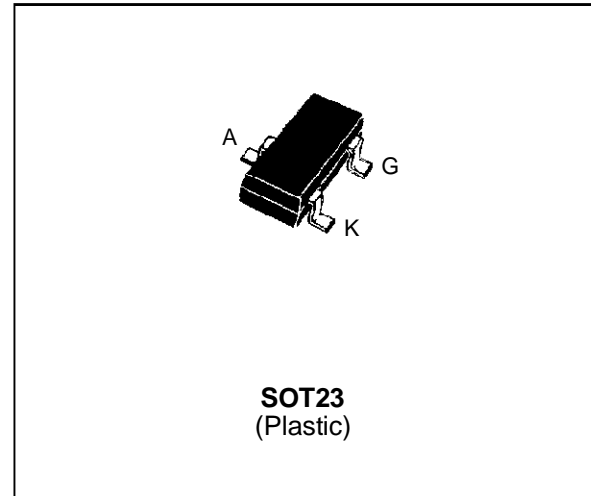


**SENSITIVE GATE SCR**
**FEATURES**

- $I_{T(RMS)} = 0.2A$
- $V_{DRM} = 100V$  to  $400V$
- Low  $I_{GT} < 1\mu A$  max to  $< 200\mu A$

**DESCRIPTION**

The P01xxxL series of SCRs uses a high performance planar PNPN technology. These parts are intended for general purpose high volume applications using surface mount technology.


**ABSOLUTE RATINGS** (limiting values)

Symbol	Parameter	Value	Unit
$I_{T(RMS)}$ *	RMS on-state current (180° conduction angle)	$T_a = 25^\circ C$ 0.26	A
$I_{T(AV)}$ *	Mean on-state current (180° conduction angle)	$T_a = 25^\circ C$ 0.17	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = $25^\circ C$ )	$t_p = 8.3$ ms	7.5
		$t_p = 10$ ms	7
$I_t^2$	$I_t^2$ Value for fusing	$t_p = 10$ ms	$A^2s$
$di/dt$	Critical rate of rise of on-state current $I_G = 10$ mA $di_G/dt = 0.1$ A/ $\mu s$ .	30	A/ $\mu s$
$T_{stg}$ $T_j$	Storage and operating junction temperature range	- 40, + 150 - 40, + 125	$^\circ C$
TI	Maximum lead temperature for soldering during 10s	260	$^\circ C$

\* : Mounted on a ceramic substrate of  $8 \times 10 \times 0.7$ mm.

Symbol	Parameter	Voltage				Unit
		A	B	C	D	
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage $T_j = 125^\circ C$ $R_{GK} = 1K\Omega$	100	200	300	400	V

## P01xxxL

### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient *	500	°C/W

\* : Mounted on a ceramic substrate of 8 x 10 x 0.7mm.

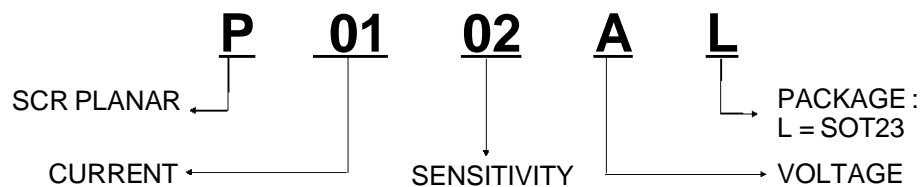
### GATE CHARACTERISTICS (maximum values)

$P_{G(AV)} = 0.02\text{ W}$   $P_{GM} = 1\text{ W}$  ( $t_p = 20\ \mu\text{s}$ )  $I_{GM} = 0.5\text{ A}$  ( $t_p = 20\ \mu\text{s}$ )

