

1、Description

Glass passivated, sensitive gate triacs in a plastic envelope, intended for use in general purpose bi-directional switching and phase control applications, where high sensitivity is required in all four quadrants.

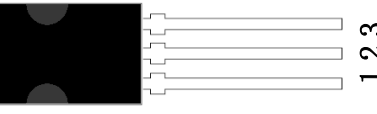
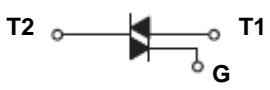
2、Applications

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

3、Features

- Blocking voltage to 800V
- On-state RMS current to 4 A
- Ultra low gate trigger current
- Low cost package.

4、Pinning information

PIN	Description	Simplified outline	Symbol
1	main terminal 1 (T1)	 SOT-82	
2	main terminal 2 (T2)		
3	gate (G)		
tab	main terminal		

5、Quick reference data

SYMBOL	PARAMETER	MAX	UNIT
V_{DRM} V_{DRM}	Repetitive peak off-state voltages	800	V
$I_{T(RMS)}$	RMS on-state current	4	A
I_{TSM}	Non-repetitive peak on-state current	25	A

6、Thermal characteristics

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Thermal Resistance, Junction to Case	<i>in free air</i>	-	-	3.5	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	<i>in free air</i>	-	-	75	°C/W
T_L	Maximum Lead Temperature for Soldering Purposes for 10 Seconds	<i>in free air</i>	-	-	260	°C

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 = 85°C)	-	4	A
I_{TSM}	Non-repetitive peak Surge current	One Full cycle, 60 Hz, $T_J = +110^{\circ}\text{C}$	-	25	A
I^2t	I^2t for fusing	$t = 8.3\text{ms}$	-	3.7	A^2s
V_{GM}	Peak gate voltage	Pulse Width $\leq 1.0\text{ }\mu\text{s}$, TC = 85°C	-	5	V
P_{GM}	Peak gate power	Pulse Width $\leq 1.0\text{ }\mu\text{s}$, TC = 85°C	-	5	W
$P_{G(AV)}$	Average gate power	Pulse Width $\leq 1.0\text{ }\mu\text{s}$, TC = 85°C	-	0.5	W
T_{stg}	Storage temperature		-40	150	°C
T_J	Operating junction temperature		-40	110	°C

8、Characteristics

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
I_{GT}	Gate trigger current	$V_D = 12\text{ V}$; $I_T = 0.1\text{ A}$ T2+ G+ T2+ G- T2- G- T2- G+	- - - -	3 3 3 8	10 10 10 25	mA mA mA mA
I_L	Latching current	$V_D = 12\text{ V}$; $I_{GT} = 0.1\text{ A}$ T2+ G+ T2+ G- T2- G- T2- G+	- - - -	1.5 5 1.0 3.0	15 20 15 20	mA mA mA mA
I_H	Holding current	Main Terminal Voltage = 12 Vdc, Gate Open, Initiating Current $\leq 1\text{ A}$ dc $T_J = 25^{\circ}\text{C}$ $T_J = -40^{\circ}\text{C}$	- -	- -	20 30	mA
V_{TM}	On-state voltage	$I_{TM} = \pm 6\text{ A}$ Peak	-	1.4	2	V
V_{GT}	Gate trigger voltage (Continuous dc)	Main Terminal Voltage = 12 Vdc, $R_L = 100\text{ Ohms}$, $T_J = -40^{\circ}\text{C}$ All Quadrants	-	1.4	2.5	V
V_{GD}	Gate Non-Trigger Voltage	Main Terminal Voltage = 12 Vdc, $R_L = 100\text{ Ohms}$, $T_J = 110^{\circ}\text{C}$ All Quadrants	0.2	-	-	V
Dynamic Characteristics						
$dV/dt(c)$	Critical rate of rise of off-state voltage	V_{DRM} , $T_J = 85^{\circ}\text{C}$, Gate Open, $I_{TM} = 5.7\text{ A}$, Exponential Waveform, Commutating $di/dt = 2.0\text{ A/ms}$	-	5	-	V/ μs
t_{gt}	Gate controlled turn-on time	$I_{TM} = 14\text{ A}$ dc, $I_{GT} = 100\text{ mA}$ dc	-	1.5	-	μs

