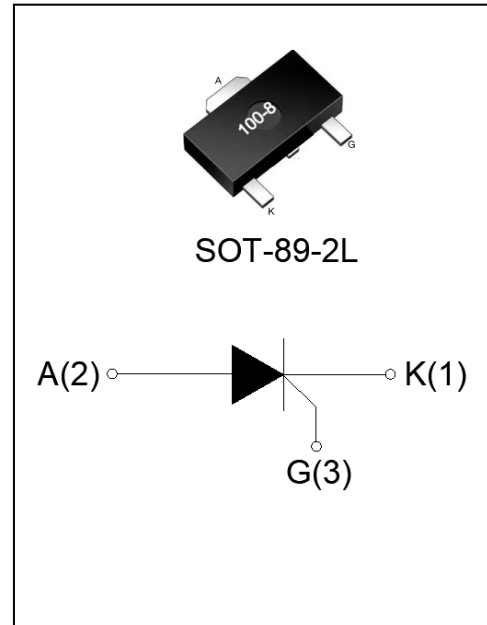


DESCRIPTION:

The 100-8 SCR provides high dV/dt rate with strong resistance to electromagnetic interface. It is especially recommended for use on residual current circuit breaker, straight hair, igniter etc. Package SOT-89-2L is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	1	A
V_{DRM} / V_{RRM}	900	V
I_{GT}	≤ 200	μA



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 ^①	$^{\circ}C$
Repetitive peak off-state voltage ($T_j=25^{\circ}C$)	V_{DRM}	900	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)	V_{RRM}	900	V
Average on-state current ($T_c \leq 72^{\circ}C$)	$I_{T(AV)}$	0.6	A
RMS on-state current ($T_c \leq 72^{\circ}C$)	$I_{T(RMS)}$	1	A
Non repetitive surge peak on-state current ($t_p=10ms$, $T_j=25^{\circ}C$)	I_{TSM}	12	A
Non repetitive surge peak on-state current ($t_p=8.3ms$, $T_j=25^{\circ}C$)		13	
I^2t value for fusing ($t_p=10ms$, $T_j=25^{\circ}C$)	I^2t	0.72	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	100	$A/\mu s$
Peak gate current ($t_p=20\mu s$, $T_j=125^{\circ}C$)	I_{GM}	1	A
Average gate power dissipation ($T_j=125^{\circ}C$)	$P_{G(AV)}$	0.1	W



Peak gate power	P_{GM}	2	W
Peak pulse voltage ($T_j=25^{\circ}\text{C}$; non-repetitive, off-state; FIG.8)	V_{pp}	1	kV

NOTE 1: When we parallel connect a $\leq 1\text{K}\Omega$ resistor between Gate and Cathode, the T_j can reach 125°C ; if without this resistor, the T_j only can reach 110°C .

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

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	-	40	200	μA
V_{GT}		-	0.6	0.8	V
V_{GD}	$V_D=V_{DRM} T_j=125^{\circ}\text{C}$	0.2	-	-	V
I_L	$I_G=1.2 I_{GT}$	-	-	5	mA
I_H	$I_T=0.05\text{A}$	-	-	4	mA
dV/dt	$V_D=540\text{V } T_j=125^{\circ}\text{C } R_{GK}=1\text{K}\Omega$	200	-	-	$\text{V}/\mu\text{s}$
	$V_D=540\text{V } T_j=125^{\circ}\text{C } R_{GK}=220\Omega$	500	-	-	
t_{on}	$I_G=10\text{mA } I_A=20\text{mA } I_R=2\text{mA}$	-	2	-	μs
t_{off}	$T_j=25^{\circ}\text{C}$	-	50	-	μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_T=2\text{A } t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.4	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.8	V
R_D	Dynamic Resistance	$T_j=125^{\circ}\text{C}$	0.1	Ω
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	0.2	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (DC)	45	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (DC, in free air, $S=5\text{cm}^2$)	100	$^{\circ}\text{C}/\text{W}$

