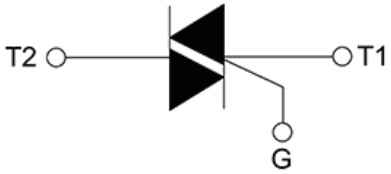
DESCRIPTION:

The chip triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. The chip embeds a TVS structure to absorb the inductive turn-off energy such as those described in the IEC 61000-4-5 standards. At the same time, the triac shields the positive signal trigger to reduce the probability of product misoperation. It is triggered with a negative gate current flowing out of the gate pin.

TO-220A

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	25	A
V_{DRM}/V_{RRM}	800	V
$I_{GT\ I/II/III}$	35/35/35	mA



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	℃
Operating junction temperature range	T_j	-40-150	℃
Repetitive peak off-state voltage (T_j=25℃)	V_{DRM}	800	V
Repetitive peak reverse voltage (T_j=25℃)	V_{RRM}	800	V
RMS on-state current (T_C≤101℃)	$I_{T(RMS)}$	25	A
Non repetitive surge peak on-state current (full cycle , t_p=20ms , T_j=25℃)	I_{TSM}	250	A
Non repetitive surge peak on-state current (full cycle , t_p=16.6ms , T_j=25℃)		275	
I^2t value for fusing (t_p=10ms , T_j=25℃)	I^2t	310	A^2s
Critical rate of rise of on-state current (I_G=2×I_{GT} , f=100Hz , T_j=150℃)	dI/dt	100	A/μs
Peak gate current (t_p=20μs , T_j=150℃)	I_{GM}	4	A

Average gate power dissipation (T_j=150℃)	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	10	W
Peak pulse voltage (T_j=25℃; non-repetitive,off-state;FIG)	V_{pp}	1.5	kV

ELECTRICAL CHARACTERISTICS (T_j=25℃ unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
I_{GT}	V_D =12V R_L =33Ω	Ⅰ-Ⅱ-Ⅲ	MAX.	35	mA
V_{GT}		Ⅰ-Ⅱ-Ⅲ	MAX.	1	V
V_{GD}	V_D =V_{DRM} T_j =150℃ R_L =3.3kΩ	Ⅰ-Ⅱ-Ⅲ	MIN.	0.2	V
I_L	I_G =1.2I_{GT}	Ⅰ-Ⅲ	MAX.	50	mA
		Ⅱ		60	
I_H	I_T =500mA		MAX.	40	mA
dV/dt	V_D=540V Gate Open T_j =150℃		MIN.	1000	V/μs
(dI/dt)c	(dV/dt)c=20V/μs, T_j=150℃		MIN.	18	A/ms
t_{on}	I_G=40mA I_A=200mA I_R=20mA T_j=25℃		TYP.	10	μs
t_{off}				80	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	I_{TM} =35A t_p=380μs	T_j=25℃	1.4	V
V_{TO}	Threshold voltage	T_j=150℃	0.72	V
R_D	Dynamic resistance	T_j=150℃	19	mΩ
I_{DRM}	V_D =V_{DRM} V_R =V_{RRM}	T_j=25℃	5	μA
I_{RRM}		T_j=150℃	5	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	1.5	℃/W
$R_{th(j-a)}$	junction to ambient (AC)	60	℃/W

