

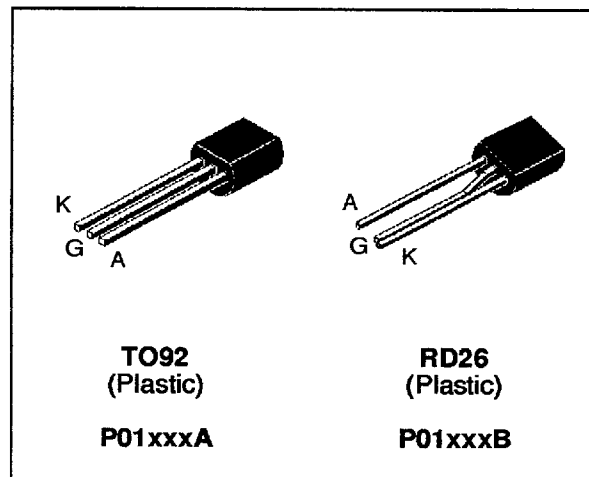
SENSITIVE GATE SCR

FEATURES

- $I_{T(RMS)} = 0.8A$
- $V_{DRM} = 100V$ to $400V$
- Low $I_{GT} < 1\mu A$ max to $< 200\mu A$

DESCRIPTION

The P01xxxA/B series of SCRs uses a high performance planar PNP technology. These parts are intended for general purpose applications where low gate sensitivity is required.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	$T_I = 55^\circ C$	0.8	A
$I_{T(AV)}$	Mean on-state current (180° conduction angle)	$T_I = 55^\circ C$	0.5	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = $25^\circ C$)	$t_p = 8.3$ ms	8	A
		$t_p = 10$ ms	7	
$I^2 t$	$I^2 t$ Value for fusing	$t_p = 10$ ms	0.24	$A^2 s$
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 and operating junction temperature range		- 40, + 150 - 40, + 125	$^\circ C$
T_I	Maximum lead temperature for soldering during 10s at 2mm from case		260	$^\circ C$

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

P01xxxA/B

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	150	°C/W
Rth(j-l)	Junction to leads for DC	80	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{G(AV)} = 0.1\text{ W}$ $P_{GM} = 2\text{ W}$ ($t_p = 20\text{ }\mu\text{s}$) $I_{GM} = 1\text{ A}$ ($t_p = 20\text{ }\mu\text{s}$)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions				Sensitivity					Unit
					02	09	11	15	18	
I_{GT}	$V_D = 12\text{V (DC)}$ $R_L = 140\Omega$	$T_j = 25^\circ\text{C}$	MIN				4	15	0.5	μA
			MAX	200	1	25	50	5		
V_{GT}	$V_D = 12\text{V (DC)}$ $R_L = 140\Omega$	$T_j = 25^\circ\text{C}$	MAX	0.8						V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\text{k}\Omega$ $R_{GK} = 1\text{ K}\Omega$	$T_j = 125^\circ\text{C}$	MIN	0.1						V
V_{RGM}	$I_{RG} = 10\mu\text{A}$	$T_j = 25^\circ\text{C}$	MIN	8						V
t_{gd}	$V_D = V_{DRM}$ $I_{TM} = 3 \times I_{T(AV)}$ $dI_G/dt = 0.1\text{ A}/\mu\text{s}$ $I_G = 10\text{mA}$	$T_j = 25^\circ\text{C}$	TYP	0.5						μs
I_H	$I_T = 50\text{mA}$ $R_{GK} = 1\text{ K}\Omega$	$T_j = 25^\circ\text{C}$	MAX	5						mA
I_L	$I_G = 1\text{mA}$ $R_{GK} = 1\text{ K}\Omega$	$T_j = 25^\circ\text{C}$	MAX	6						mA
V_{TM}	$I_{TM} = 1.6\text{A}$ $t_p = 380\mu\text{s}$	$T_j = 25^\circ\text{C}$	MAX	1.93						V
I_{DRM} I_{RRM}	$V_D = V_{DRM}$ $R_{GK} = 1\text{ K}\Omega$ $V_R = V_{RRM}$	$T_j = 25^\circ\text{C}$	MAX	1						μA
		$T_j = 125^\circ\text{C}$	MAX	100						μA
dV/dt	$V_D = 67\%V_{DRM}$ $R_{GK} = 1\text{ K}\Omega$	$T_j = 125^\circ\text{C}$	MIN	25	25	50	100	30		V/ μs
t_q	$I_{TM} = 3 \times I_{T(AV)}$ $V_R = 35\text{V}$ $dI/dt = 10\text{ A}/\mu\text{s}$ $t_p = 100\mu\text{s}$ $dV/dt = 10\text{ V}/\mu\text{s}$ $V_D = 67\%V_{DRM}$ $R_{GK} = 1\text{ K}\Omega$	$T_j = 125^\circ\text{C}$	MAX	200						μs

