

## SURFACE MOUNT SCR

<p><b>SOT223 (Plastic)</b></p>	<p><b>On-State Current</b> 1.25 Amp</p> <p><b>Gate Trigger Current</b> &lt; 200 <math>\mu</math>A</p> <p><b>Off-State Voltage</b> 200 V ÷ 800 V</p>
	<p>These series of <b>Silicon C</b>ontrolled <b>R</b>ectifier use a high performance PNP technology.</p> <p>These parts are intended for general purpose applications where high gate sensitivity is required using surface mount technology.</p>

## Absolute Maximum Ratings, according to IEC publication No. 134

SYMBOL	PARAMETER	CONDITIONS	Min.	Max.	Unit
$I_{T(RMS)}$	On-state Current*	Half Cycle, $\theta = 180^\circ$ , $T_{tab} = 95^\circ\text{C}$	1.25		A
$I_{T(AV)}$	Average On-state Current*	Half Cycle, $\theta = 180^\circ$ , $T_{tab} = 95^\circ\text{C}$	0.8		A
$I_{TSM}$	Non-repetitive On-State Current	Half Cycle, 60 Hz, $T_j = 25^\circ\text{C}$	25		A
$I_{TSM}$	Non-repetitive On-State Current	Half Cycle, 50 Hz, $T_j = 25^\circ\text{C}$	22.5		A
$I^2t$	Fusing Current	$t_p = 10\text{ms}$ , Half Cycle	2.5		$\text{A}^2\text{s}$
$V_{GRM}$	Peak Reverse Gate Voltage	$I_{CR} = 10 \mu\text{A}$ , $T_j = 25^\circ\text{C}$	8		V
$I_{GM}$	Peak Gate Current	20 $\mu\text{s}$ max.		1.2	A
$P_{GM}$	Peak Gate Dissipation	20 $\mu\text{s}$ max.		3	W
$P_{G(AV)}$	Gate Dissipation	20 ms max.		0.2	W
$T_j$	Operating Temperature		-40	+125	$^\circ\text{C}$
$T_{stg}$	Storage Temperature		-40	+150	$^\circ\text{C}$
$T_{sld}$	Soldering Temperature	10s max.		260	$^\circ\text{C}$

\* with 5 cm<sup>2</sup> copper ( $e = 35\mu\text{m}$ ) surface under tab.

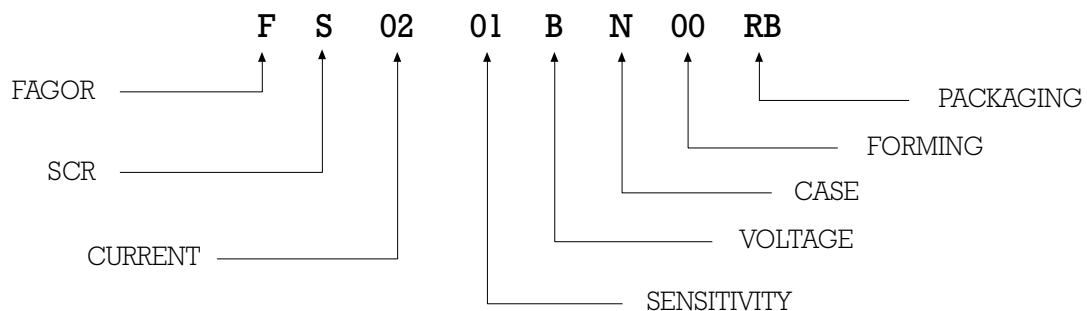
SYMBOL	PARAMETER	CONDITIONS	VOLTAGE				Unit
			B	D	M	N	
$V_{DRM}$ $V_{RRM}$	Repetitive Peak Off State Voltage	$R_{GK} = 1 \text{ K}$	200	400	600	800	V

