

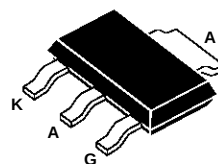
SENSITIVE GATE SCR

FEATURES

- $I_{T(RMS)} = 0.8A$
- $V_{DRM} = 100V$ to $400V$
- Low $I_{GT} < 200 \mu A$

DESCRIPTION

The P01xxxN series of SCRs uses a high performance planar PNPN technology. These parts are intended for general purpose high volume applications using surface mount technology.



SOT223
(Plastic)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$ *	RMS on-state current (180° conduction angle)	$T_a = 70^\circ C$	0.8	A
$I_{T(AV)}$ *	Mean on-state current (180° conduction angle)	$T_a = 70^\circ C$	0.5	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = $25^\circ C$)	$t_p = 8.3 \text{ ms}$	8	A
		$t_p = 10 \text{ ms}$	7	
I_t^2	I_t^2 Value for fusing	$t_p = 10 \text{ ms}$	0.24	$A^2 s$
di/dt	Critical rate of rise of on-state current $I_G = 10 \text{ mA}$ $di_G/dt = 0.1 \text{ A}/\mu s$.		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	$^\circ C$

* : With 5 cm^2 copper ($e=35 \mu m$) surface under tab.

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

P01xxxN

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient *	60	°C/W
Rth(j-t)	Junction to tab for DC	30	°C/W

* : With 5cm² copper (e=35µm) surface under tab.

GATE CHARACTERISTICS (maximum values)

P_{G (AV)} = 0.1 W P_{GM} = 2 W (tp = 20 µs) I_{GM} = 1 A (tp = 20 µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions				Sensitivity			Unit
					02	09	11	
I _{GT}	V _D =12V (DC) R _L =140Ω	T _j = 25°C	MIN		-	-	4	µA
			MAX		200	1	25	
V _{GT}	V _D =12V (DC) R _L =140Ω	T _j = 25°C	MAX		0.8			V
V _{GD}	V _D =V _{DRM} R _L =3.3kΩ R _{GK} = 1 KΩ	T _j = 125°C	MIN		0.1			V
V _{RGM}	I _{RG} =10µA	T _j = 25°C	MIN		8			V
tgδ	V _D =V _{DRM} I _{TM} = 3 x I _{T(AV)} dI _G /dt = 0.1A/µs I _G = 10mA	T _j = 25°C	TYP		0.5			µs
I _H	I _T = 50mA R _{GK} = 1 KΩ	T _j = 25°C	MAX		5			mA
I _L	I _G =1mA R _{GK} = 1 KΩ	T _j = 25°C	MAX		6			mA
V _{TM}	I _{TM} = 1.6A tp= 380µs	T _j = 25°C	MAX		1.95			V
I _{DRM} I _{RRM}	V _D = V _{DRM} R _{GK} = 1 KΩ V _R = V _{RRM}	T _j = 25°C	MAX		1			µA
		T _j = 125°C	MAX		100			µA
dV/dt	V _D =67%V _{DRM} R _{GK} = 1 KΩ	T _j = 125°C	MIN		25	25	50	V/µs
tq	I _{TM} = 3 x I _{T(AV)} V _R =35V dI/dt=10A/µs tp=100µs dV/dt=10V/µs V _D = 67%V _{DRM} R _{GK} = 1 KΩ	T _j = 125°C	MAX		200			µs

ORDERING INFORMATION

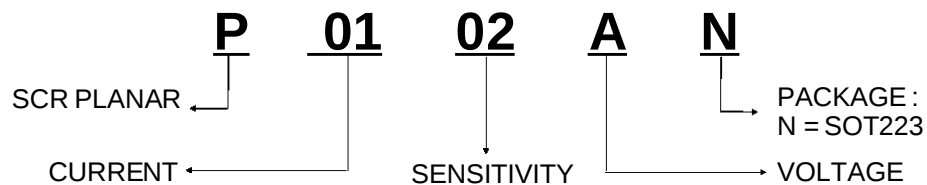


Fig.1 : Maximum average power dissipation versus average on-state current.