MARKING

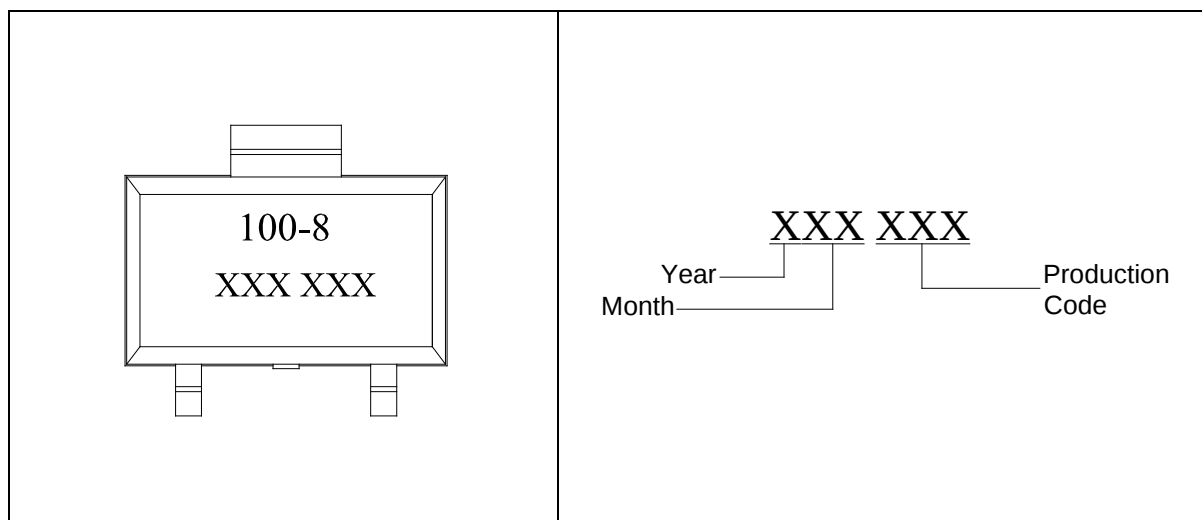


FIG.1 Maximum power dissipation versus RMS on-state current

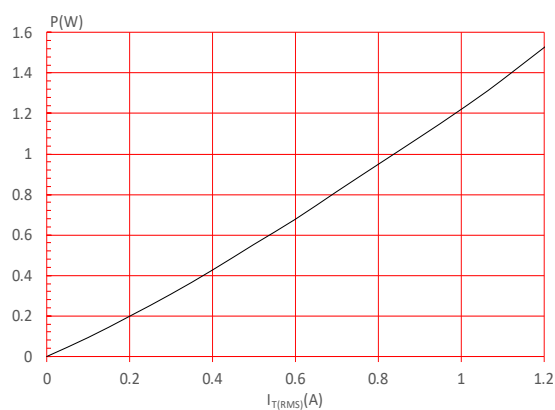


FIG.3: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:35 μ m)(full cycle)

