

1、Description

Designed for industrial and consumer applications for full wave control of ac loads such as appliance controls, heater controls, motor controls, and other power switching applications.

2、Applications



Typical applications include motor control, industrial and domestic lighting, heating and static switching.

- Motor control
- Heater control
- appliance control
- power switching

3、Features

- Blocking voltage to 600 thru 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)	 TO-220	
2	main terminal 2 (T2)		
3	gate (G)		
tab	main terminal		

5、Quick reference data

SYMBOL	PARAMETER	MAX	UNIT
V_{DRM} V_{RRM}	Repetitive peak off-state voltages	600	V
$I_{T(RMS)}$	RMS on-state current	4	A
I_{TSM}	Non-repetitive peak on-state current	40	A

6、Thermal characteristics

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Thermal resistance	Junction to Case	-	-	2.2	°C /W
$R_{\theta JA}$		Junction to Ambient	-	-	62.5	°C /W
T_L	Maximum Lead Temperature for Soldering Purposes	1/8, from Case for 10 Seconds	-	-	260	°C

7、Limiting value

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

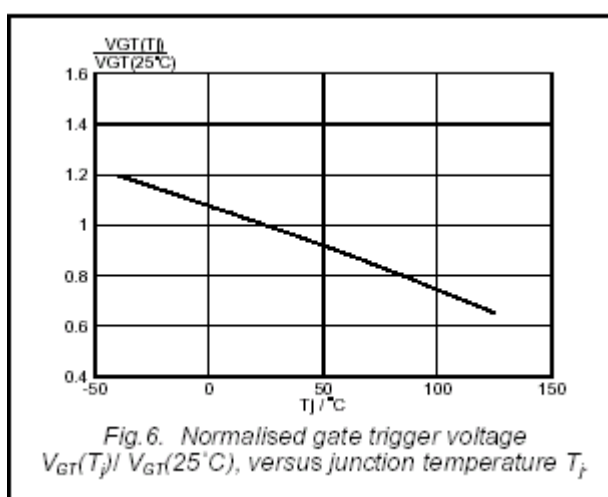
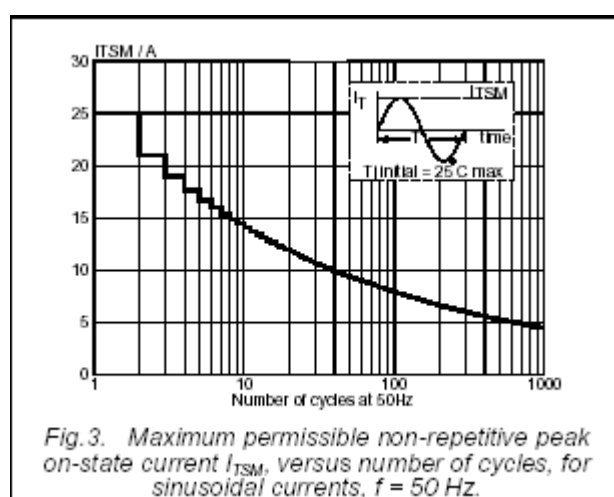
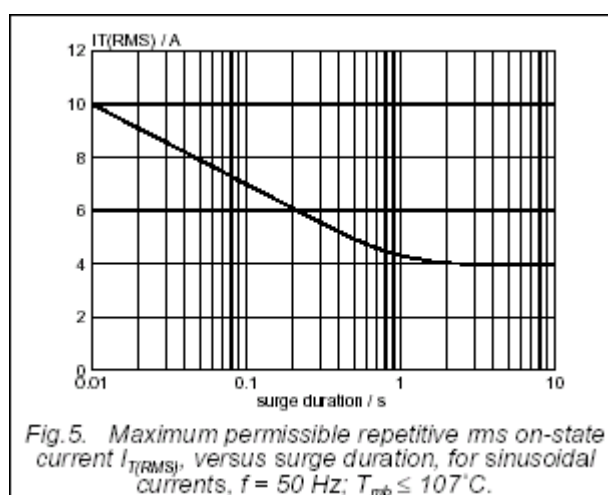
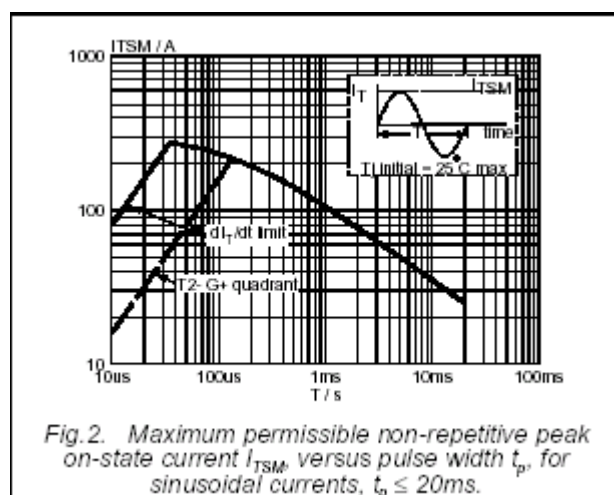
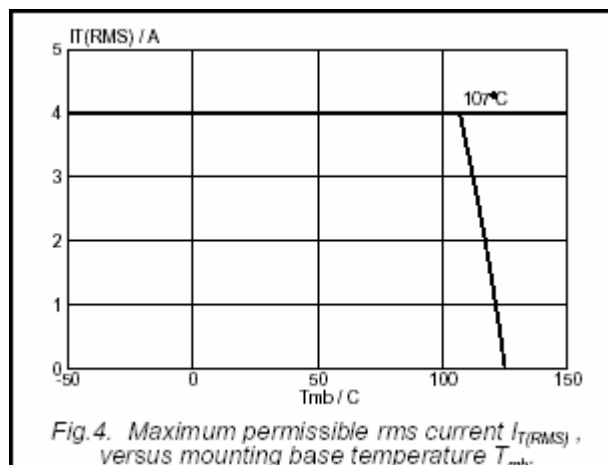
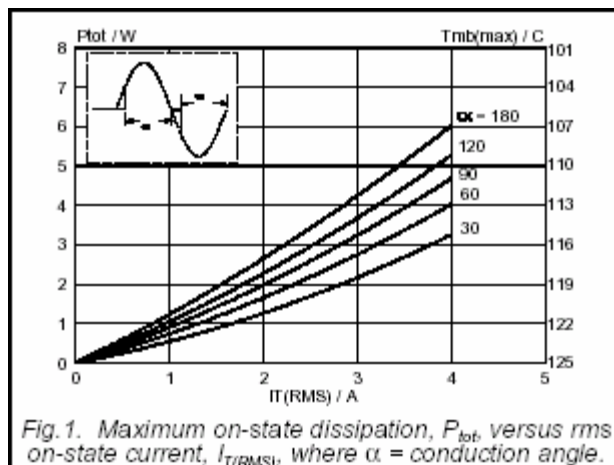
SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V_{DRM} V_{RRM}	Repetitive peak off-state voltages		-	600	V
$I_{T(RMS)}$	RMS on-state current	Full Cycle Sine Wave, 60 Hz, TC = 100 °C	-	4	A
I_{TSM}	Peak Non-Repetitive Surge Current	One Full Cycle, 60 Hz, $T_J = 125$ °C	-	40	A
I^2t	I^2t for fusing	$t = 8.33ms$	-	6.6	A ² s
P_{GM}	Peak gate power	Pulse Width 1.0 s, TC = 100 °C	-	0.5	W
$P_{G(AV)}$	Average gate power	$t = 8.3$ ms, TC = 100 °C	-	0.1	W
T_{stg}	Storage temperature		-40	150	°C
T_J	Operating junction temperature		-40	125	°C