9、Electrical Characteristics Curve

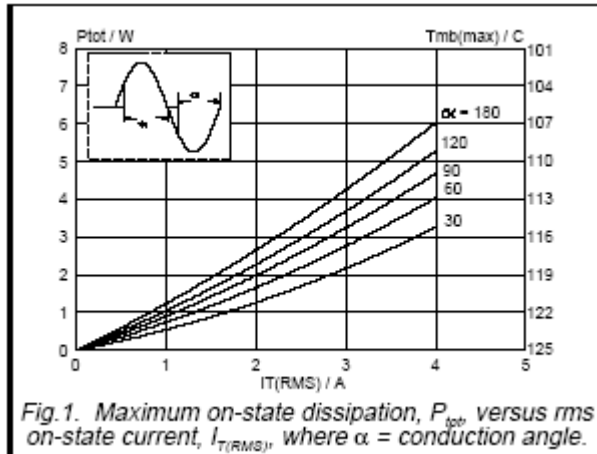


Fig.1. Maximum on-state dissipation, P_{tot} , versus rms on-state current, $I_{T(RMS)}$, where α = conduction angle.

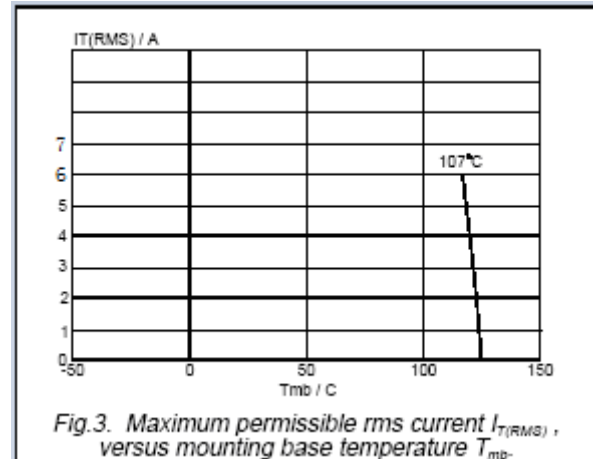


Fig.3. Maximum permissible rms current $I_{T(RMS)}$, versus mounting base temperature T_{mb} .

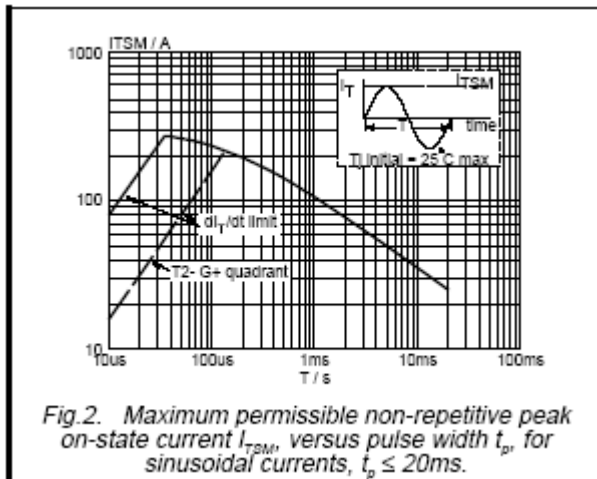


Fig.2. Maximum permissible non-repetitive peak on-state current I_{TSM} , versus pulse width t_p , for sinusoidal currents, $t_p \leq 20\text{ms}$.

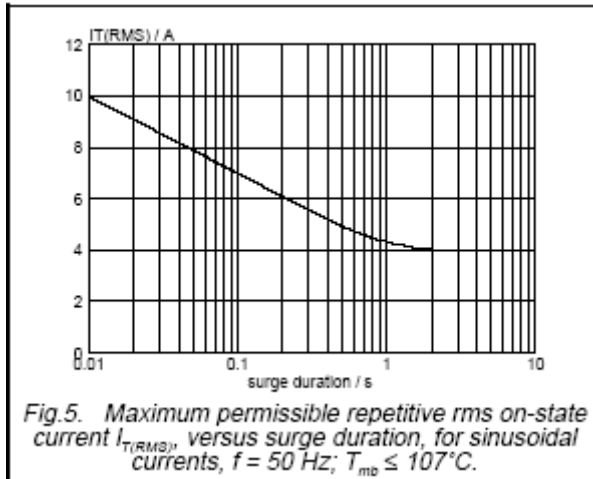


Fig.5. Maximum permissible repetitive rms on-state current $I_{T(RMS)}$, versus surge duration, for sinusoidal currents, $f = 50\text{ Hz}$; $T_{mb} \leq 107^\circ\text{C}$.