FIG : Maximum power dissipation versus RMS on-state current

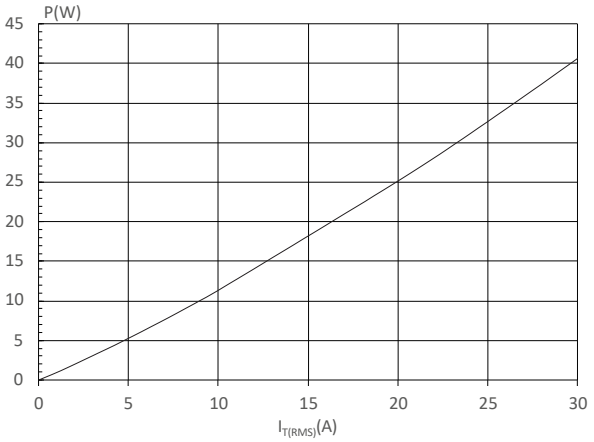


FIG : RMS on-state current versus case temperature

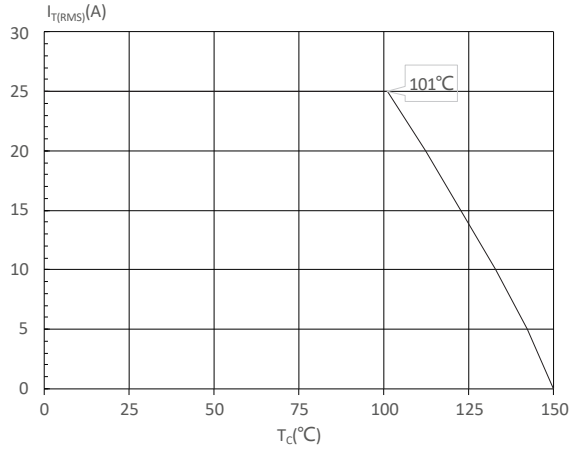


FIG : Surge peak on-state current versus number of cycles

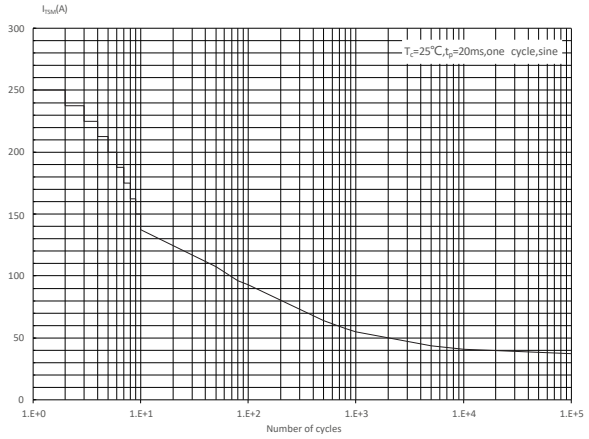


FIG : On-state characteristics

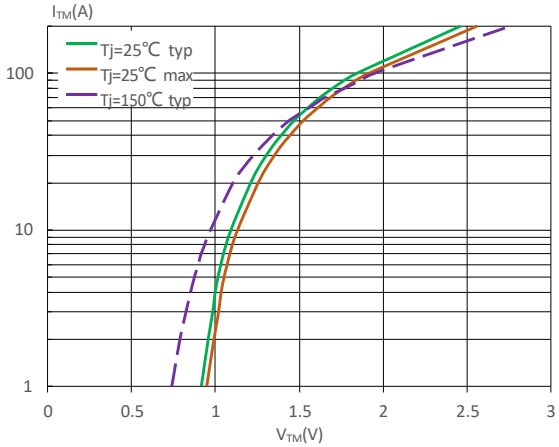


FIG : Non-repetitive surge peak on-state current for a sinusoidal pulse with width t_p<20ms, and corresponding value of I^2t (dI/dt<100A/μs)

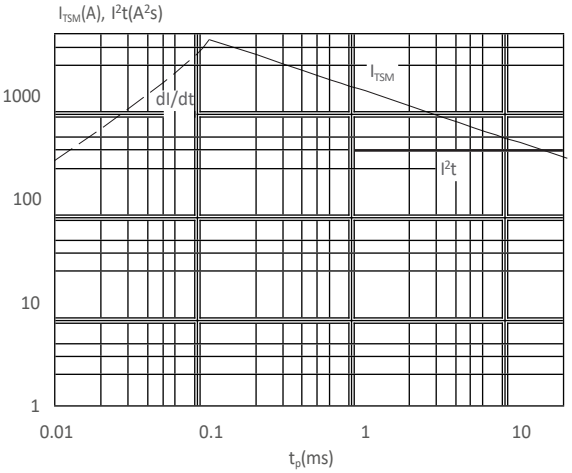


FIG : Relative variations of gate trigger current, holding current and latching current versus junction temperature

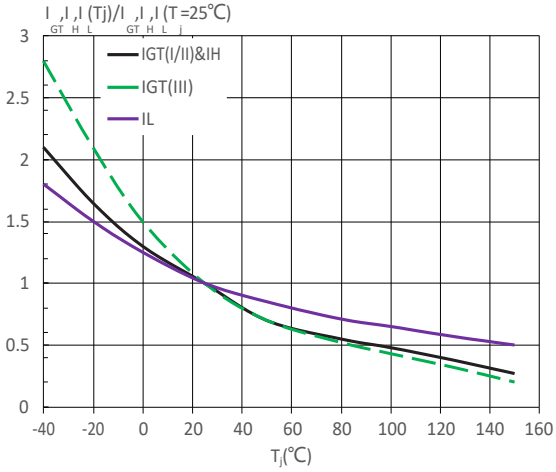
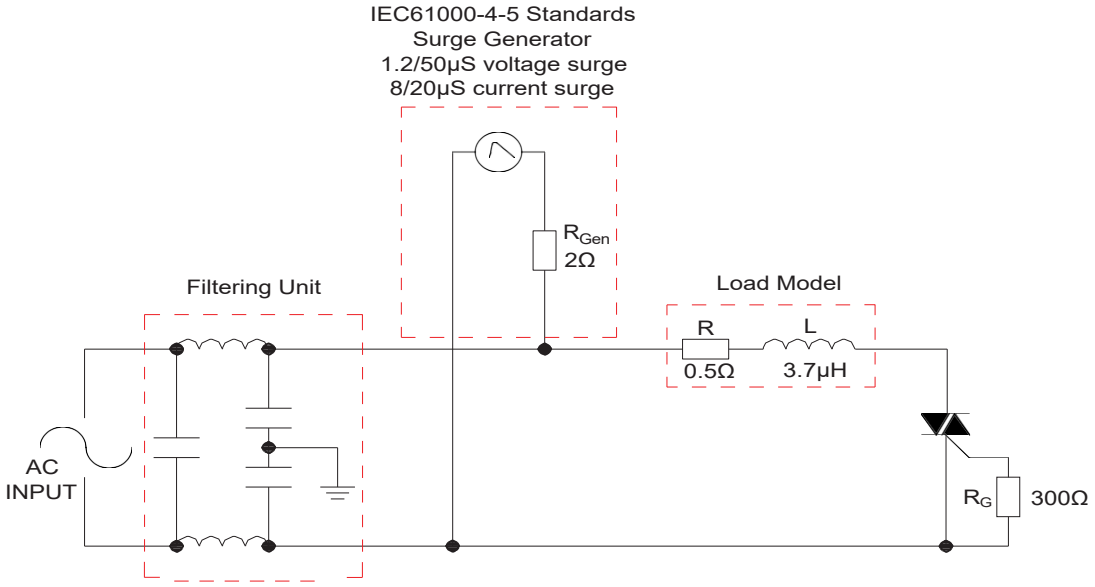


FIG ： Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



LEAD FORMING AND SOLDERING

Refer to the application note “Assembly Instructions for Thyristors in Through-hole Package” released by JieJie Microelectronics