



**Solid State Devices, Inc.**

14830 Valley View Blvd \* La Mirada, Ca 90638

Phone: (562) 404-7855 \* Fax: (562) 404-1773

ssdi@ssdi-power.com \* www.ssdi-power.com

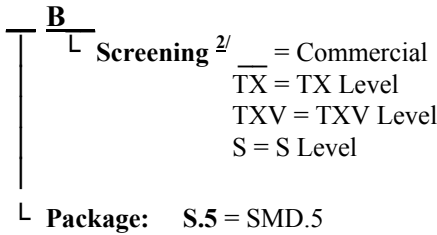
# SFRC9130S.5B

## DESIGNER'S DATA SHEET

# POWERShield™ Technology

## PS-Hard Radiation Hardened MOSFETs

SFRC9130



**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)	@ $T_C = 25^\circ C$	10	A
	@ $T_C = 100^\circ C$	7	A
Max. Avalanche current	@ $L = 5.0$ mH	9.8	A
Repetitive Avalanche Energy	@ $L = 5.0$ mH	5.2	mJ
Single Pulse Avalanche Energy	@ $L = 5.0$ mH	320	mJ
Total Power Dissipation	@ $T_C = 25^\circ C$	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

### PACKAGE OUTLINE:

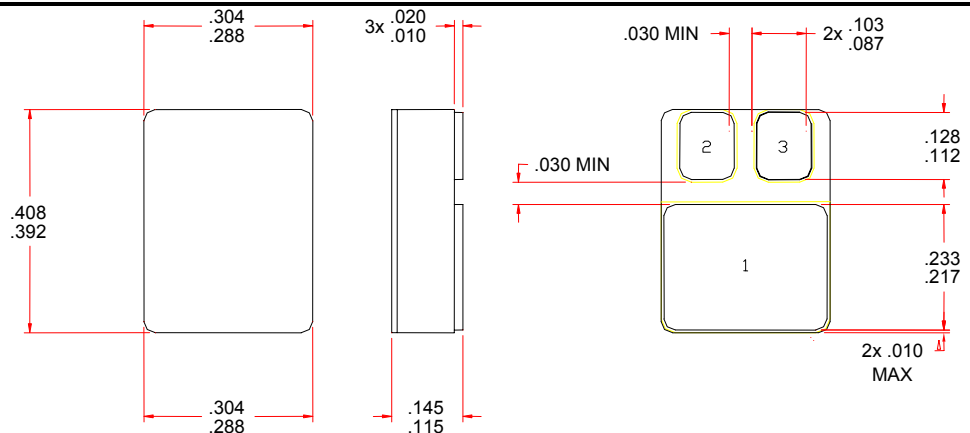
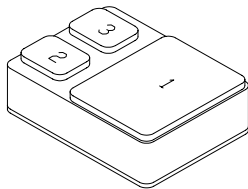
SMD.5

PINOUT:

PIN 1: DRAIN

PIN 2: SOURCE

PIN 3: GATE



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

DATA SHEET #: FR0016A

DOC



Solid State Devices, Inc.

14830 Valley View Blvd \* La Mirada, Ca 90638

Phone: (562) 404-7855 \* Fax: (562) 404-1773

ssdi@ssdi-power.com \* www.ssdi-power.com

# SFRC9130S.5B

Electrical Characteristics <sup>4/</sup>		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%.

<sup>4/</sup> Unless Otherwise Specified, All Electrical Characteristics @25°C.

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

DATA SHEET #: FR0016A

DOC