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## Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	SENSITIVITY				Unit	
			01	04	02	03		
$I_{CT}$	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 140 \Omega, T_j = 25^\circ C$	MIN	1	15		20	$\mu A$
			MAX	20	50	200	200	
$I_{DRM} / I_{RRM}$	Off-State Leakage Current	$V_D = V_{DRM}, R_{GK} = 1K, T_j = 125^\circ C$	MAX	500				$\mu A$
		$V_R = V_{RRM}, T_j = 25^\circ C$	MAX	5				
$V_{TM}$	On-state Voltage	at $I_T = 1.6 \text{ Amp}, t_p = 380 \mu s, T_j = 25^\circ C$	MAX	1.45				V
$V_{T(O)}$	On-state Threshold Voltage	$T_j = 125^\circ C$	MAX	0.9				V
$r_d$	Dinamic Resistance	$T_j = 125^\circ C$	MAX	150				m
$V_{CT}$	Gate Trigger Voltage	$V_D = 12 V_{DC}, R_L = 140 \Omega, T_j = 25^\circ C$	MAX	0.8				V
$V_{GD}$	Gate Non Trigger Voltage	$V_D = V_{DRM}, R_L = 3.3K, R_{GK} = 1K, T_j = 125^\circ C$	MIN	0.1				V
$I_H$	Holding Current	$I_T = 50 \text{ mA}, R_{GK} = 1K, T_j = 25^\circ C$	MAX	5				mA
$I_L$	Latching Current	$I_G = 1 \text{ mA}, R_{GK} = 1K, T_j = 25^\circ C$	MAX	6				mA
$dv / dt$	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}, R_{GK} = 1K, T_j = 125^\circ C$	MIN	15	15	10	20	V/ $\mu s$
$di / dt$	Critical Rate of Current Rise	$I_G = 2 \times I_{CT}, Tr = 100 \text{ ns}, F = 60 \text{ Hz}, T_j = 125^\circ C$	MIN	50				A/ $\mu s$
$R_{th(j-l)}$	Thermal Resistance Junction-Leads for DC			25				$^\circ C/W$
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient			60				$^\circ C/W$

## PART NUMBER INFORMATION



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

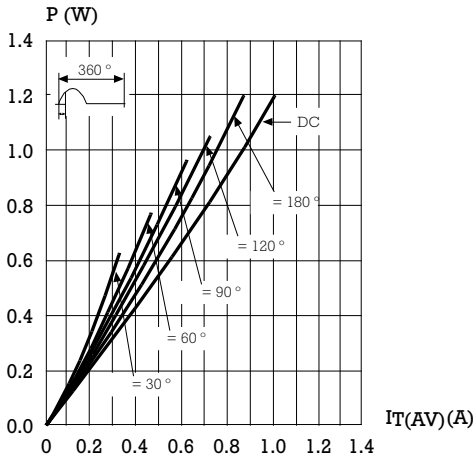


Fig. 3: Average on-state current versus tab temperature

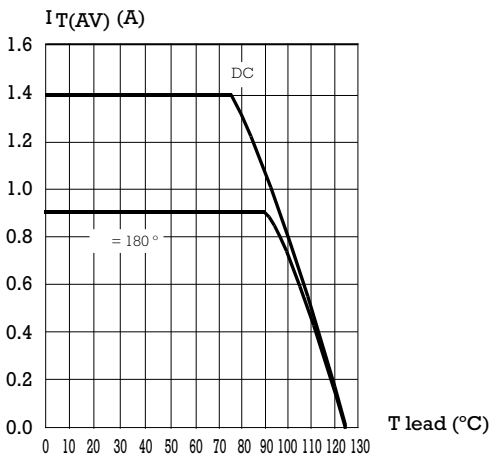


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.

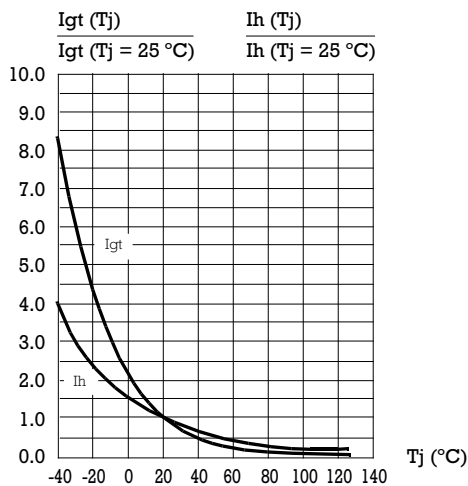


Fig. 2: Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and T tab).

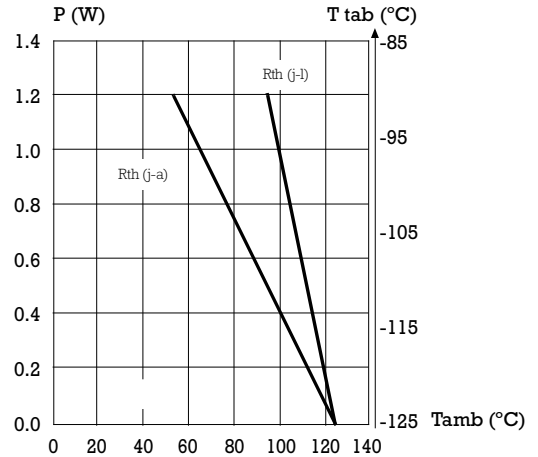


Fig. 4: Relative variation of thermal impedance junction to ambient versus pulse duration.

