P01xxxN

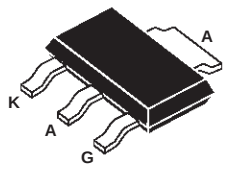
SENSITIVE SCR

FEATURES

- $I_{T(RMS)}$ = 0.8A
- V_{DRM} / V_{RRM}= 200V to 600V

DESCRIPTION

High performance planar technology. These parts are intended for general purpose applications where low gate sensitivity is required.



SOT223
(Plastic)

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$ *	RMS on-state current (180° conduction angle)	Ta= 70°C	0.8	A
$I_{T(AV)}$ *	Mean on-state current (180° conduction angle)	Ta= 70°C	0.5	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	tp = 8.3 ms	8	A
		tp = 10 ms	7	
I^2t	I^2t Value for fusing	tp = 10 ms	0.24	A^2s
dI/dt	Critical rate of rise of on-state current I_G = 10 mA di_G/dt = 0.1 A/µs.		30	A/µs
T_{stg} T_j	Storage temperature range Operating junction temperature range		- 40, + 150 - 40, + 125	°C
Tl	Maximum lead temperature for soldering during 10s		260	°C

* : With 5cm^2 copper (e=35µm) surface under tab.

Symbol	Parameter	Voltage			Unit
		B	D	M	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage T_j = 125°C R_{GK} = 1K	200	400	600	V

THERMAL RESISTANCES

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

* : With 5cm^2 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
				09	02	11	
I_{GT}	V_D=12V (DC) R_L=140Ω	Tj= 25°C	MIN	-	-	4	µA
			MAX	1	200	25	
V_{GT}	V_D=12V (DC) R_L=140Ω	Tj= 25°C	MAX	0.8			V
V_{GD}	V_D=V_{DRM} R_L=3.3kΩ R_{GK} = 1 KΩ	Tj= 125°C	MIN	0.1			V
V_{GRM}	I_{RG} =10µA	Tj= 25°C	MIN	8			V
tgd	V_D=V_{DRM} I_{TM}= 3 x $I_{T(AV)}$ dI_G/dt = 0.1A/µs I_G = 10mA	Tj= 25°C	TYP	0.5			µs
I_H	I_T= 50mA R_{GK} = 1 KΩ	Tj= 25°C	MAX	5			mA
I_L	I_G=1mA R_{GK} = 1 KΩ	Tj= 25°C	MAX	6			mA
V_{TM}	I_{TM}= 1.6A tp= 380µs	Tj= 25°C	MAX	1.95			V
I_{DRM} I_{RRM}	V_D = V_{DRM} R_{GK} = 1 KΩ V_R = V_{RRM}	Tj= 25°C	MAX	B/D: 1 - M: 10			µA
		Tj= 125°C	MAX	100			µA
dV/dt	V_D = 67%V_{DRM} R_{GK} = 1 KΩ	Tj= 125°C	MIN	50	75	80	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	Tj= 125°C	MAX	200			µs

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

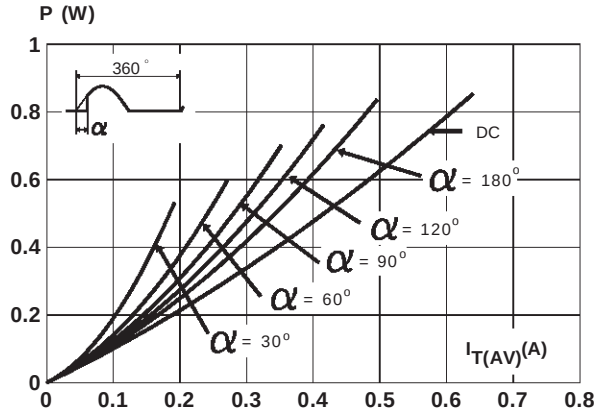


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and Ttab).

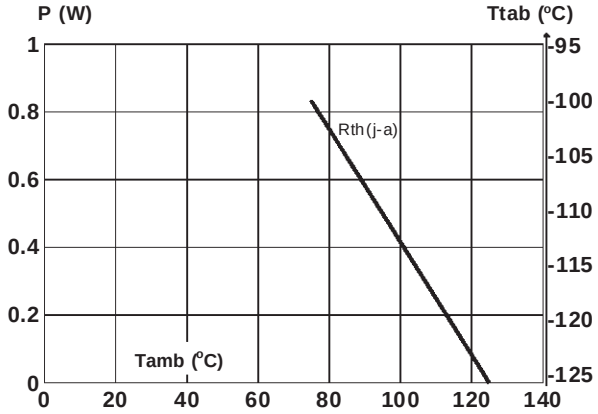


Fig.3 : Average on-state current versus tab temperature.