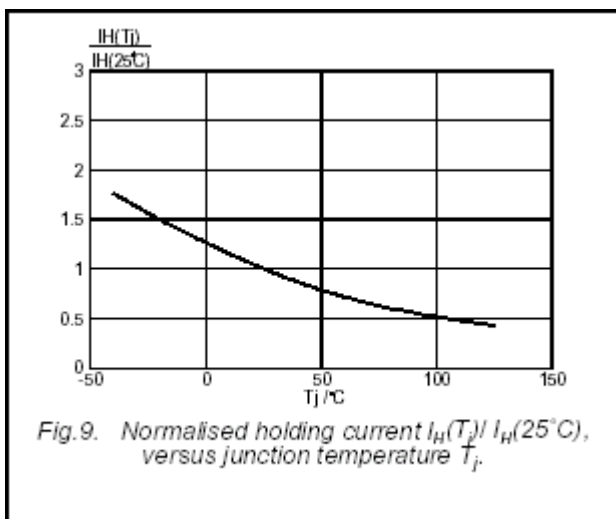
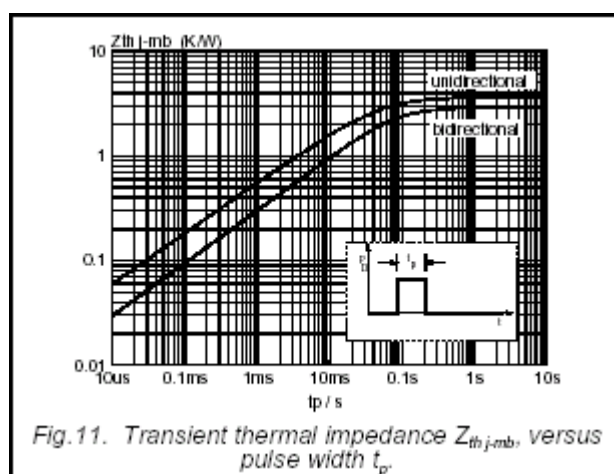
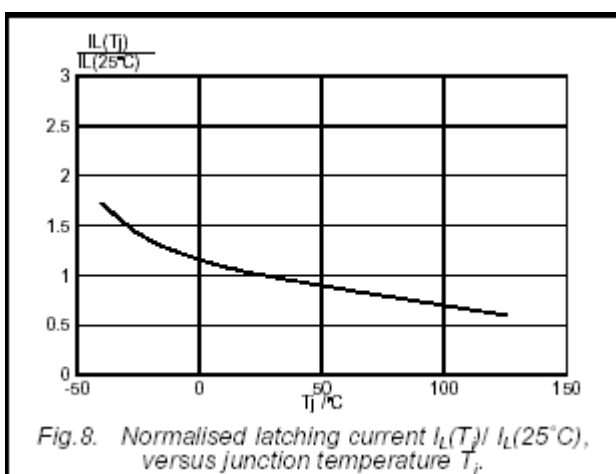
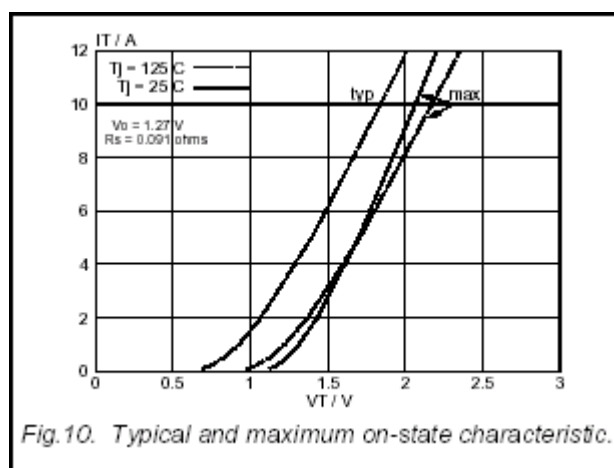
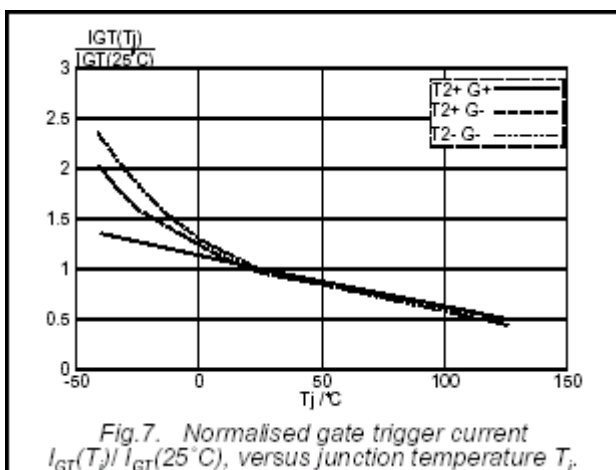
8、Characteristics