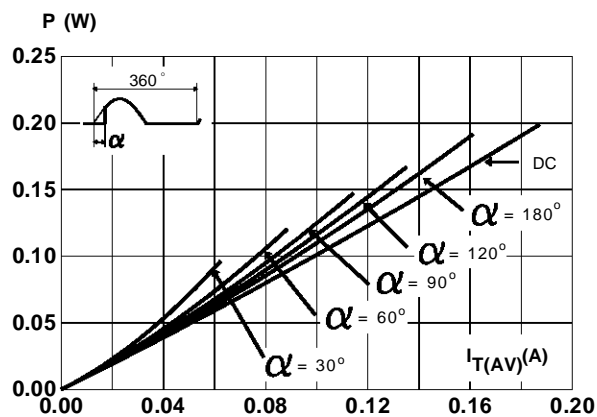
### ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Sensitivity				Unit		
		02	09	11	15			
I <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =140Ω	T <sub>j</sub> = 25°C	MIN	-	-	4	15	μA
			MAX	200	1	25	50	
V <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =140Ω	T <sub>j</sub> = 25°C	MAX	0.8				V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3kΩ R <sub>GK</sub> = 1 KΩ	T <sub>j</sub> = 125°C	MIN	0.1				V
V <sub>RGM</sub>	I <sub>RG</sub> = 10μA	T <sub>j</sub> = 25°C	MIN	8				V
t <sub>gd</sub>	V <sub>D</sub> =V <sub>DRM</sub> I <sub>TM</sub> = 3 x I <sub>T(AV)</sub> dI <sub>G</sub> /dt = 0.1A/μs I <sub>G</sub> = 10mA	T <sub>j</sub> = 25°C	TYP	0.5				μs
I <sub>H</sub>	I <sub>T</sub> = 50mA R <sub>GK</sub> = 1 KΩ	T <sub>j</sub> = 25°C	MAX	5				mA
I <sub>L</sub>	I <sub>G</sub> =1mA R <sub>GK</sub> = 1 KΩ	T <sub>j</sub> = 25°C	MAX	6				mA
V <sub>TM</sub>	I <sub>TM</sub> = 0.4A t <sub>p</sub> = 380μs	T <sub>j</sub> = 25°C	MAX	1.3				V
I <sub>DRM</sub> I <sub>RRM</sub>	V <sub>D</sub> = V <sub>DRM</sub> R <sub>GK</sub> = 1 KΩ V <sub>R</sub> = V <sub>RRM</sub>	T <sub>j</sub> = 25°C	MAX	1				μA
		T <sub>j</sub> = 125°C	MAX	100				μA
dV/dt	V <sub>D</sub> =67%V <sub>DRM</sub> R <sub>GK</sub> = 1 KΩ	T <sub>j</sub> = 125°C	MIN	25	25	50	100	V/μs
t <sub>q</sub>	I <sub>TM</sub> = 3 x I <sub>T(AV)</sub> V <sub>R</sub> =35V dI/dt=10A/μs t <sub>p</sub> =100μs dV/dt=10V/μs V <sub>D</sub> = 67%V <sub>DRM</sub> R <sub>GK</sub> = 1 KΩ	T <sub>j</sub> = 125°C	MAX	200				μs

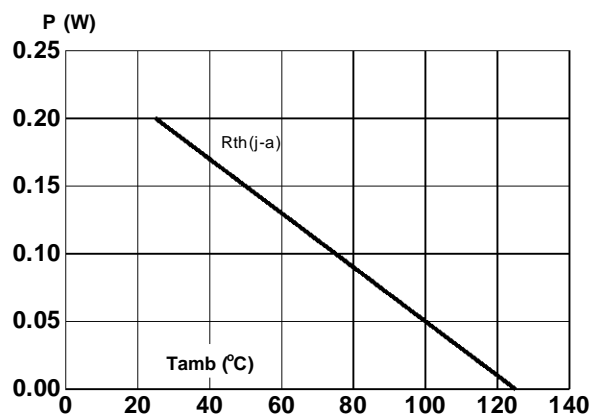
### ORDERING INFORMATION



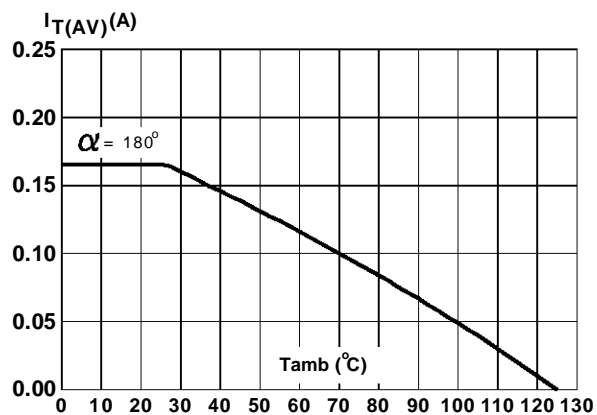
**Fig.1 :** Maximum average power dissipation versus average on-state current.



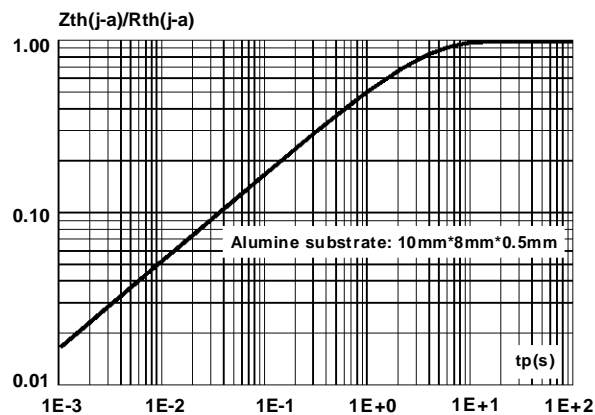
**Fig.2 :** Correlation between maximum average power dissipation and maximum allowable temperature (Tamb).