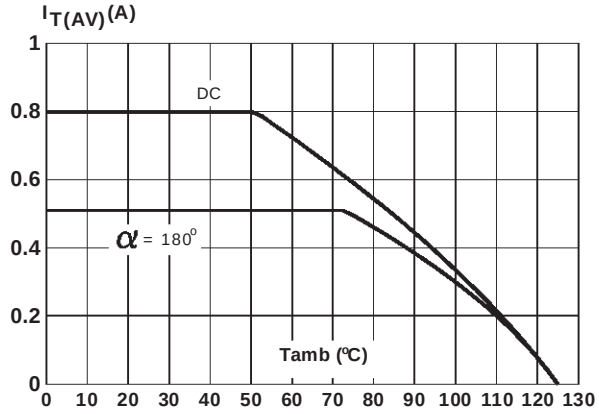


Fig.4 : Relative variation of thermal impedance junction to ambient versus pulse duration.

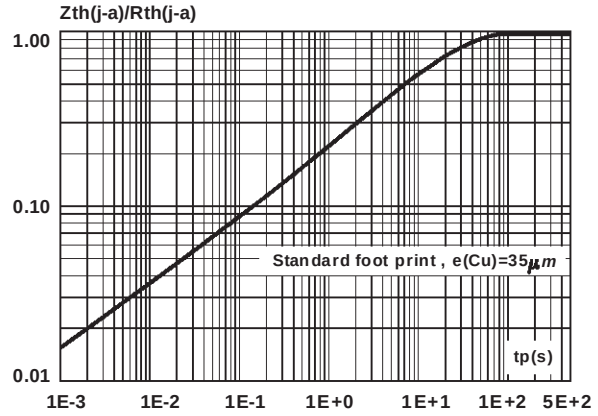


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

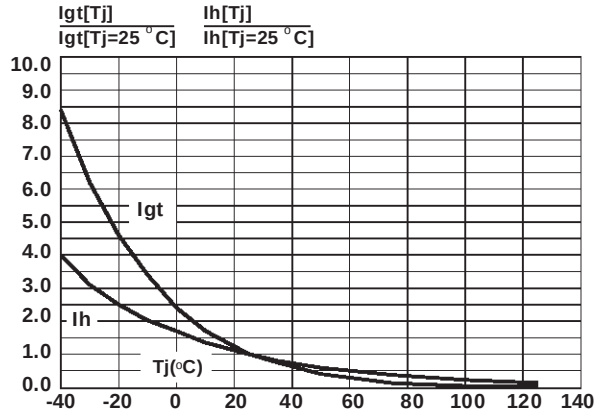


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

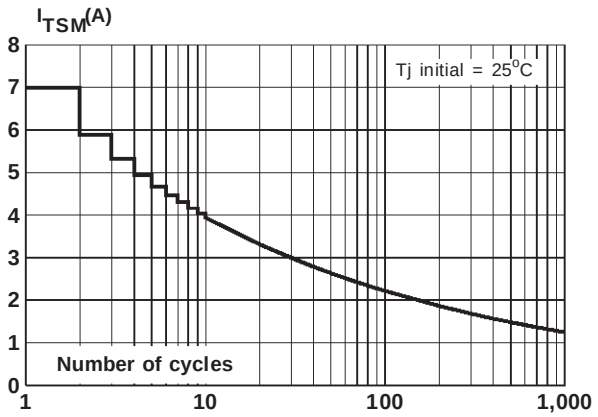


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : tp ® 10ms, and corresponding value of I^2t.

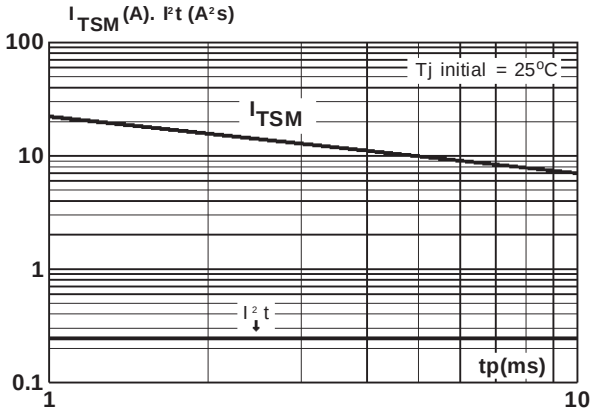


Fig.8 : On-state characteristics (maximum values).

