



Solid State Devices, Inc.
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SFRC9130S.5B

DESIGNER'S DATA SHEET

POWERShield™ Technology

PS-Hard Radiation Hardened MOSFETs

SFRC9130

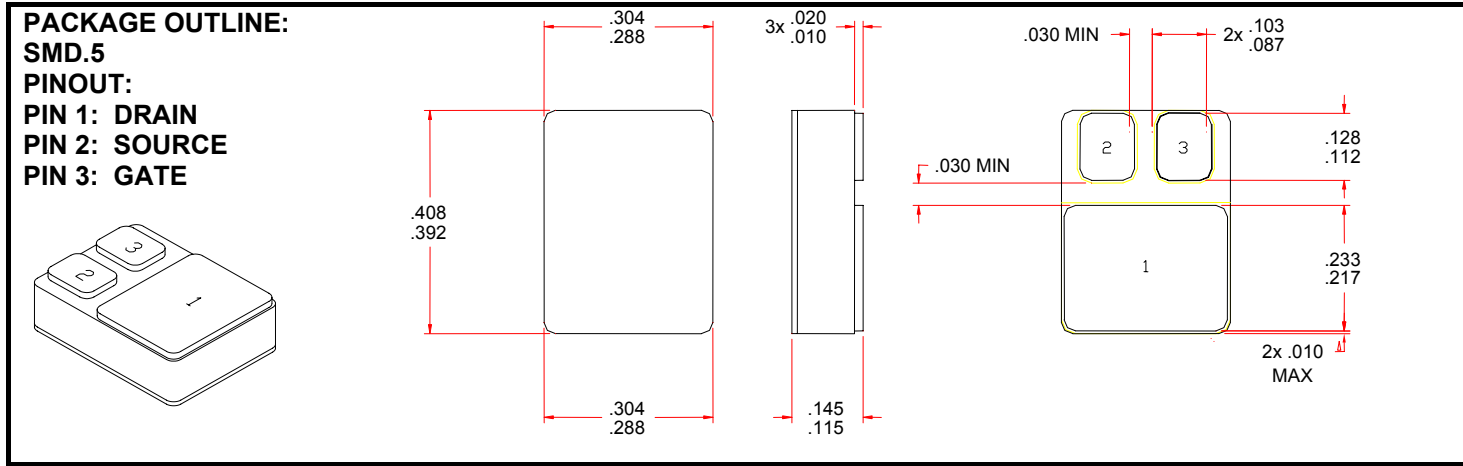
$\frac{B}{L}$ Screening $\frac{2}{L}$ = Commercial
 TX = TX Level
 TXV = TXV Level
 S = S Level

$\frac{L}{L}$ Package: S.5 = SMD.5

10 AMP /100 Volts
300 mΩ
Radiation Tolerant
P-Channel MOSFET

- Features:**
- Advanced POWERShield™ Technology
 - TID 100K Rad
 - Excellent high temperature stability
 - Hermetically Sealed Power Package
 - Low Total Gate Charge
 - Fast Switching
 - Replacement for IRHNJ9130 and F9130 types

Maximum Ratings		Symbol	Value	Units
Drain - Source Voltage		V_{DSS}	-100	V
Gate - Source Voltage		V_{GS}	±20	V
Max. Continuous Drain Current (package limited)	@ $T_C = 25^\circ C$	I_{D1}	10	A
	@ $T_C = 100^\circ C$	I_{D2}	7	A
Max. Avalanche current	@ $L = 5.0$ mH	I_{AR}	9.8	A
Repetitive Avalanche Energy	@ $L = 5.0$ mH	E_{AR}	5.2	mJ
Single Pulse Avalanche Energy	@ $L = 5.0$ mH	E_{AS}	320	mJ
Total Power Dissipation	@ $T_C = 25^\circ C$	P_D	75	W
Operating & Storage Temperature		$T_{OP} \ \& \ T_{STG}$	-55 to +150	°C
Maximum Thermal Resistance (Junction to Case)		$R_{\theta JC}$	1.65	°C/W



NOTE: All specifications are subject to change without notification. SCDD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: FR0016A **DOC**



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Electrical Characteristics ^{4/}		Symbol	Min	Typ	Max	Units
Drain to Source Breakdown Voltage	$V_{GS} = 0V, I_D = 0.25 \text{ mA}$	BV_{DSS}	-100	—	—	V
Drain to Source Breakdown Voltage Temperature Coefficient	$V_{GS} = 0V, I_D = 0.25 \text{ mA}$	dBV_{DSS}/dT	—	-0.1	—	V/°C
Drain to Source On State Resistance	$V_{GS} = 10V, I_D = 5A, T_j = 25^\circ C$ $V_{GS} = 10V, I_D = 10A, T_j = 25^\circ C$	$R_{DS(on)}$	—	240 300	300 —	mΩ
Gate Threshold Voltage	$V_{DS} = 5 \text{ V}, I_D = 250\mu A$	$V_{GS(th)}$	-2.0	—	-4.0	V
Gate to Source Leakage	$V_{GS} = \pm 20V$	I_{GSS}	—	5	±100	nA
Zero Gate Voltage Drain Current	$V_{DS} = -100V, V_{GS} = 0V, T_j = 25^\circ C$ $V_{DS} = -80V, V_{GS} = 0V, T_j = 125^\circ C$	I_{DSS}	—	0.01 1	10 100	μA μA
Forward Transconductance	$V_{DS} = 40V, I_D = 5A, T_j = 25^\circ C$	g_{fs}	4	5.2	—	Mho
Total Gate Charge	$V_{GS} = 10V$	Q_g	—	30	38	nC
Gate to Source Charge	$V_{DS} = 80V$	Q_{gs}	—	5.5	—	
Gate to Drain Charge	$I_D = 10A$	Q_{gd}	—	1.5	—	
Turn on Delay Time	$V_{GS} = 10V$	$t_{d(on)}$	—	15	35	nsec
Rise Time	$V_{DS} = 50V$	t_r	—	25	55	
Turn off Delay Time	$I_D = 10A$	$t_{d(off)}$	—	45	100	
Fall Time	$R_G = 12\Omega$	t_f	—	25	60	
Diode Forward Voltage	$I_F = 10A, V_{GS} = 0V$	V_{SD}	—	2.00	4.00	V
Diode Reverse Recovery Time	$I_F = 10A, di/dt = 100A/\mu sec$	t_{rr}	—	120	350	nsec
Peak Reverse Recovery Current		Q_{rr}	—	0.55	2.5	μC
Reverse Recovery Charge						
Input Capacitance	$V_{GS} = 0V$	C_{iss}	—	800	1035	pF
Output Capacitance	$V_{DS} = 25V$	C_{oss}	—	160	240	
Reverse Transfer Capacitance	$f = 1 \text{ MHz}$	C_{rss}	—	60	90	

NOTES:
 * Pulse Test: Pulse Width = 300μsec, Duty Cycle = 2%.
 4/ Unless Otherwise Specified, All Electrical Characteristics @25°C.