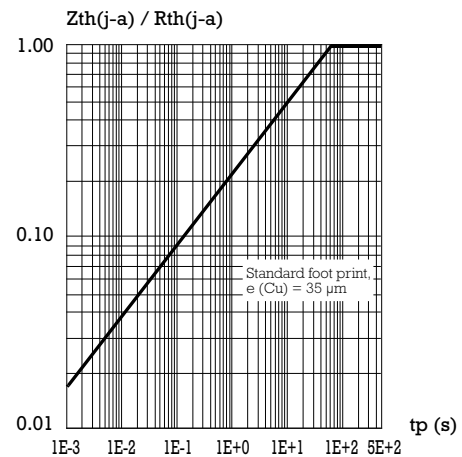
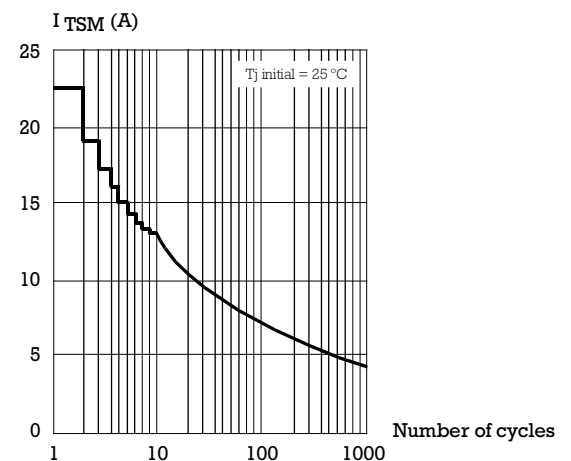


Fig. 6: Non repetitive surge peak on-state current versus number of cycles.



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

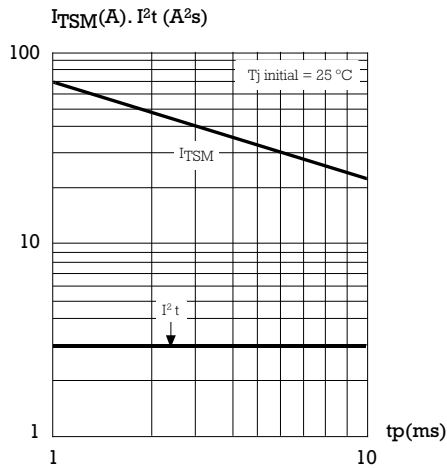
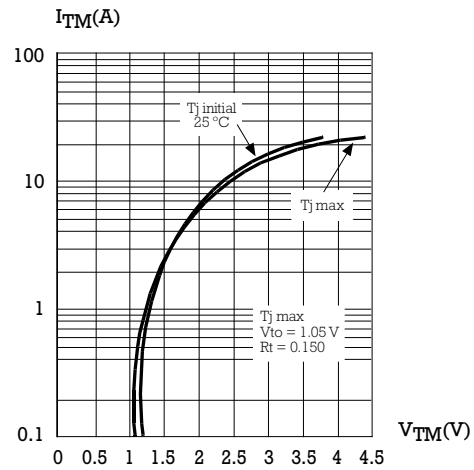
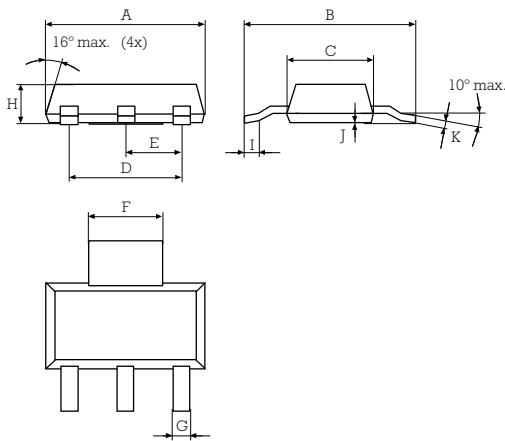


Fig. 8: On-state characteristics (maximum values).



### PACKAGE MECHANICAL DATA SOT223 (Plastic)



REF.	DIMENSIONS		
	Millimeters		
	Min.	Typ.	Max.
A	6.30	6.50	6.70
B	6.70	7.00	7.30
C	3.30	3.50	3.70
D	-	4.60	-
E	-	2.30	-
F	2.95	3.00	3.15
G	0.65	0.70	0.85
H	1.50	1.60	1.70
I	0.50	0.60	0.70
J	-	0.02	0.05
K	0.25	0.30	0.35

Weight: 0.11 g

### FOOT PRINT