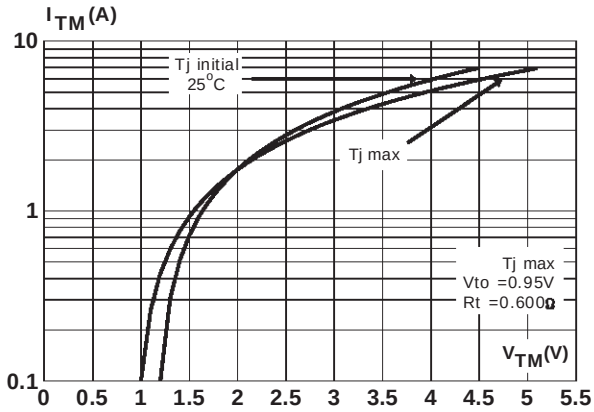
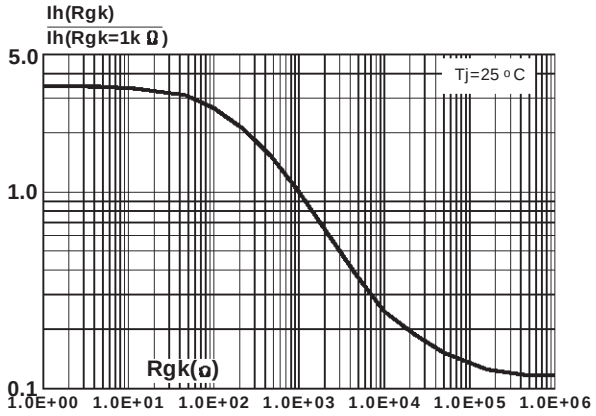
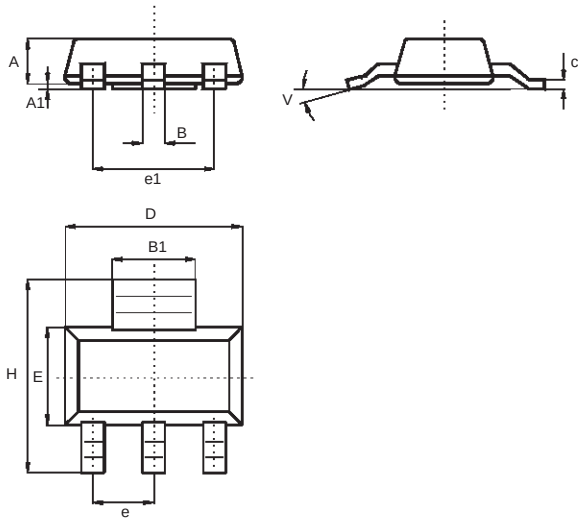


Fig.9 : Relative variation of holding current versus gate-cathode resistance (typical values).



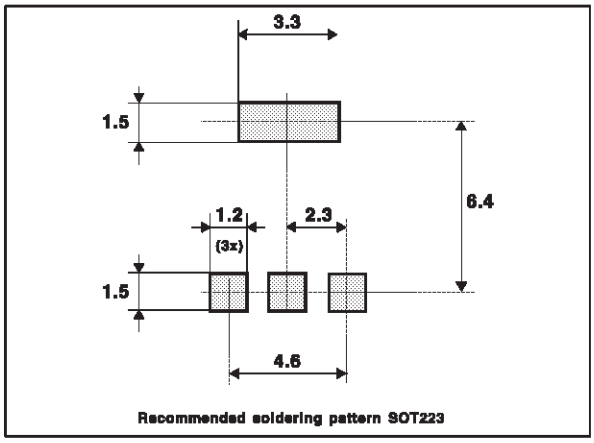
PACKAGE MECHANICAL DATA

SOT223 (Plastic)

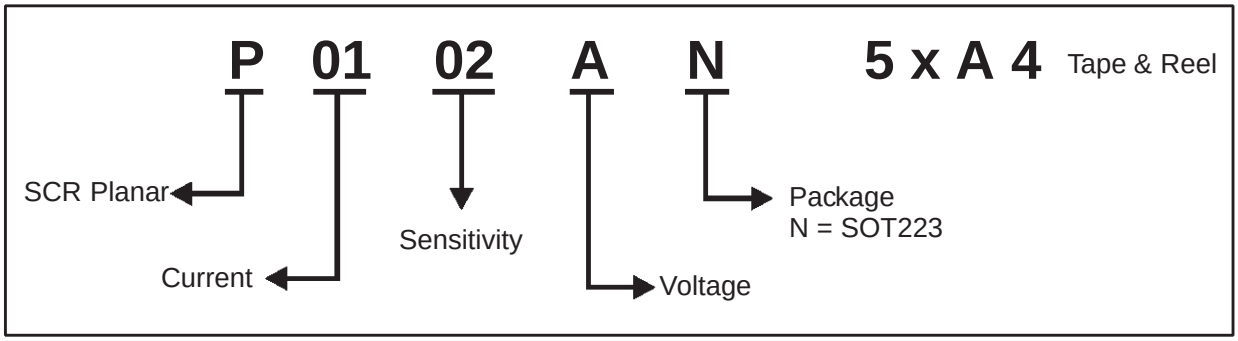


REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.80			0.071
A1		0.02			0.001	
B	0.60	0.70	0.80	0.024	0.027	0.031
B1	2.90	3.00	3.10	0.114	0.118	0.122
c	0.24	0.26	0.32	0.009	0.010	0.013
D	6.30	6.50	6.70	0.248	0.256	0.264
e		2.3			0.090	
e1		4.6			0.181	
E	3.30	3.50	3.70	0.130	0.138	0.146
H	6.70	7.00	7.30	0.264	0.276	0.287
V	10° max					

FOOT PRINT



ORDERING INFORMATION



MARKING

Type	Marking	Package	Weight	Delivery mode	Base qty
P0102BN	P2B	SOT223	0.11g	Tape & Reel	1000
P0109BN	P9B				
P0111BN	P1B				
P0102DN	P2D				
P0109DN	P9D				
P0111DN	P1D				
P0102MN	P2M				
P0109MN	P9M				
P0111MN	P1M				