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semiconductors :: product :: [Standard Gate SCRs](#)

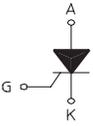
Product: Standard Gate SCRs

Standard SCRs uses a high performance glass passivated technology.

This general purpose Family of Silicon Controlled Rectifiers is designed for power supplies.

Product	Family	$I_{T(RMS)}$	V_{RRM}/V_{DRM} (V)	I_{TSM} (A)	$I_{GT\ min}$ (μA)	$I_{GT\ min}$ (mA)	$I_{GT\ max}$ (μA)	$I_{GT\ max}$ (mA)	$dv/dt_{(min)}$ V/ μs	PACKAGE
FS1209MW	FS12W(StG)	12	600	140	2			15	200	TO220F

STANDARD SCR

<p style="text-align: center;">TO220-F (FULLY ISOLATED CASE)</p>  <div style="text-align: center; margin-top: 20px;">  </div>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 50%;">On-State Current</td> <td style="text-align: center; width: 50%;">Gate Trigger Current</td> </tr> <tr> <td style="text-align: center;">12 Amp</td> <td style="text-align: center;">2 mA to 15 mA</td> </tr> <tr> <td colspan="2" style="text-align: center; padding-top: 10px;">Off-State Voltage</td> </tr> <tr> <td colspan="2" style="text-align: center;">200 V ÷ 800 V</td> </tr> </table> <p style="margin-top: 20px;">These series of Silicon Controlled Rectifier use a high performance PNP technology.</p> <p>These parts are intended for general purpose applications where high gate sensitivity is required.</p>	On-State Current	Gate Trigger Current	12 Amp	2 mA to 15 mA	Off-State Voltage		200 V ÷ 800 V	
On-State Current	Gate Trigger Current								
12 Amp	2 mA to 15 mA								
Off-State Voltage									
200 V ÷ 800 V									

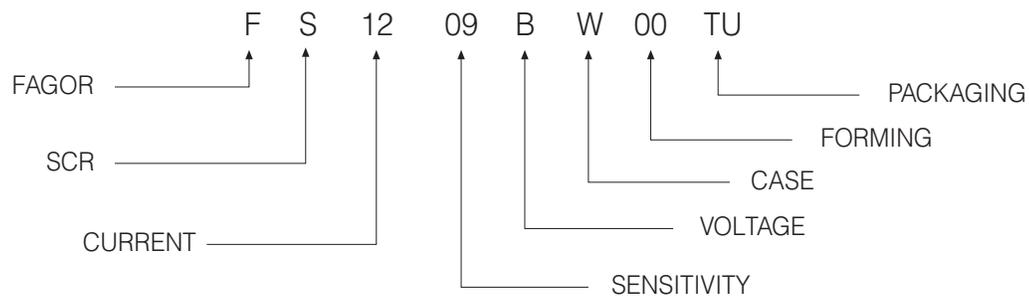
Absolute Maximum Ratings, according to IEC publication No. 134

SYMBOL	PARAMETER	CONDITIONS	Value	Unit
$I_{T(RMS)}$	On-state Current	180° Conduction Angle, $T_c = 110\text{ °C}$	12	A
$I_{T(AV)}$	Average On-state Current	Half Cycle, $\Theta = 180\text{ °}$, $T_c = 110\text{ °C}$	8	A
I_{TSM}	Non-repetitive On-State Current	Half Cycle, 60 Hz	146	A
I_{TSM}	Non-repetitive On-State Current	Half Cycle, 50 Hz	140	A
I^2t	Fusing Current	$t_p = 10\text{ms}$, Half Cycle	98	A ² s
I_{GM}	Peak Gate Current	20 μs max.	4	A
P_{GM}	Peak Gate Dissipation	20 μs max.	10	W
$P_{G(AV)}$	Gate Dissipation	20ms max.	1	W
T_j	Operating Temperature		(-40 to +125)	°C
T_{stg}	Storage Temperature		(-40 to +150)	°C
T_{sld}	Soldering Temperature	10s max.	260	°C
V_{RGM}	Reverse Gate Voltage		5	V
V_{iso}	R.M.S. isolation voltage 50/60 Hz sinusoidal waveform		2.500	Vac

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

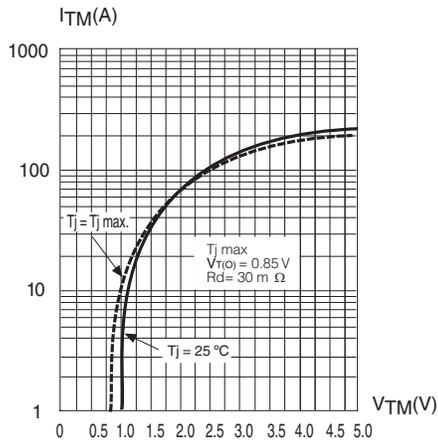
STANDARD SCR
Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS	SENSITIVITY		Uni
I_{GT}	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 140\Omega, T_j = 25^\circ C$	MIN MAX	09 2 15	m A
V_{GT}	Gate Trigger Voltage	$V_D = 12 V_{DC}, R_L = 140\Omega, T_j = 25^\circ C$	MAX	1.3	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	0.2	V
I_H	Holding Current	$I_T = 500 \text{ mA}$	MAX	20	mA
I_L	Latching Current	$I_G = 1.2 I_{GT}$	MAX	40	mA
dV / dt	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}, \text{ Gate open}, T_j = 125^\circ C$	MIN	200	V/ μ s
dI / dt	Critical Rate of Current Rise	$I_G = 2 \times I_{GT}, tr \leq 100 \text{ ns}, f = 60 \text{ Hz}, T_j = 125^\circ C$	MIN	50	A/ μ s
V_{TM}	On-state Voltage	at $I_T = 24 \text{ Amp}, tp = 380 \mu\text{s}, T_j = 25^\circ C$	MAX	1.5	V
$V_{t(o)}$	Threshold Voltage	$T_j = 125^\circ C$	MAX	0.80	V
r_d	Dynamic resistance	$T_j = 125^\circ C$	MAX	30	$m\Omega$
I_{DRM} / I_{RRM}	Off-State Leakage Current	$V_D = V_{DRM}, R_{GK} = 1k\Omega, T_j = 125^\circ C$ $V_R = V_{RRM}, T_j = 25^\circ C$	MAX MAX	0.5 5	mA μ A
$R_{th(j-c)}$	Thermal Resistance Junction-Case for DC	for AC 360° conduction angle		2.9	$^\circ C/W$
$R_{th(j-a)}$	Thermal Resistance Junction-Amb for DC	$S = 1 \text{ cm}^2$		50	$^\circ C/W$

PART NUMBER INFORMATION


STANDARD SCR

Fig. 7: On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA TO220-F

Mechanical drawing showing dimensions (A, B, Diam., L7, L6, L3, L, L1, F1, F2, F, G1, G, H) for the TO220-F package.

REF.	DIMENSIONS		
	Milimeters		
	Min.	Nominal	Max.
A	3.55	4.50	4.90
B	2.34	3.00	3.70
D	2.03	2.70	2.96
E	0.35	0.60	0.70
F	0.25	0.60	1.01
F1	0.70	1.30	1.78
F2	0.70	1.70	1.78
G	4.88	5.00	5.28
G1	2.34	2.50	2.74
H	9.65	10.15	10.67
L	12.70	13.35	14.73
L1	2.93	3.75	6.35
L3	26.90	28.35	31.20
L6	14.22	15.00	16.50
L7	8.30	8.40	9.59
Diam.	3.00	3.20	3.28