt < 50\text{A}/\mu\text{s}$ )



**FIG.6:** Relative variations of gate trigger current versus junction temperature



## 10、 Package outline (TO-220F)



DIM	Milimeters			Inches		
	Min	Type	Max	Min	Type	Max
A	4.40	-	4.80	0.173	-	0.189
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.48	-	0.75	0.019	-	0.030
C2	2.40	-	2.70	0.094	-	0.106
C3	2.60	-	3.00	0.102	-	0.118
D	8.80	-	9.30	0.346	-	0.366
E	9.70	-	10.3	0.382	-	0.406
F	6.40	-	7.00	0.252	-	0.276
G		2.54			0.1	
H	28.0	-	29.8	1.102	-	1.173
L1		3.10			0.122	
L2	1.14	-	1.70	0.045	-	0.067
L3		3.30			0.130	
V1		45°			45°	

CST