

DESCRIPTION:

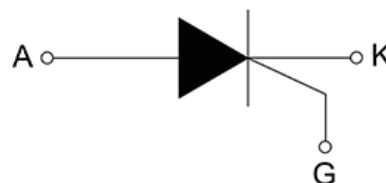
With high ability to withstand the shock loading of large current, chip series of silicon controlled rectifiers provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc.



TO-220A

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	40	A
V_{DRM}/V_{RRM}	1200	V
I_{GT}	≤ 45	mA



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	$^{\circ}C$
Operating junction temperature range	T_j	-40-125	$^{\circ}C$
Repetitive peak off-state voltage ($T_j=25^{\circ}C$)	V_{DRM}	1200	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)	V_{RRM}	1200	V
Average on-state current ($T_c \leq 71^{\circ}C$)	$I_{T(AV)}$	25	A
RMS on-state current ($T_c \leq 71^{\circ}C$)	$I_{T(RMS)}$	40	A
Non repetitive surge peak on-state current ($t_p=10ms, T_j=25^{\circ}C$)	I_{TSM}	500	A
Non repetitive surge peak on-state current ($t_p=8.3ms, T_j=25^{\circ}C$)		540	
I^2t value for fusing ($t_p=10ms, T_j=25^{\circ}C$)	I^2t	1250	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}, f=100Hz, T_j=125^{\circ}C$)	di/dt	200	$A/\mu s$

Peak gate current ($t_p=20\mu s$, $T_j=125^\circ C$)	I_{GM}	10	A
Average gate power dissipation ($T_j=125^\circ C$)	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	20	W
Peak pulse voltage ($T_j=25^\circ C$; non-repetitive, off-state; FIG)	V_{pp}	0.7	kV

ELECTRICAL CHARACTERISTICS ($T_j=25^\circ C$ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12V$ $R_L=33\Omega$	-	-	45	mA
V_{GT}		-	-	1	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^\circ C$ $R_L=3.3k\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	120	mA
I_H	$I_T=500mA$	-	-	100	mA
dV/dt	$V_D=800V$ Gate Open $T_j=125^\circ C$	1500	-	-	V/ μs
t_{on}	$I_G=50mA$ $I_A=500mA$ $I_R=50mA$ $T_j=25^\circ C$	-	5	-	μs
t_{off}		-	100	-	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=80A$ $t_p=380\mu s$	$T_j=25^\circ C$	1.7	V
V_{TO}	Threshold voltage	$T_j=125^\circ C$	0.69	V
R_D	Dynamic resistance	$T_j=125^\circ C$	21	m Ω
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	10	μA
I_{RRM}		$T_j=125^\circ C$	5	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (DC)	1.2	$^\circ C/W$
$R_{th(j-a)}$	junction to ambient (DC)	60	$^\circ C/W$

