

DESCRIPTION:

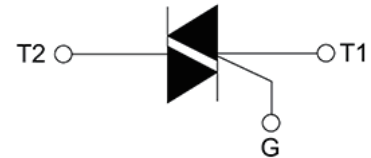
The chip triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers.



TO-220A

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
V_{DRM}/V_{RRM}	800	V
$I_{GT\ I/II/III/IV}$	50/50/50/70	mA



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T _{stg}	-40-150	℃
Operating junction temperature range		T _j	-40-125	℃
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 ≤87℃)		I _{T(RMS)}	12	A
Non repetitive surge peak on-state current (full cycle , t _p =20ms , T _j =25℃)		I _{TSM}	120	A
Non repetitive surge peak on-state current (full cycle , t _p =16.6ms , T _j =25℃)			132	
I ² t value for fusing (t _p =10ms , T _j =25℃)		I ² t	72	A ² s
Critical rate of rise of on-state current (I _G =2×I _{GT} , f=100Hz , T _j =125℃)	I - II	di/dt	100	A/μs
	III-IV		50	
Peak gate current (t _p =20μs , T _j =125℃)		I _{GM}	4	A
Average gate power dissipation (T _j =125℃)		P _{G(AV)}	0.5	W
Peak gate power		P _{GM}	10	W

Peak pulse voltage ($T_j=25^{\circ}\text{C}$; non-repetitive, off-state; FIG.7)	V_{pp}	2	kV
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ELECTRICAL CHARACTERISTICS ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
I_{GT}	$V_D=12\text{V}$ $R_L=33\Omega$	I - II -III	MAX.	50	mA
		IV		70	
V_{GT}		ALL	MAX.	1	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$ $R_L=3.3\text{k}\Omega$	ALL	MIN.	0.2	V
I_L	$I_G=1.2I_{GT}$	I -III-IV	MAX.	50	mA
		II		100	
I_H	$I_T=500\text{mA}$		MAX.	60	mA
dV/dt	$V_D=540\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	1000	V/ μs
$(dV/dt)_c$	$(dI/dt)_c=5.3\text{A/ms}$, $T_j=125^{\circ}\text{C}$		MIN.	12	V/ μs
t_{on}	$I_G=80\text{mA}$ $I_A=400\text{mA}$ $I_R=40\text{mA}$ $T_j=25^{\circ}\text{C}$		TYP.	5	μs
t_{off}				30	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=17\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.5	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.77	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	35	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	0.5	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	2.3	$^{\circ}\text{C/W}$
$R_{th(j-a)}$	junction to ambient (AC)	60	$^{\circ}\text{C/W}$

FIG : Maximum power dissipation versus RMS on-state current

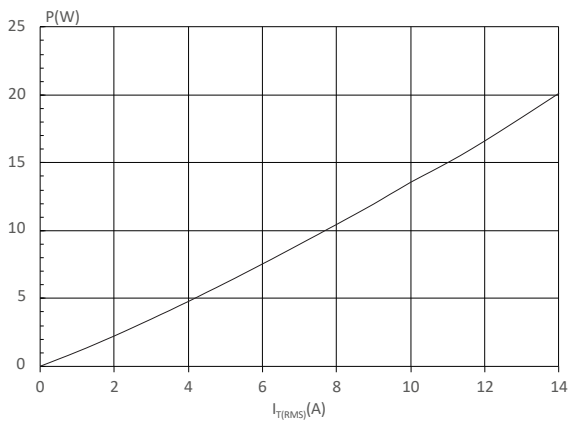


FIG : Surge peak on-state current versus number of cycles

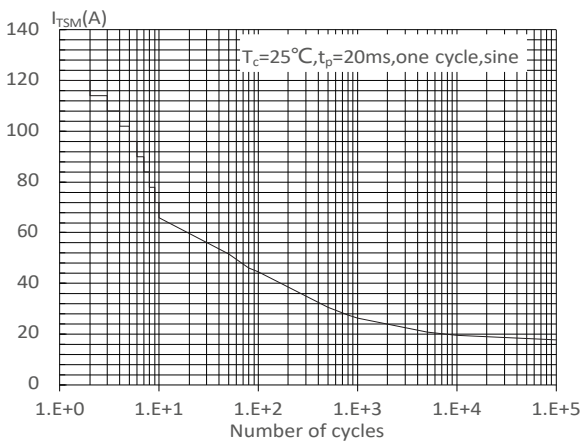


FIG : Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t (I -II : $dl/dt < 100\text{A}/\mu\text{s}$; III-IV : $dl/dt < 50\text{A}/\mu\text{s}$)

