



**Product: Sensitive Gate SCRs**

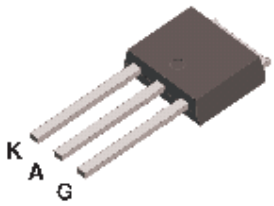
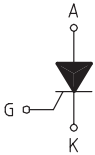
Sensitive Gate SCRs are easy to drive thanks to their very low gate current triggering.

This high gate sensitivity allows direct triggering from outputs of low power microcontrollers or logic IC, simplifying drive circuit design and reducing component and assembly cost.

They are suitable for low power applications where low consumption is mandatory.

Product	Family	$I_{T(RMS)}$	$V_{RRM}/V_{DRM}$ (V)	$I_{TSM}$ (A)	$I_{GT\ min}$ ( $\mu A$ )	$I_{GT\ min}$ (mA)	$I_{GT\ max}$ ( $\mu A$ )	$I_{GT\ max}$ (mA)	$dv/dt_{(min)}$ V/ $\mu s$	PACKAGE
<a href="#">FS0402MI</a>	FS04I(SeG)	4	600	30	-		200		5	IPAK

**SENSITIVE GATE SCR**

<p style="text-align: center;">IPAK (Plastic)</p>  	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><b>On-State Current</b></td> <td style="text-align: center;"><b>Gate Trigger Current</b></td> </tr> <tr> <td style="text-align: center;">4 Amp</td> <td style="text-align: center;">&lt; 200 <math>\mu</math>A</td> </tr> <tr> <td colspan="2" style="text-align: center;"><b>Off-State Voltage</b></td> </tr> <tr> <td colspan="2" style="text-align: center;">200 V <math>\div</math> 800 V</td> </tr> </table> <p style="margin-top: 20px;">These series of <b>Silicon Controlled Rectifier</b> use a high performance PNP technology.</p> <p>These parts are intended for general purpose applications where high gate sensitivity is required.</p>	<b>On-State Current</b>	<b>Gate Trigger Current</b>	4 Amp	< 200 $\mu$ A	<b>Off-State Voltage</b>		200 V $\div$ 800 V	
<b>On-State Current</b>	<b>Gate Trigger Current</b>								
4 Amp	< 200 $\mu$ A								
<b>Off-State Voltage</b>									
200 V $\div$ 800 V									

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

SYMBOL	PARAMETER	CONDITIONS	Value	Unit
$I_{T(RMS)}$	On-state Current	180° Conduction Angle, $T_c = 110^\circ\text{C}$	4	A
$I_{T(AV)}$	Average On-state Current	Half Cycle, $\Theta = 180^\circ$ , $T_c = 110^\circ\text{C}$	2.5	A
$I_{TSM}$	Non-repetitive On-State Current	Half Cycle, 60 Hz	33	A
$I_{TSM}$	Non-repetitive On-State Current	Half Cycle, 50 Hz	30	A
$I^2t$	Fusing Current	$t_b = 10\text{ms}$ , Half Cycle	4.5	A <sup>2</sup> s
$I_{GM}$	Peak Gate Current	20 $\mu$ s max.	1.2	A
$P_{GM}$	Peak Gate Dissipation	20 $\mu$ s max.	3	W
$P_{G(AV)}$	Gate Dissipation	20ms max.	0.2	W
$T_j$	Operating Temperature		(-40 to +125)	$^\circ\text{C}$
$T_{stg}$	Storage Temperature		(-40 to +150)	$^\circ\text{C}$
$T_{sld}$	Soldering Temperature	10s max.	260	$^\circ\text{C}$
$V_{RGM}$	Reverse Gate Voltage		5	V

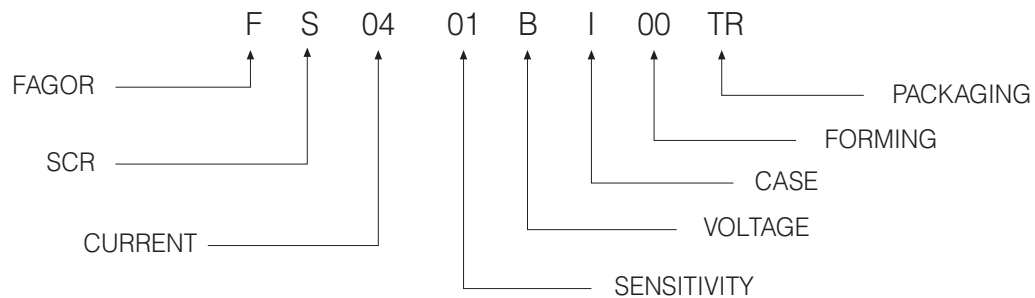
SYMBOL	PARAMETER	CONDITIONS	VOLTAGE					Unit
			B	D	M	S	N	
$V_{DRM}$ $V_{RRM}$	Repetitive Peak Off State Voltage	$R_{GK} = 1\text{ k}\Omega$	200	400	600	700	800	V