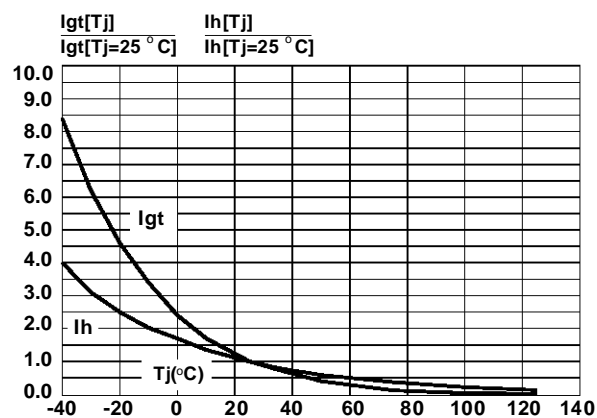
**Fig.3 :** Average on-state current versus tab temperature.



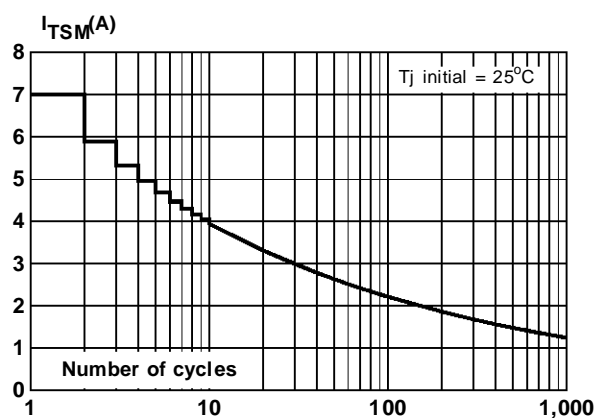
**Fig.4 :** Relative variation of thermal impedance junction to ambient versus pulse duration.



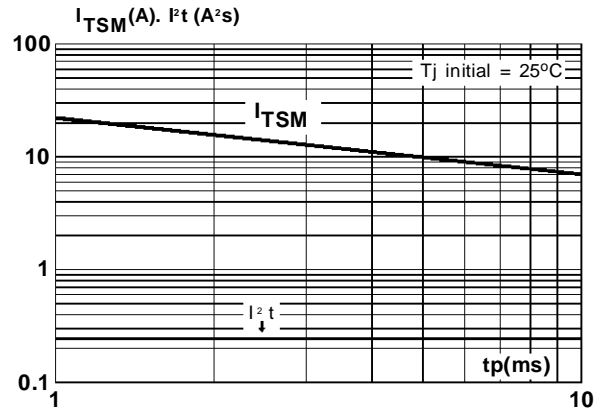
**Fig.5 :** Relative variation of gate trigger current and holding current versus junction temperature.



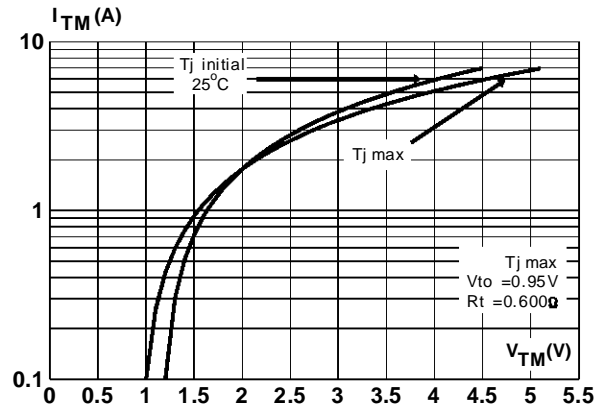
**Fig.6 :** Non repetitive surge peak on-state current versus number of cycles.



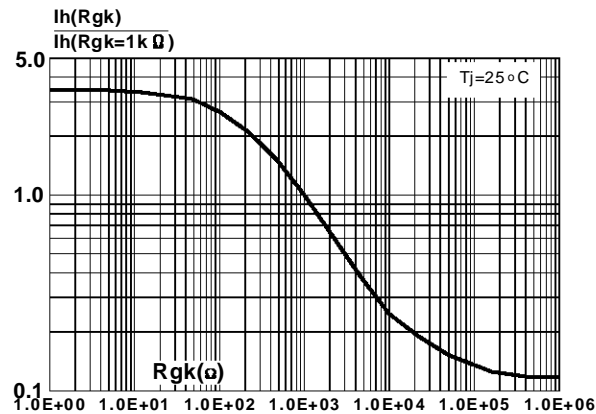
**Fig.7 :** Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t_p \leq 10\text{ms}$ , and corresponding value of  $I^2t$ .