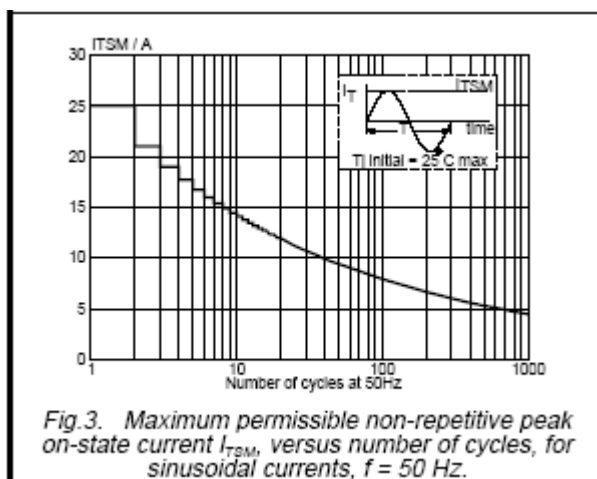


Fig.3. Maximum permissible non-repetitive peak on-state current I_{TSM} , versus number of cycles, for sinusoidal currents, $f = 50\text{ Hz}$.

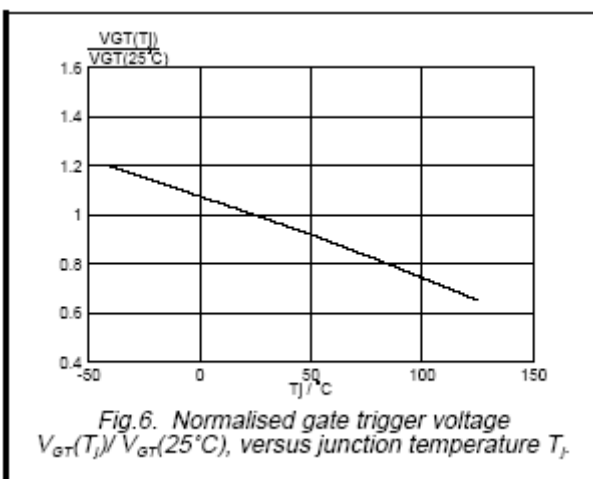
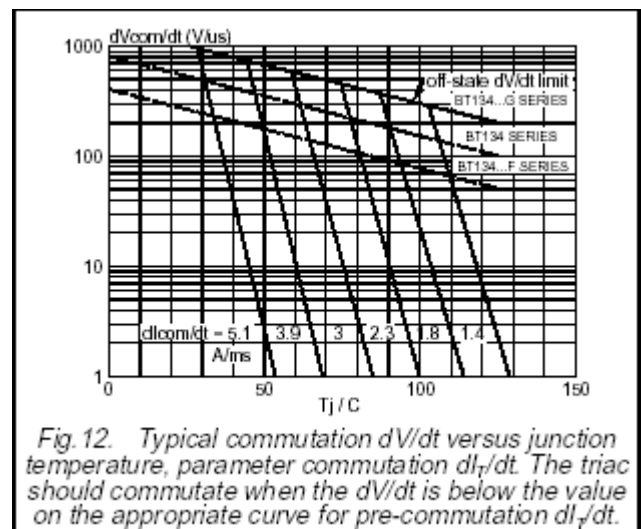
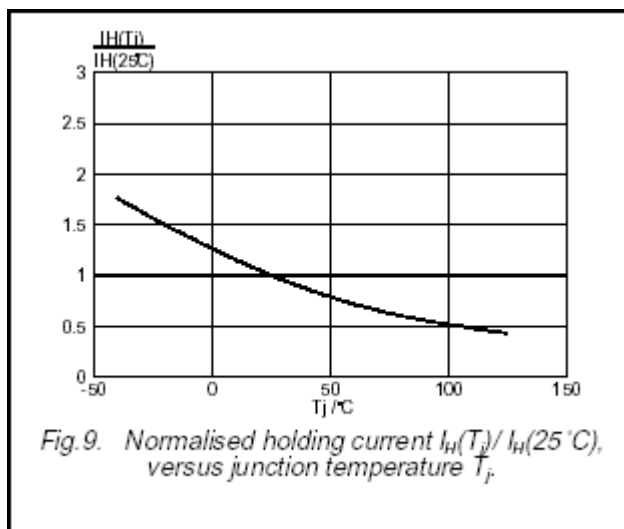
