

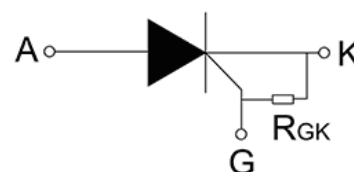
DESCRIPTION:

The chip triac is suitable for general purpose AC switching. It is more suitable for the switch functions of washing machines' water valve, positive inversion of motor, heat pump...The chip embeds a TVS structure to absorb the inductive turn-off energy such as those described in the IEC 61000-4-5 standards. By using an external plastic package, chip provides a rated insulation voltage of 2000 VRMS, complying with UL standards (File ref: E252906).



MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	1	A
V_{DRM}/V_{RRM}	1000	V
$I_{GT\ I/II/III}$	10/10/10	mA



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	°C
Operating junction temperature range	T_j	-40-125	°C
Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$)	V_{DRM}	1000	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	1000	V
RMS on-state current ($T_c \leq 39^\circ\text{C}$)	$I_{T(RMS)}$	1	A
Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$)	I_{TSM}	15	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$)		16.5	
I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$)	I^2t	1.25	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100\text{Hz}$, $T_j=125^\circ\text{C}$)	di/dt	60	$\text{A}/\mu\text{s}$
Peak gate current ($t_p=20\mu\text{s}$, $T_j=125^\circ\text{C}$)	I_{GM}	2	A
Average gate power dissipation ($T_j=125^\circ\text{C}$)	$P_{G(AV)}$	0.1	W
Peak gate power	P_{GM}	5	W

Peak pulse voltage ($T_j=25^{\circ}\text{C}$; non-repetitive, off-state; FIG.7)	V_{pp}	3.75	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.	10	mA
V_{GT}		I - II -III	MAX.	1	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$ $R_L=3.3\text{k}\Omega$	I - II -III	MIN.	0.2	V
I_L	$I_G=1.2I_{GT}$	I -III	MAX.	20	mA
		II		30	
I_H	$I_T=100\text{mA}$		MAX.	20	mA
dV/dt	$V_D=670\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	700	V/ μs
$(dI/dt)_c$	$(dV/dt)_c=10\text{V}/\mu\text{s}$, $T_j=125^{\circ}\text{C}$		MIN.	1.3	A/ms
t_{on}	$I_G=20\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$ $T_j=25^{\circ}\text{C}$		TYP.	4	μs
t_{off}				50	
V_{CL}	$I_{CL}=0.1\text{mA}$ $t_p=1\text{ms}$		MIN.	1050	V

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=1.1\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.45	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.98	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	181	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	8	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	0.4	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	60	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	150	$^{\circ}\text{C}/\text{W}$