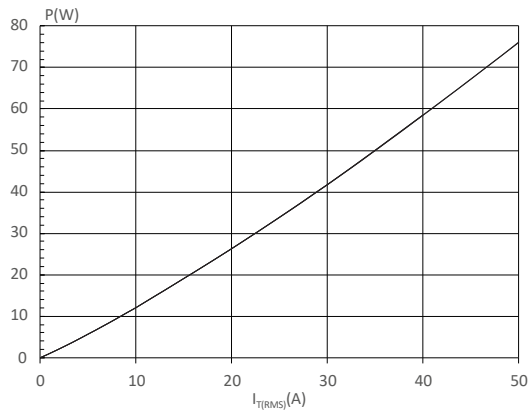
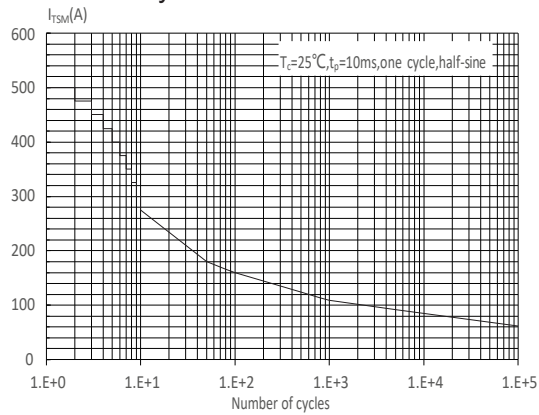
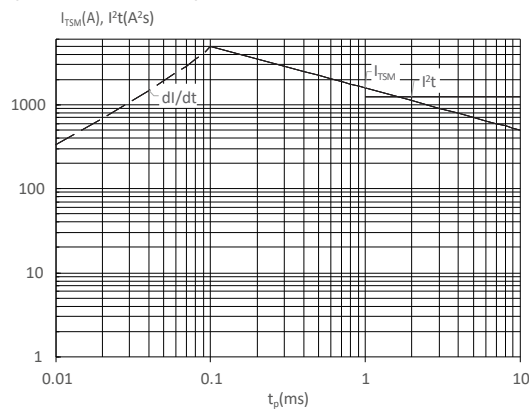
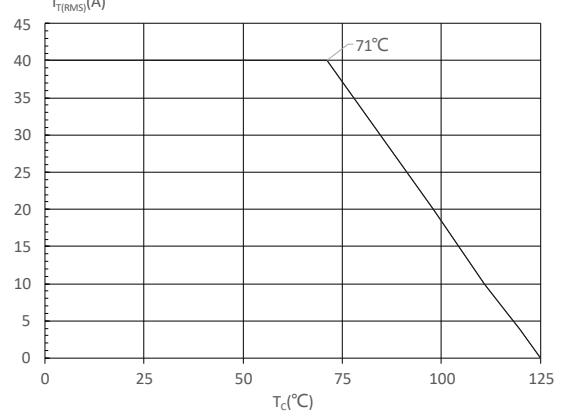
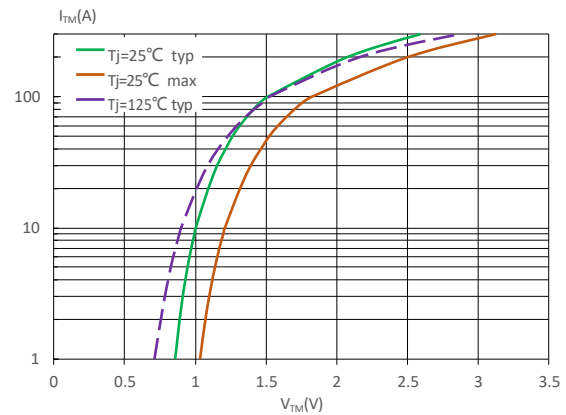
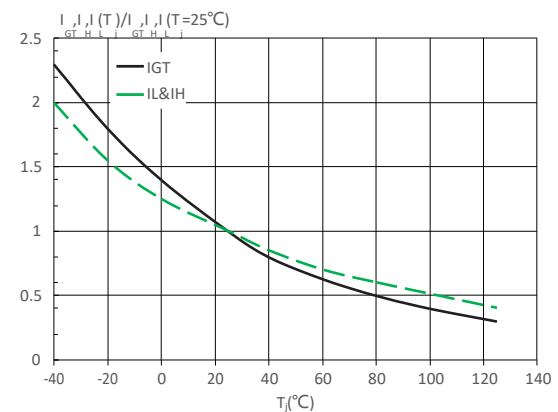
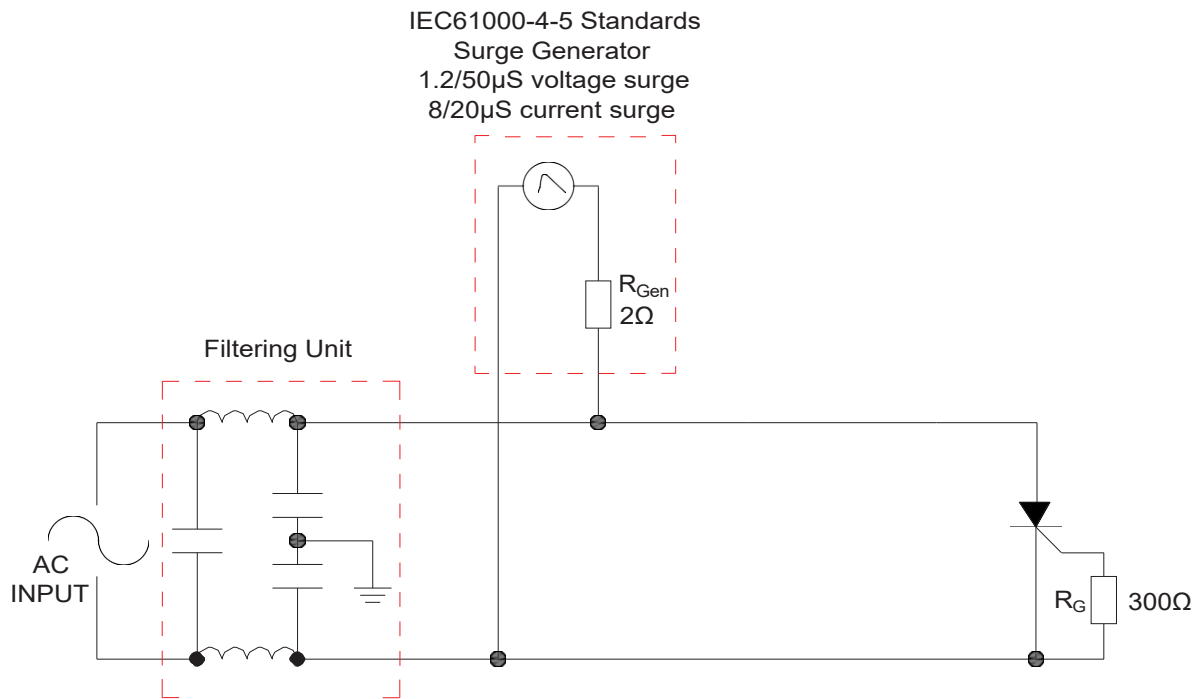
FIG : Maximum power dissipation versus RMS on-state current

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

FIG : Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 200\text{A}/\mu\text{s}$)

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