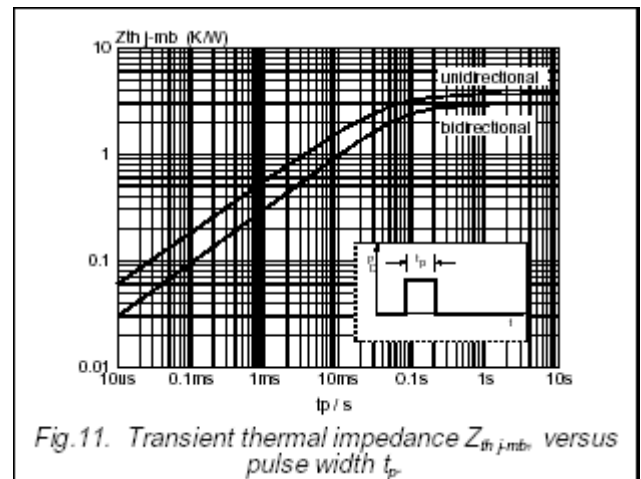
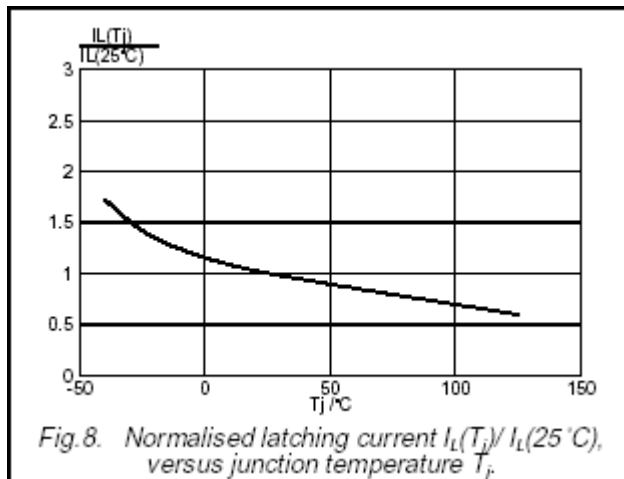
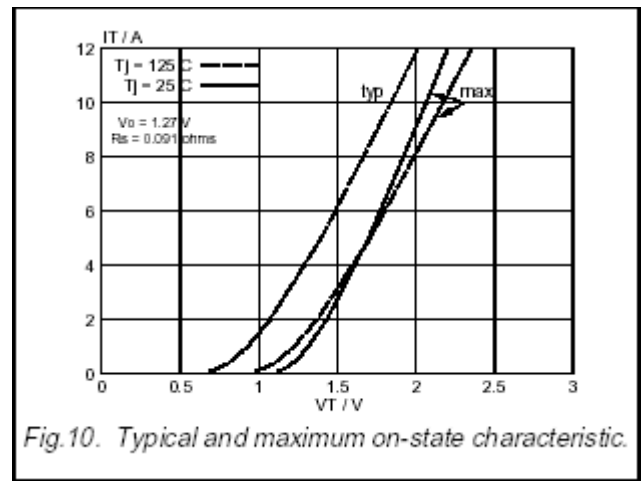
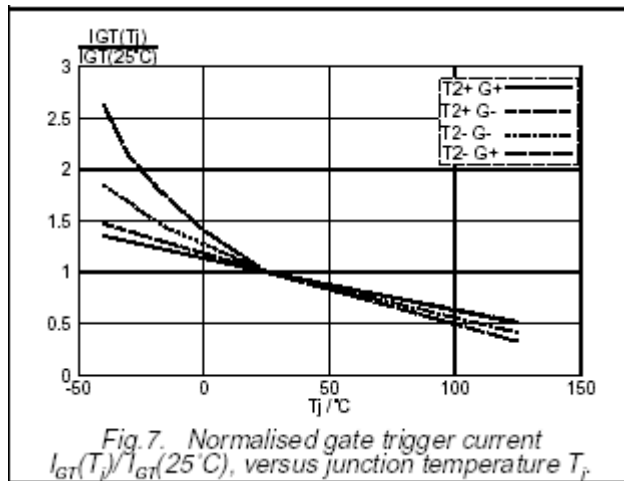
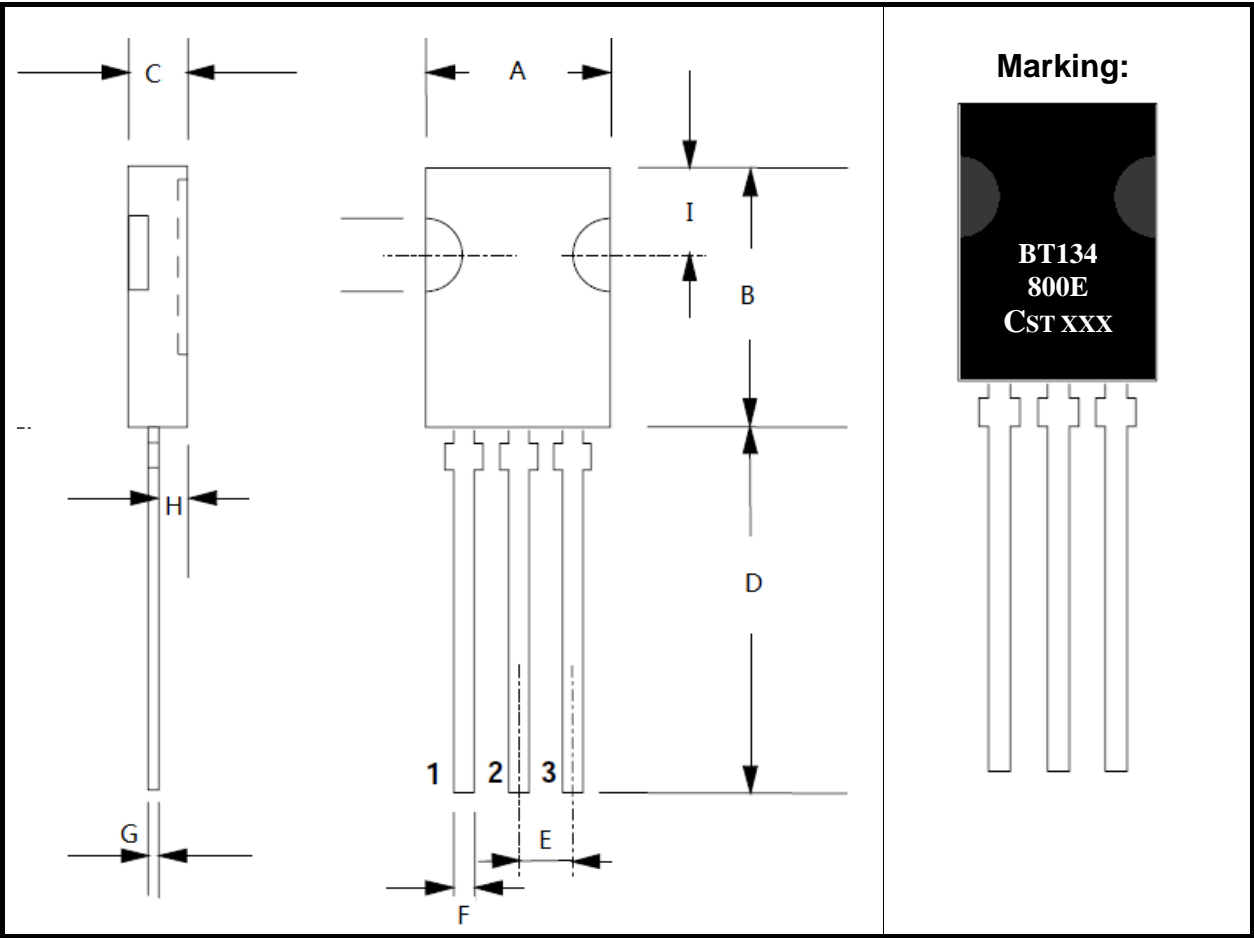


Fig.6. Normalised gate trigger voltage $V_{GT}(T_J)/V_{GT}(25^\circ\text{C})$, versus junction temperature T_J .



10、Package outline(SOT-82)



DIM	Inches			Millimeters		
	Min	Type	Max	Min	Type	Max
A	-	-	0.307	-	-	7.8
B	-	-	0.445	-	-	11.3
C	0.091	-	0.110	2.3	-	2.8
D	0.591	-	-	15.0	-	-
E	-	0.090	-	-	2.29	-
F	-	-	0.035	-	-	0.88
G	-	0.020	-	-	0.5	-
H	-	0.049	-	-	1.25	-
I	-	0.148	-	-	3.75	-