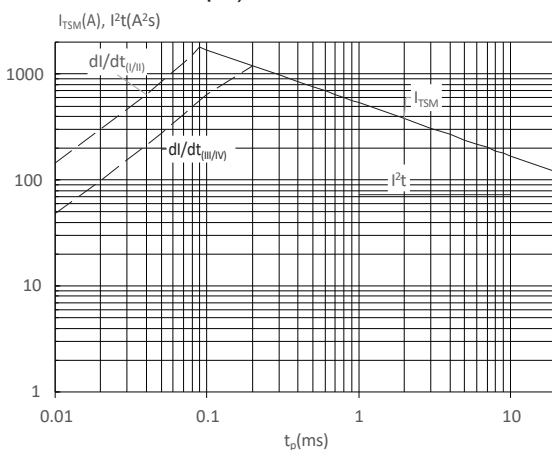


FIG : RMS on-state current versus case temperature

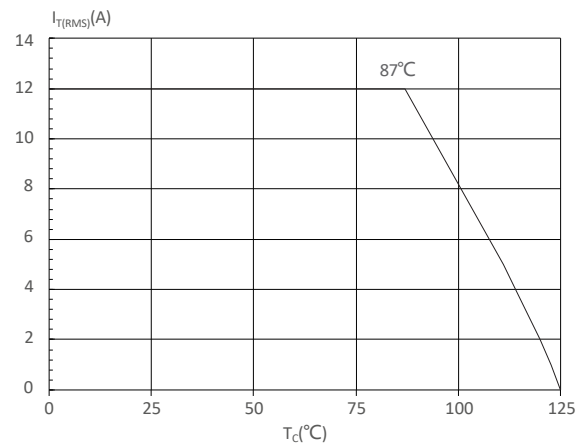


FIG : On-state characteristics

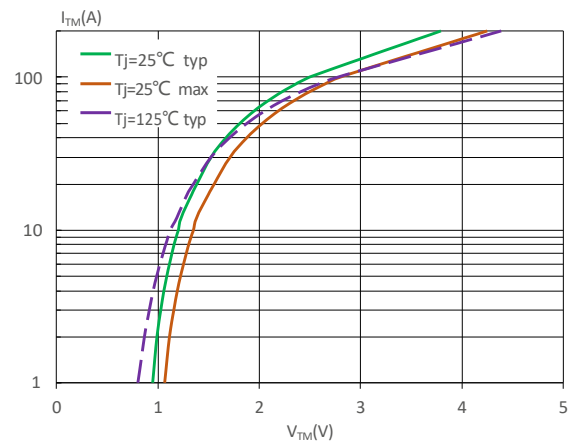


FIG : Relative variations of gate trigger current, holding current and latching current versus junction temperature

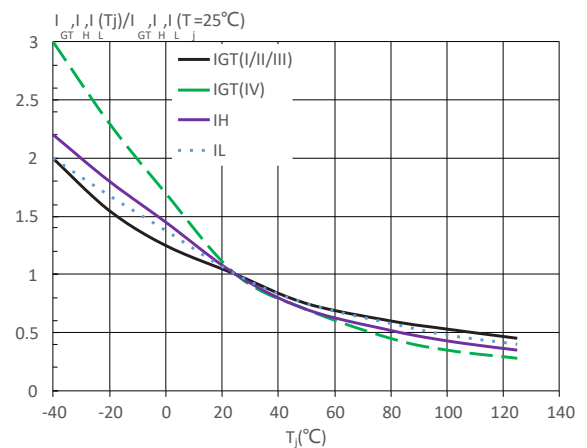
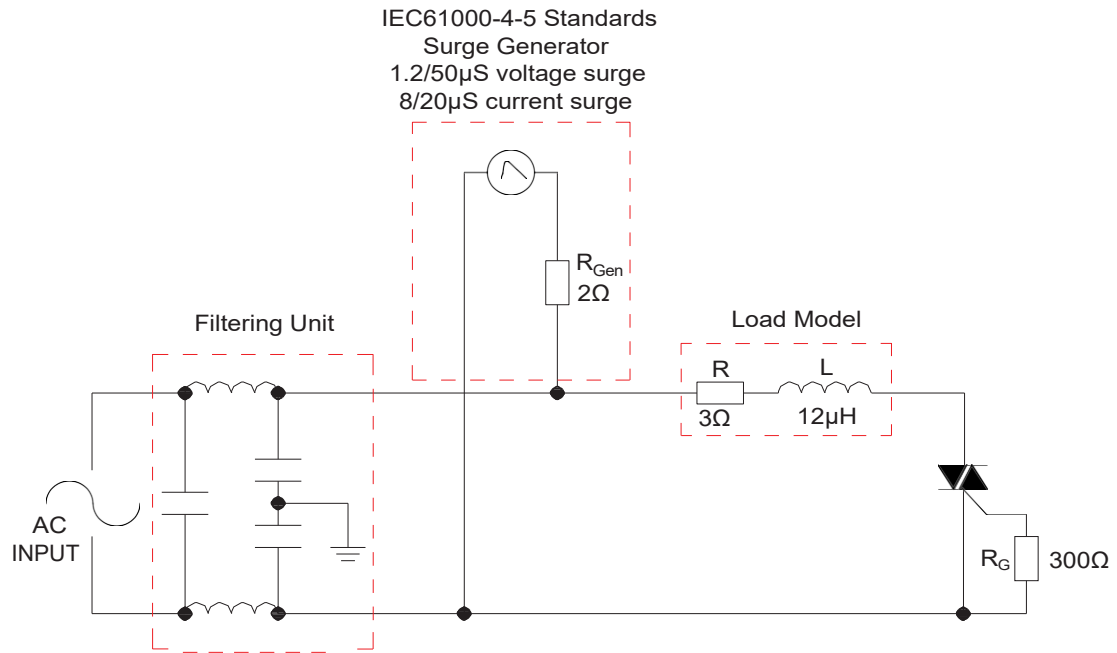


FIG : Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



LEAD FORMING AND SOLDERING

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