ORDERING INFORMATION

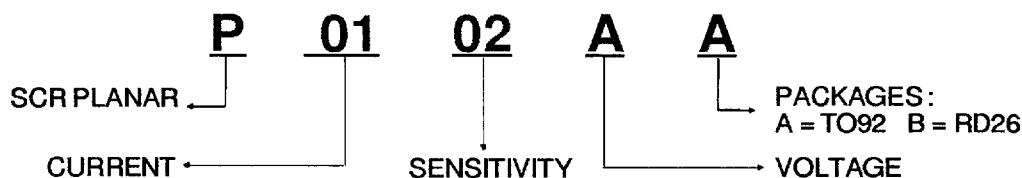


Fig.1 : Maximum average power dissipation versus average on-state current.

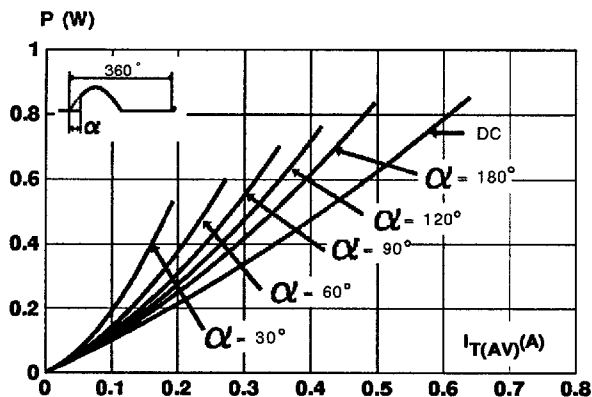


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (T_{amb} and T_{lead}).

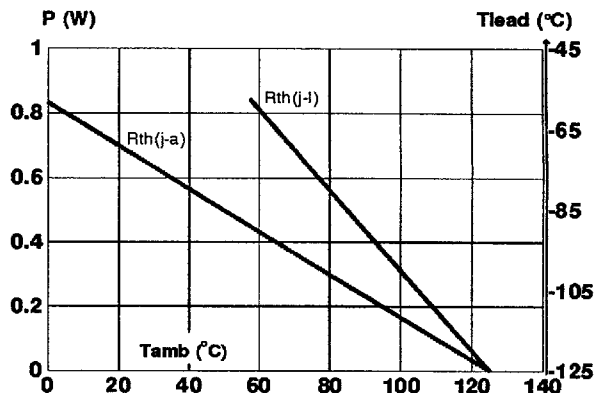


Fig.3 : Average on-state current versus lead temperature.

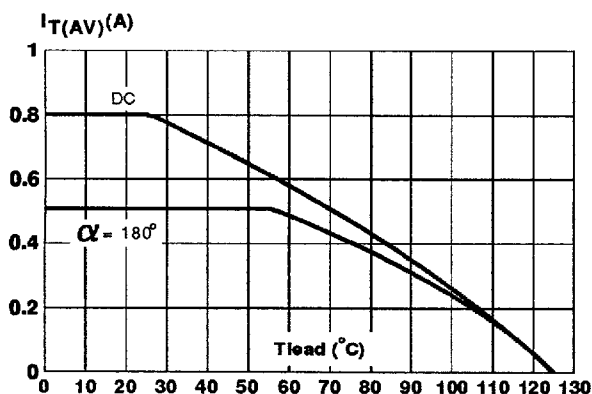


Fig.4 : Relative variation of thermal impedance junction to ambient versus pulse duration.