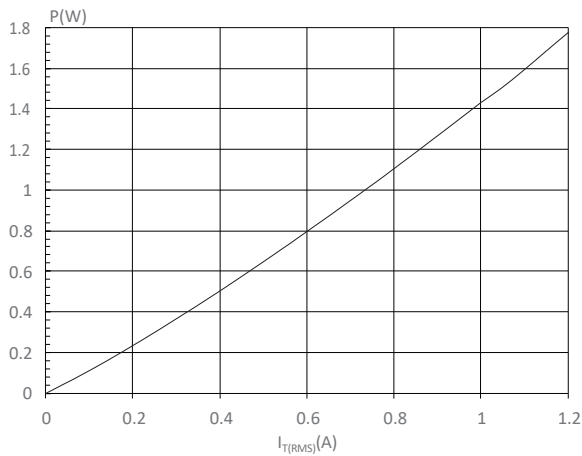
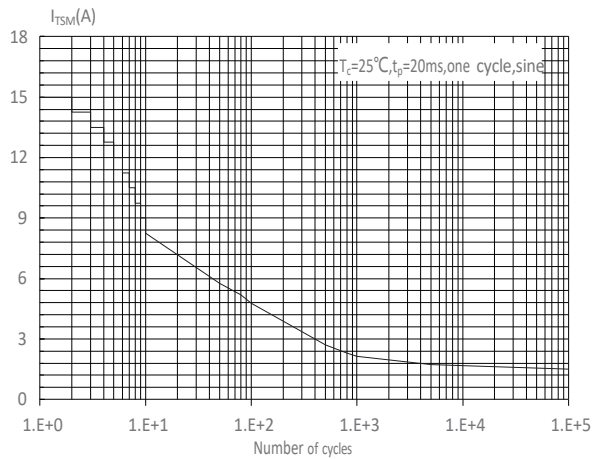
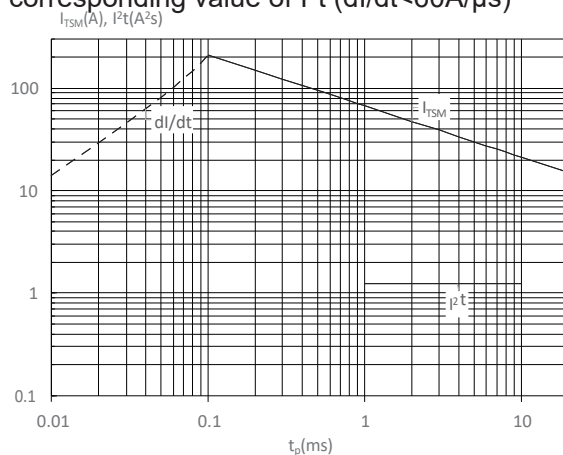
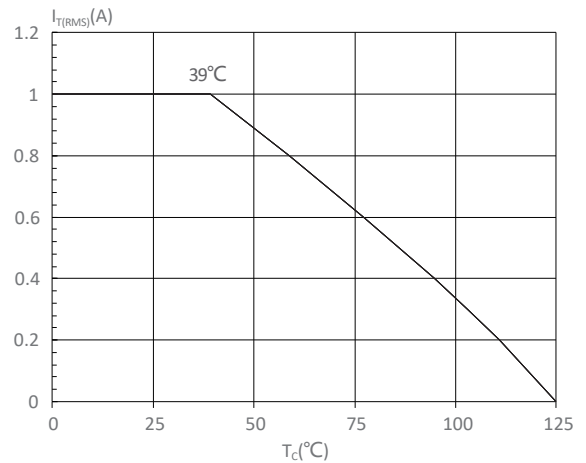
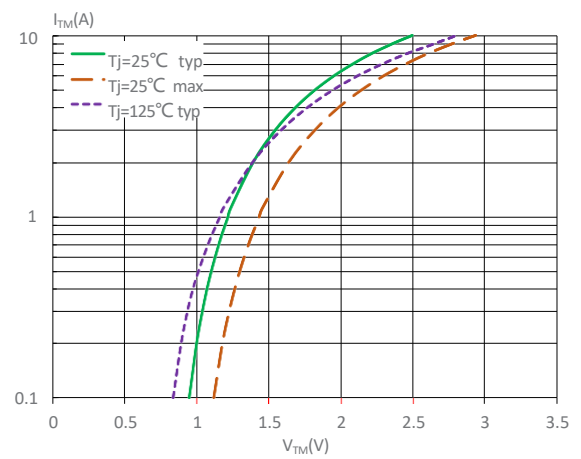
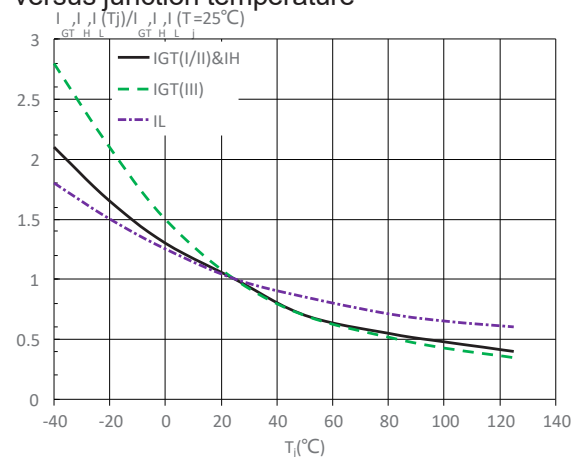
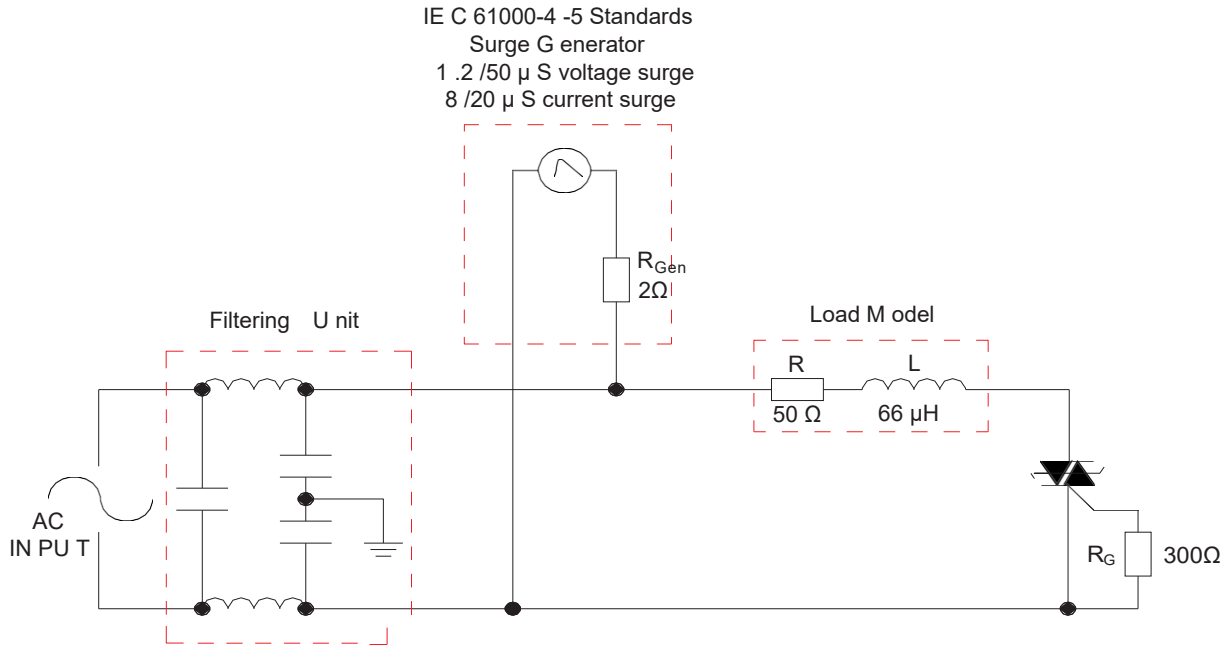
FIG : Maximum power dissipation versus RMS on-state current

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

FIG : Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t ($dl/dt < 60A/\mu s$)

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