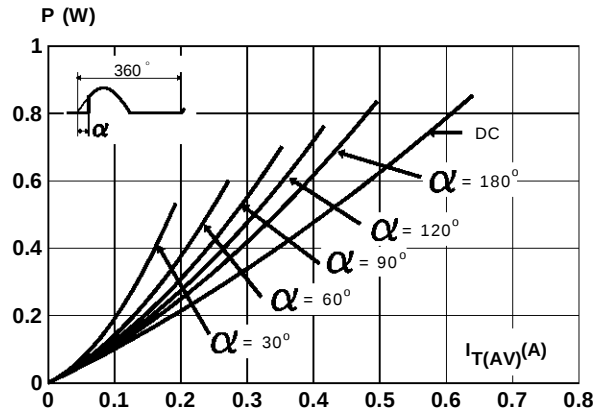


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (T_{amb} and T_{tab}).

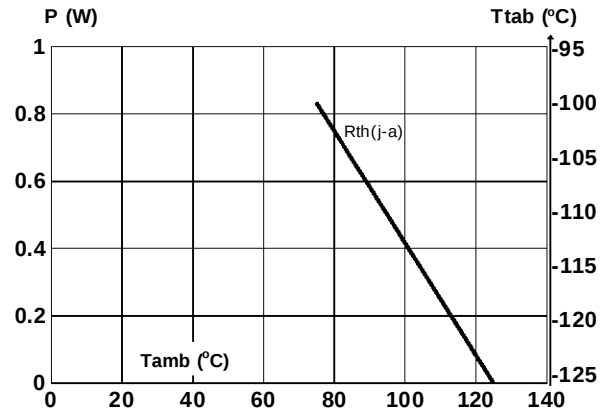


Fig.3 : Average on-state current versus tab temperature.

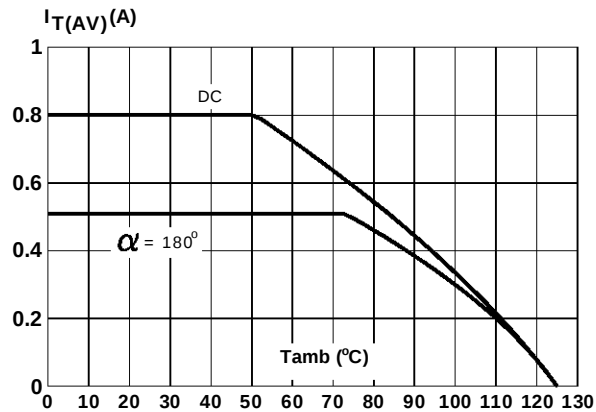


Fig.4 : Relative variation of thermal impedance junction to ambient versus pulse duration.