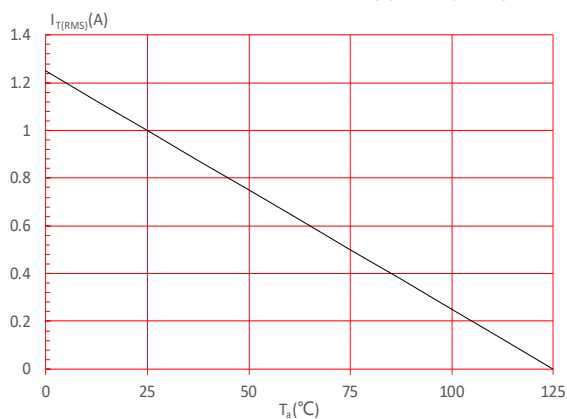


FIG.2: RMS on-state current versus case temperature

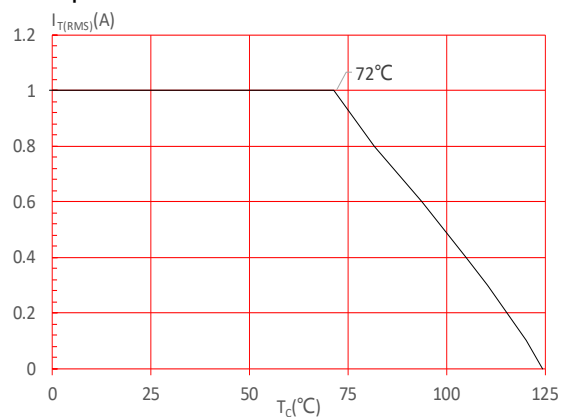


FIG.4: Surge peak on-state current versus number of cycles

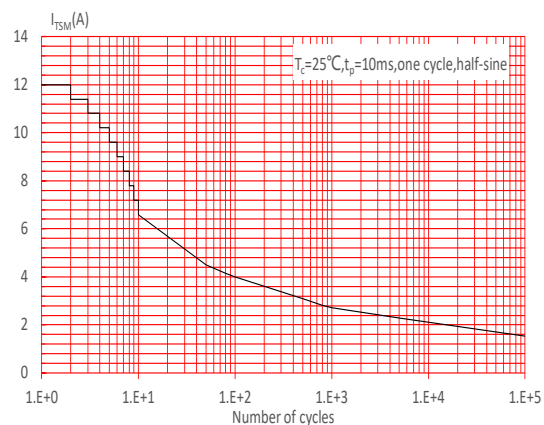


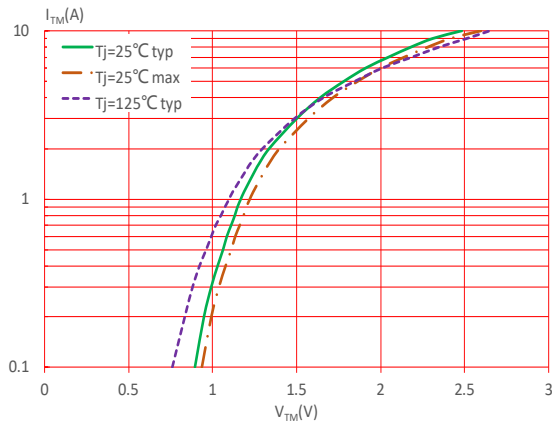
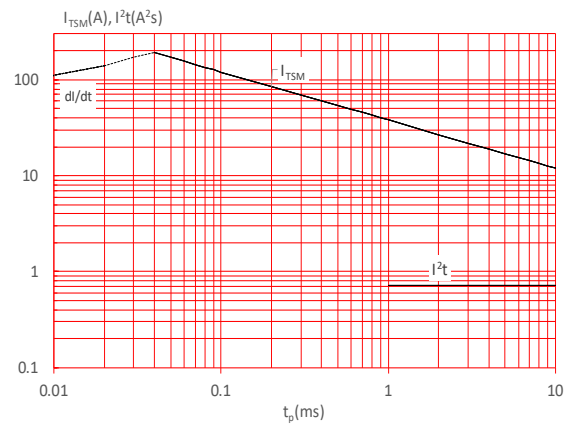
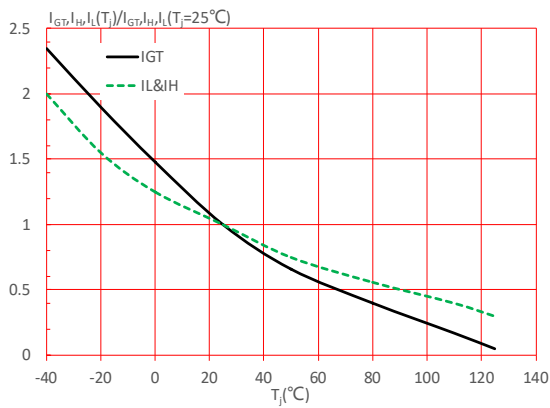
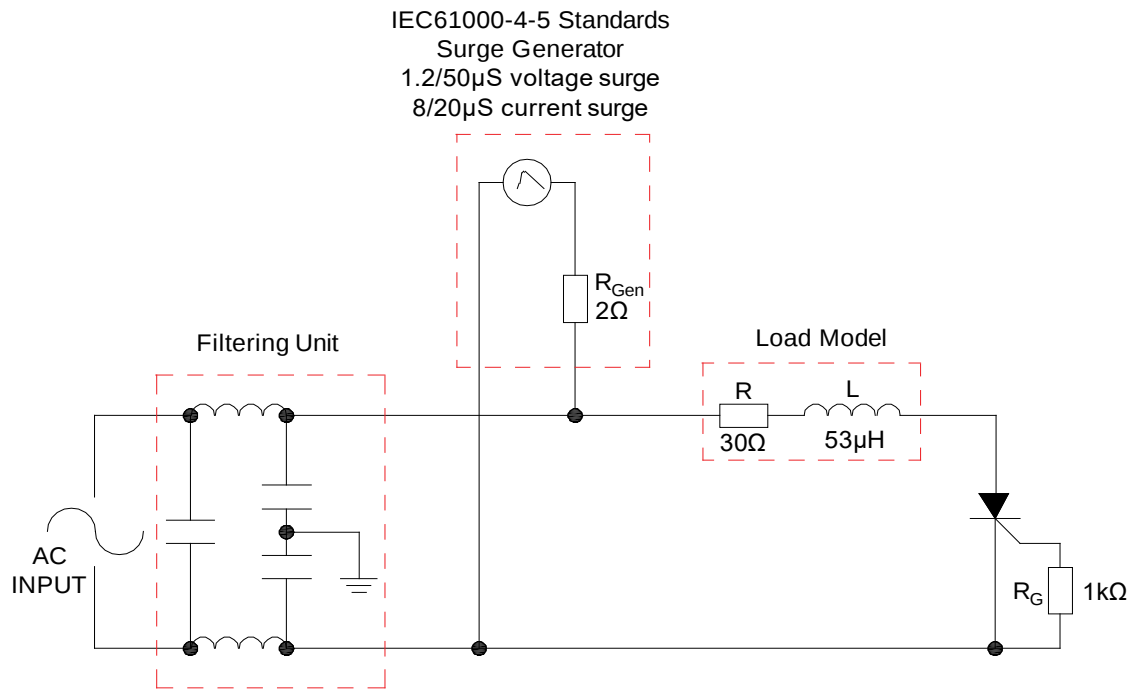
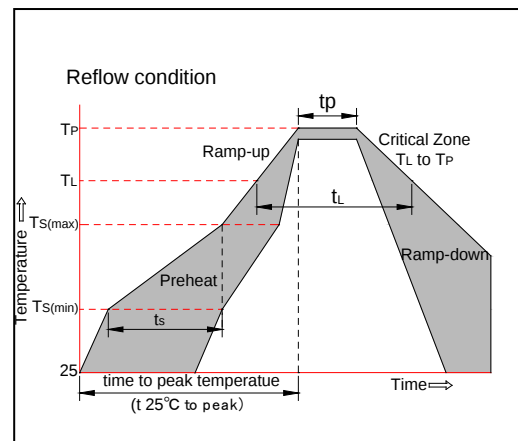
FIG.5: On-state characteristics

FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($dI/dt < 100\text{A}/\mu\text{s}$)

FIG.7: Relative variations of gate trigger current, holding current and latching current versus junction temperature


FIG.8: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.

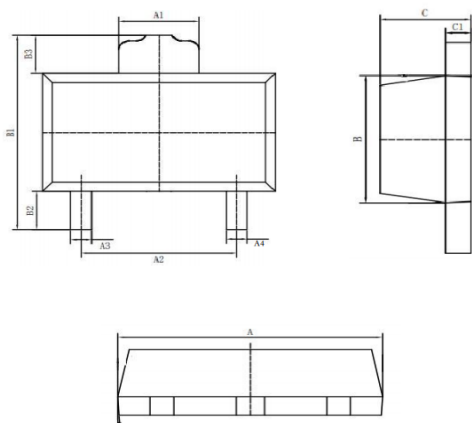


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{S(min)}$)	+150°C
	-Temperature Max ($T_{S(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/sec. Max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L) (Liquidus)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C



PACKAGE MECHANICAL DATA



Symbol	Min	Max	Symbol	Min	Max
A	4.4	4.5	B	2.3	2.6
A1	1.5	1.6	B1	3.9	4.3
A2	2.95	3.05	B2	0.9	1.2
A3	0.3	0.5	B3	0.45	0.75
A4	0.3	0.5	C	1.4	1.6
			C1	0.35	0.44
版次	Ver. 22.6	图纸编号	A-01-006-YY		
比例		名称	SOT-89-2L 产品封装图		
单位	mm				

FOOTPRINT-SOT-89-2L (dimensions in mm)