## SENSITIVE GATE SCR

### Electrical Characteristics

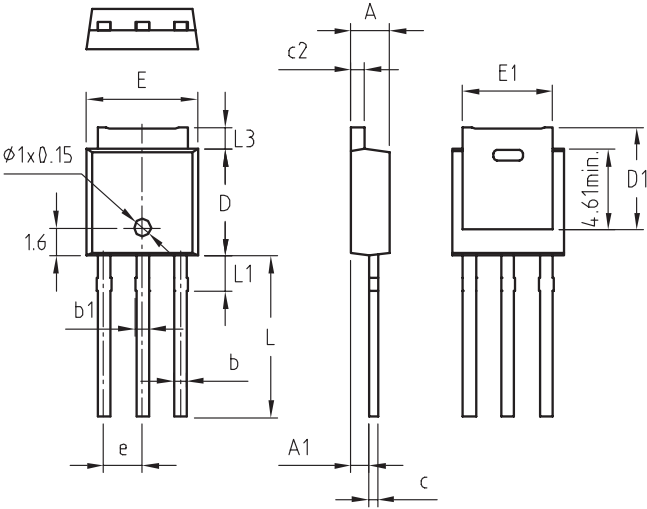
SYMBOL	PARAMETER	CONDITIONS	SENSITIVITY				Uni	
			01	02	03	04		
$I_{GT}$	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 140\Omega, T_j = 25^\circ C$	MIN MAX	1 20	200 200	20 200	15 50	$\mu A$
$V_{GT}$	Gate Trigger Voltage	$V_D = 12 V_{DC}, R_L = 140\Omega, T_j = 25^\circ C$	MAX	0.8				V
$V_{GD}$	Gate Non Trigger Voltage	$V_D = V_{DRM}, R_L = 3.3k\Omega, R_{GK} = 220\Omega, T_j = 125^\circ C$	MIN	0.1				V
$V_{RGM}$	Reverse Gate Voltage	$I_{RG} = 10\mu A,$	MIN	8				V
$I_H$	Holding Current	$I_T = 50 mA, R_{GK} = 1k\Omega, T_j = 25^\circ C$	MAX	5				mA
$I_L$	Latching Current	$I_G = 1 mA, R_{GK} = 1 k\Omega$	MAX	6				mA
$dV / dt$	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}, R_{GK} = 1 k\Omega, T_j = 125^\circ C$	MIN	10	5	10	10	V/ $\mu s$
$dI / dt$	Critical Rate of Current Rise	$I_G = 2 \times I_{GT}, tr \leq 100 ns, f = 60 Hz, T_j = 125^\circ C$	MIN	50				A/ $\mu s$
$V_{TM}$	On-state Voltage	at $I_T = 8 Amp, tp = 380 \mu s, T_j = 25^\circ C$	MAX	1.6				V
$V_{T0}$	Threshold Voltage	$T_j = 125^\circ C$	MAX	0.85				V
$r_d$	Dynamic resistance	$T_j = 125^\circ C$	MAX	90				m $\Omega$
$I_{DRM} / I_{RRM}$		$V_D = V_{DRM}, R_{GK} = 1k\Omega, T_j = 125^\circ C$ $V_R = V_{RRM}, T_j = 25^\circ C$	MAX MAX	1 5				mA mA
$R_{th(j-c)}$	Thermal Resistance Junction-Case for DC	for AC 360° conduction angle		1.6				$^\circ C/W$
$R_{th(j-a)}$	Thermal Resistance Junction-Amb for DC	$S = 1 cm^2$		100				$^\circ C/W$

### PART NUMBER INFORMATION



**SENSITIVE GATE SCR**

**PACKAGE MECHANICAL DATA** IPAK TO 251-AA



REF.	DIMENSIONS		
	Millimeters		
	Min.	Nominal	Max.
A	2.19	2.30 ± 0.11	2.41
A1	0.89	1.08 ± 0.19	1.27
b	0.50	0.70 ± 0.20	0.90
b1	0.70	0.92 ± 0.22	1.14
c	0.43	0.51 ± 0.08	0.59
c2	0.43	0.62 ± 0.19	0.81
D	5.40	5.81 ± 0.41	6.22
D1	5.70	5.90 ± 0.20	6.10
E	6.35	6.54 ± 0.19	6.73
E1	5.20	5.33 ± 0.13	5.46
e	2.25	2.30 ± 0.05	2.35
L	7.50	8.58 ± 1.08	9.66
L1	1.90	2.10 ± 0.20	2.28
L3	0.89	1.27 ± 0.38	1.65

Marking: type number  
Weight: 0.2 g