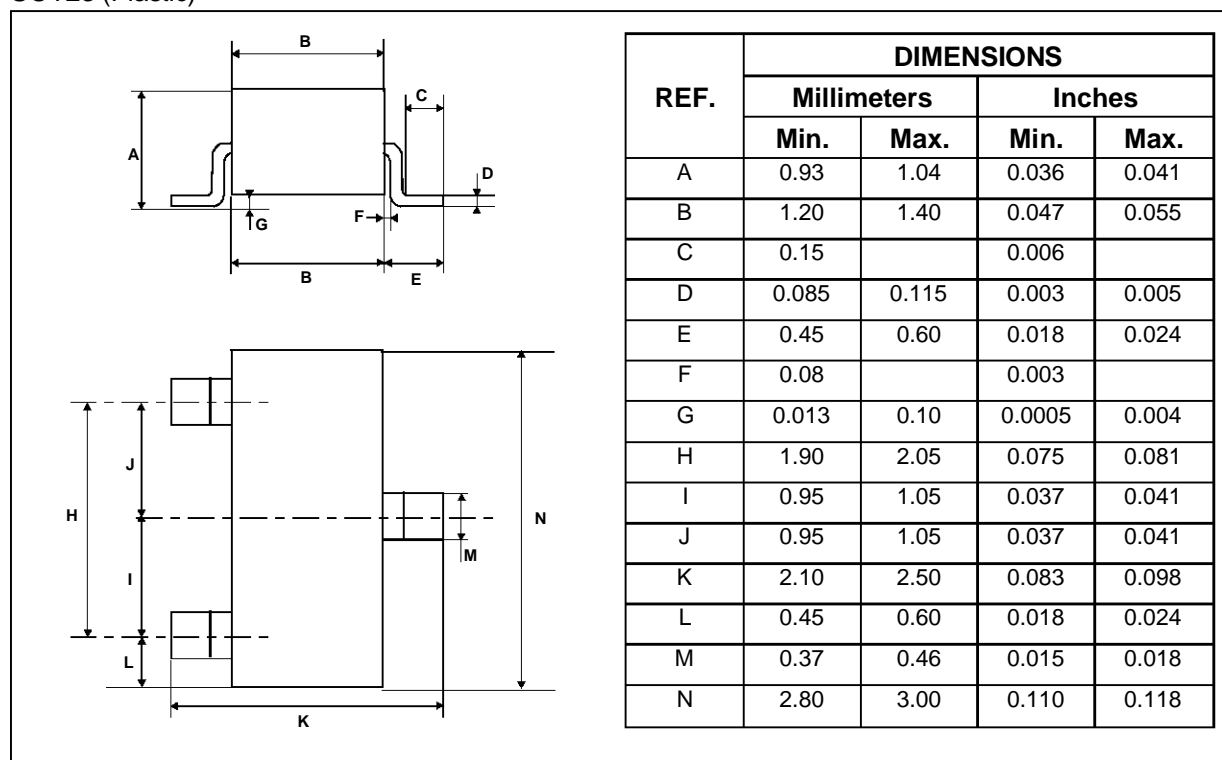
**Fig.8 :** On-state characteristics (maximum values).



**Fig.9 :** Relative variation of holding current versus gate-cathode resistance (typical values).

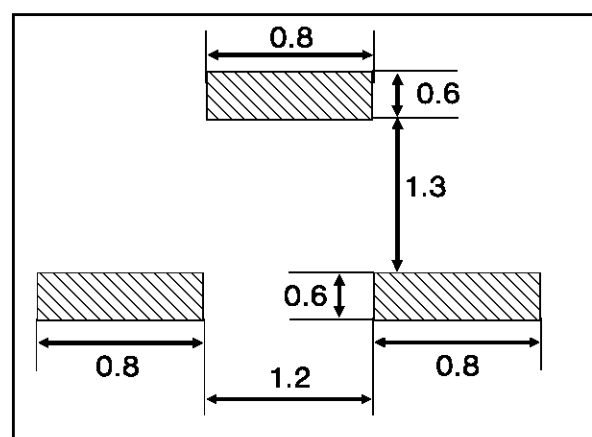


**PACKAGE MECHANICAL DATA**  
SOT23 (Plastic)



Weight : 0.007 g

**FOOT PRINT**



## P01xxxL

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### MARKING

Type	Marking
P0102AL	P2A
P0102BL	P2B
P0102CL	P2C
P0102DL	P2D
P0109AL	P9A
P0109BL	P9B
P0109CL	P9C
P0109DL	P9D
P0111AL	P1A
P0111BL	P1B
P0111CL	P1C
P0111DL	P1D
P0115AL	P5A
P0115BL	P5B
P0115CL	P5C
P0115DL	P5D

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