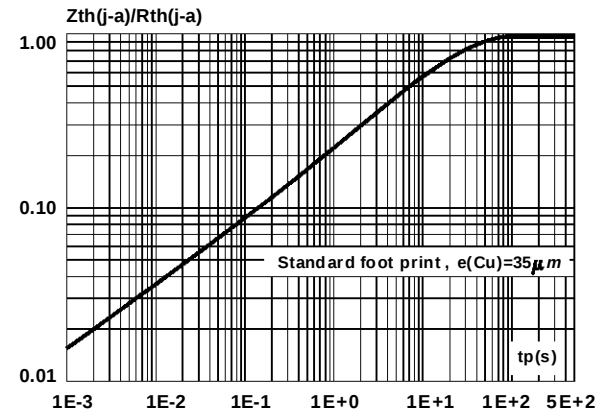


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

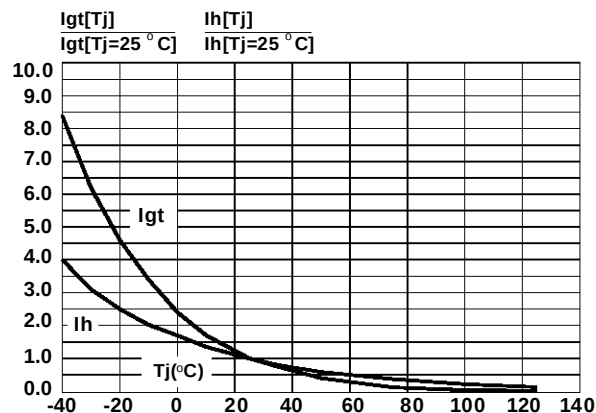


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

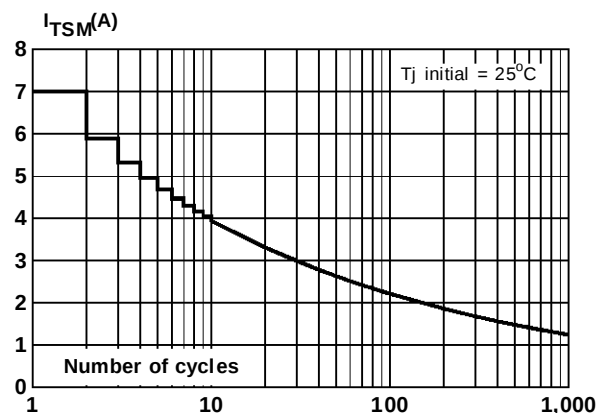


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t_p \leq 10\text{ms}$, and corresponding value of I^2t .

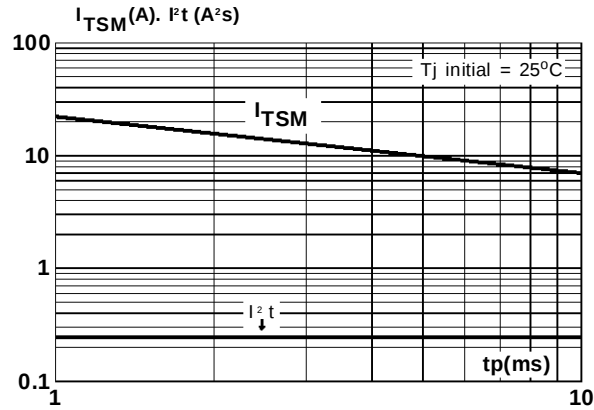


Fig.8 : On-state characteristics (maximum values).