$T_J = 25$ °C unless otherwise stated

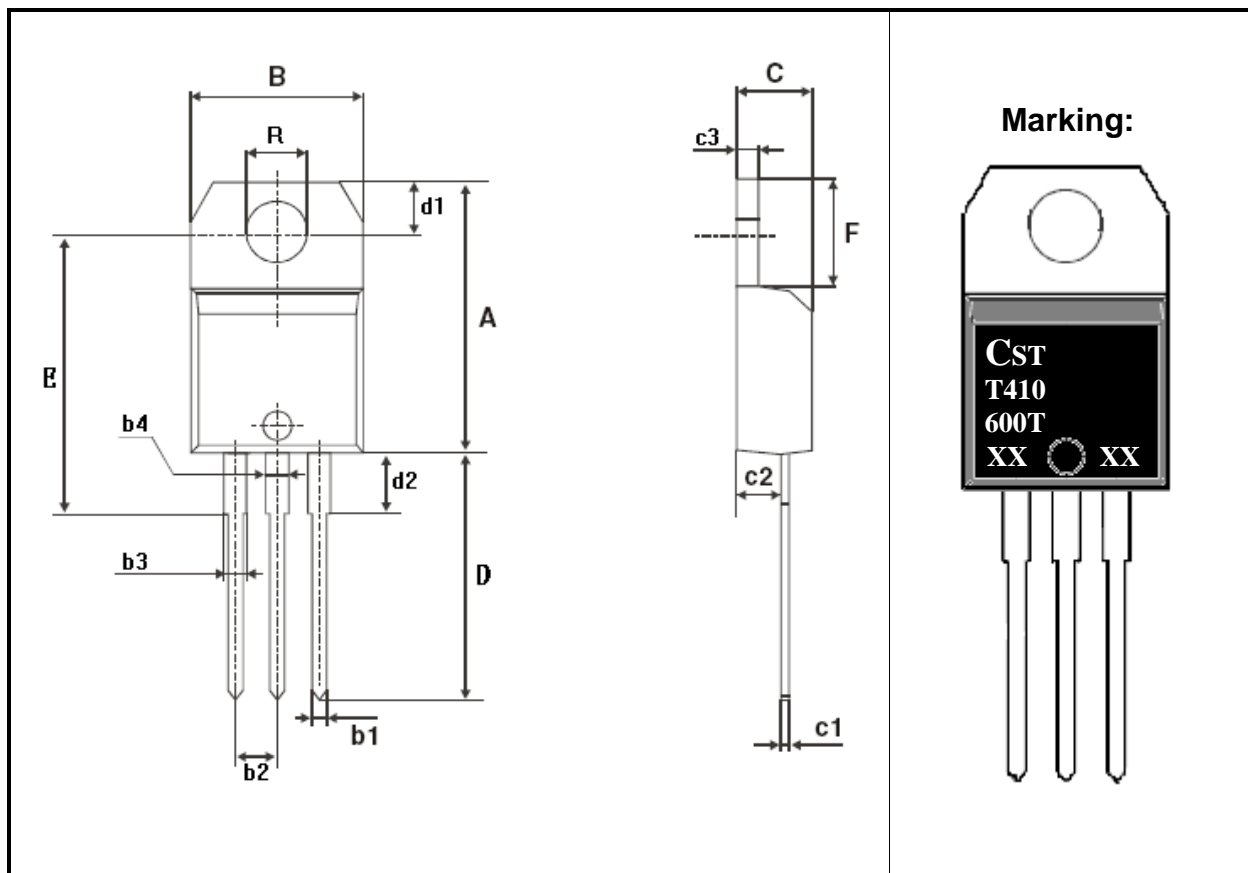
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
I_{GT}	Gate trigger current	$V_D = 12$ V; $I_T = 0.1$ A				
		T2+ G+	2.9	4.0	10	mA
		T2+ G-	2.9	6.7	10	mA
		T2- G-	2.9	6.0	10	mA
I_L	Latching current	$V_D = 12$ V; $I_{GT} = 0.1$ A				
		T2+ G+	-	6.0	30	mA
		T2+ G-	-	15	30	mA
		T2- G-	-	6.0	30	mA
I_H	Holding current	$V_D = 12$ V, Gate Open, Initiating Current = 200 mA	2.0	5.0	15	mA
R_{T-G}	T1-Gate Resistance		100	155	200	Ω
V_{TM}	On-state voltage	$I_{TM} = 6.0$ A	-	1.3	1.6	V
V_{GT}	Gate trigger voltage	$V_D = 12$ V; $I_T = 0.1$ A				
		T2+ G+	0.5	0.7	1.3	V
		T2+ G-	0.5	0.65	1.3	V
		T2- G-	0.5	0.7	1.3	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; $R_{GK} = 1$ kΩ	50	150	-	V/μs
$(di/dt)_c$	Critical rate of change of commutating current	$V_D = 400$ V; $T_J = 125$ °C $I_{T(RMS)} = 3.5$ A; $dV_{com}/dt = 10$ V/μs; gate open circuit	3.0	4.0	-	A/ms