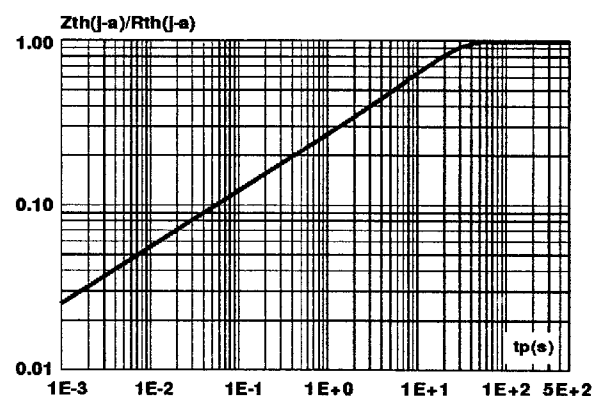


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

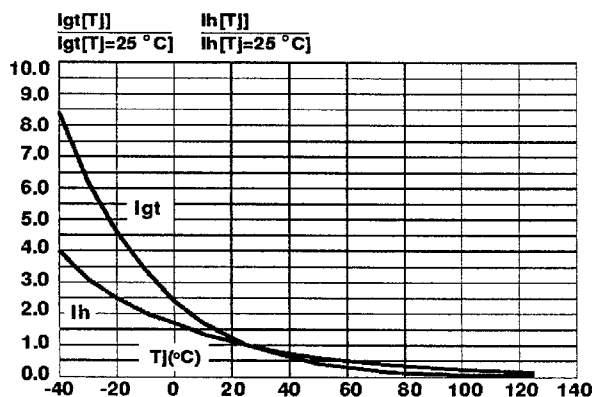


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

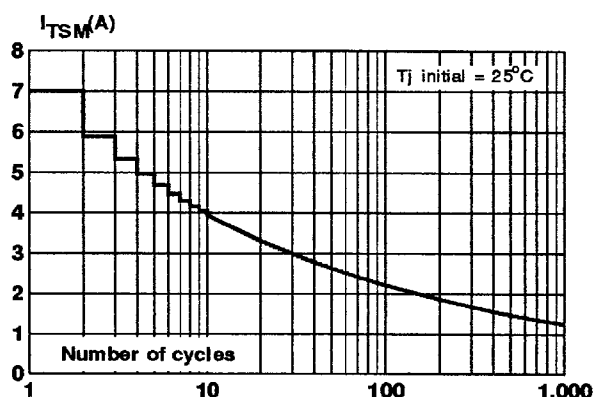


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t_p \leq 10\text{ms}$, and corresponding value of I^2t .

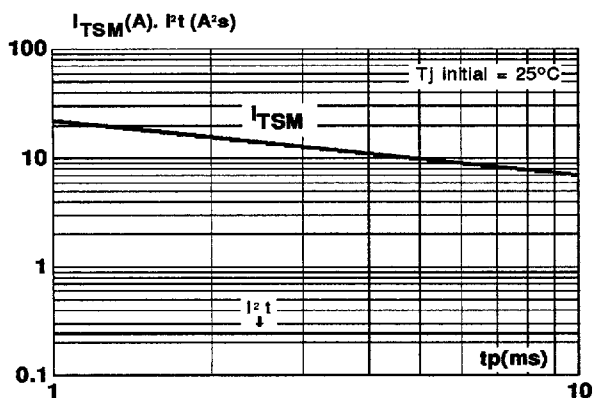


Fig.8 : On-state characteristics (maximum values).

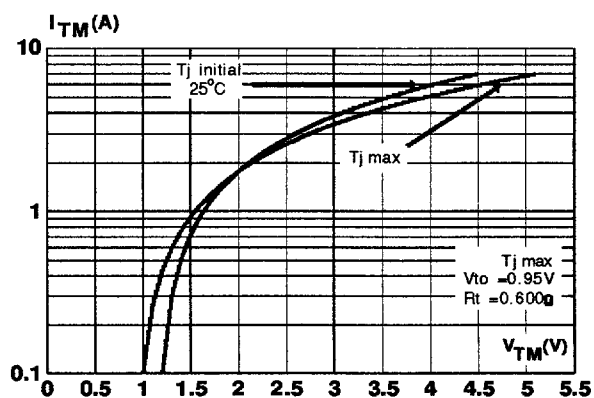
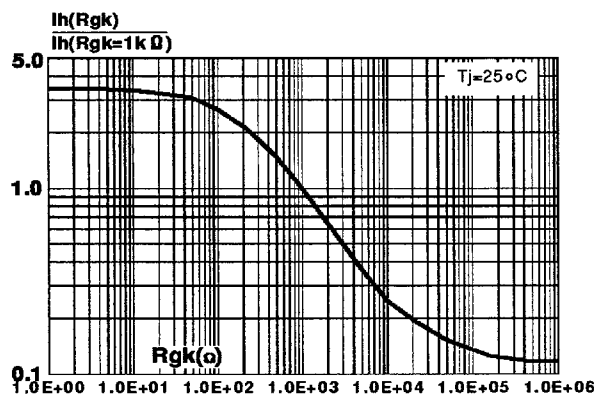


Fig.9 : Relative variation of holding current versus gate-cathode resistance (typical values).



PACKAGE MECHANICAL DATA
TO92 (Plastic)

REF.	DIMENSIONS					
	Millimeters			Inches		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A	1.35			0.053		
B			4.7			0.185
C	2.54			0.100		
D		4.4	4.8		0.173	0.189
E		12.7			0.500	
F			3.7			0.146
a			0.45			0.017

Marking : type number
 Weight : 0.2 g

PACKAGE MECHANICAL DATA
RD26 (Plastic)

REF.	DIMENSIONS					
	Millimeters			Inches		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A	2.54			0.100		
B			3.7			0.146
C	1.35			0.053		
D		4.4	4.8		0.173	0.189
E		12.7			0.500	
F			4.7			0.185
G			3.0			0.118
a			0.45			0.177

Marking : type number
 Weight : 0.2 g

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