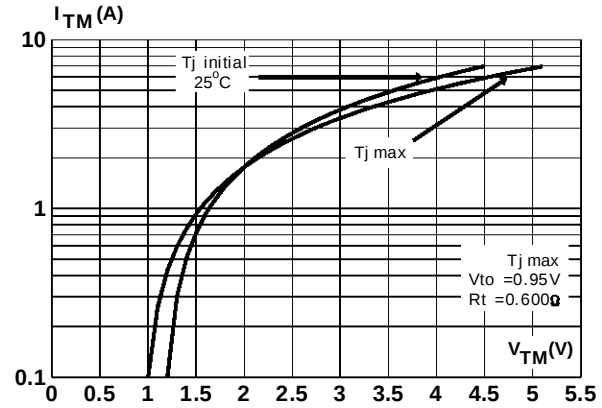
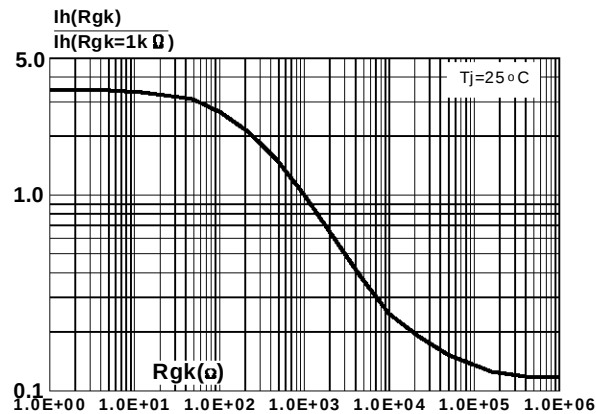
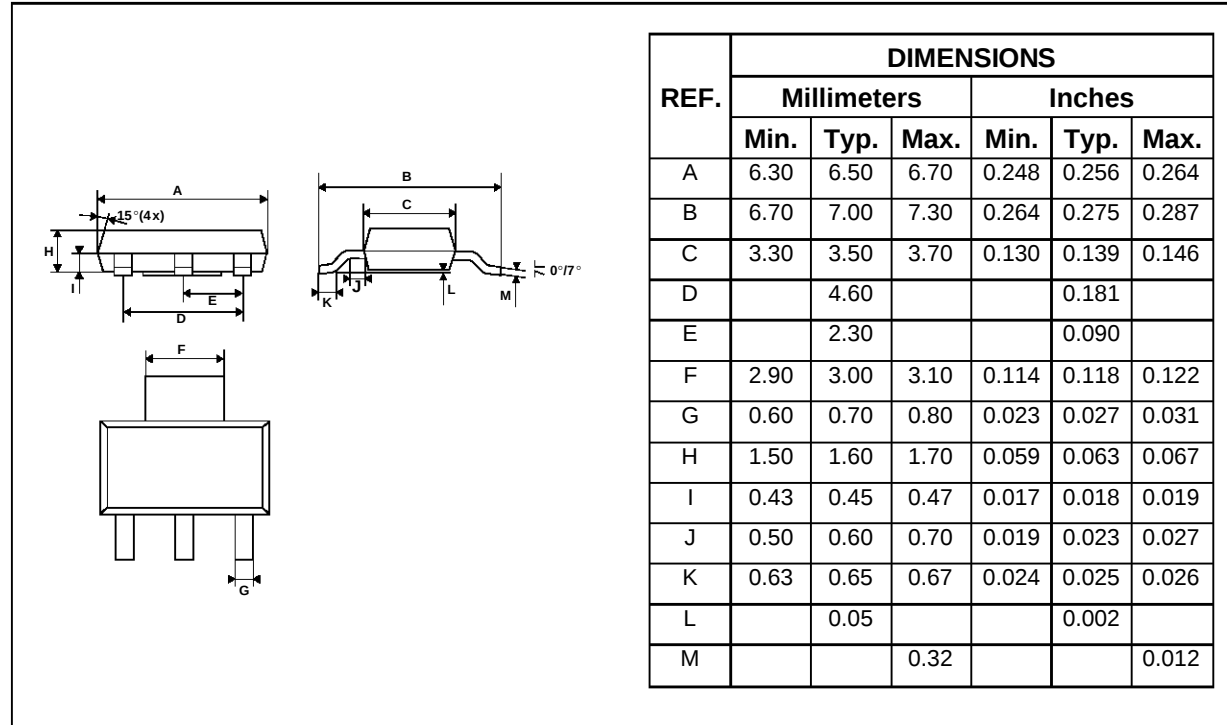
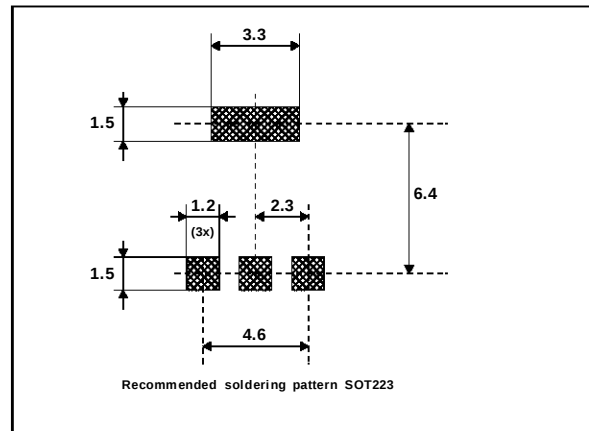


Fig.9 : Relative variation of holding current versus gate-cathode resistance (typical values).



PACKAGE MECHANICAL DATA
SOT223 (Plastic)


Weight : 0.11g

FOOT PRINT**MARKING**

Type	Marking
P0102AN	P2A
P0102BN	P2B
P0102CN	P2C
P0102DN	P2D
P0111AN	P1A
P0111BN	P1B
P0111CN	P1C
P0111DN	P1D
P0109AN	P9A
P0109BN	P9B
P0109CN	P9C
P0109DN	P9D

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