di/dt	Repetitive Critical Rate of Rise of On-State Current	$V_D = 400$ V; $T_J = 125$ °C gate open circuit	-	-	10	A/μs
t_{gt}	Gate controlled turn-on time	$I_{TM} = 12$ A; $V_D = V_{DRM(max)}$; $I_G = 0.1$ A; $dI_G/dt = 5$ A/s	-	-	2	μs

9、Electrical Characteristics Curve





10、Package outline



DIM	Inches			Millimeters		
	Min	Type	Max	Min	Type	Max
A	0.591	0.618	0.646	15.00	15.70	16.40
B	0.386	0.402	0.409	9.80	10.20	10.40
C	0.160	0.180	0.190	4.07	4.56	4.82
D	0.500	0.535	0.562	12.70	13.58	14.27
E	-	0.640	-	-	16.25	-
F	0.248	0.259	0.271	6.29	6.59	6.89
R	0.140	0.148	0.156	3.56	3.76	3.96
b1	0.030	0.033	0.037	0.75	0.85	0.95
b2	0.095	0.100	0.105	2.42	2.54	2.66
b3	0.046	0.050	0.054	1.17	1.27	1.37
b4	0.046	0.050	0.054	1.17	1.27	1.37
c1	0.017	0.020	0.023	0.42	0.50	0.58
c2	0.091	0.103	0.115	2.32	2.62	2.92
c3	0.045	0.049	0.055	1.15	1.25	1.39
d1	0.100	0.107	0.120	2.54	2.72	3.04
d2	0.125	0.141	0.155	3.18	3.58	3.93