



Solid State Devices, Inc.

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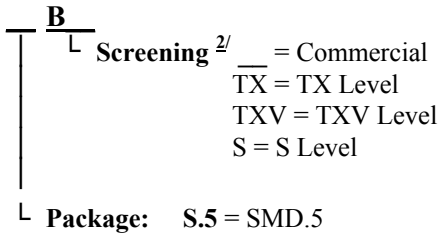
SFRC9130S.5B

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°C	I _{D1}	10	A
	@ T _C = 100°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°C	P _D	75	W
Operating & Storage Temperature		T _{OP} & T _{STG}	-55 to +150	°C
Maximum Thermal Resistance (Junction to Case)		R _{θJC}	1.65	°C/W

PACKAGE OUTLINE:

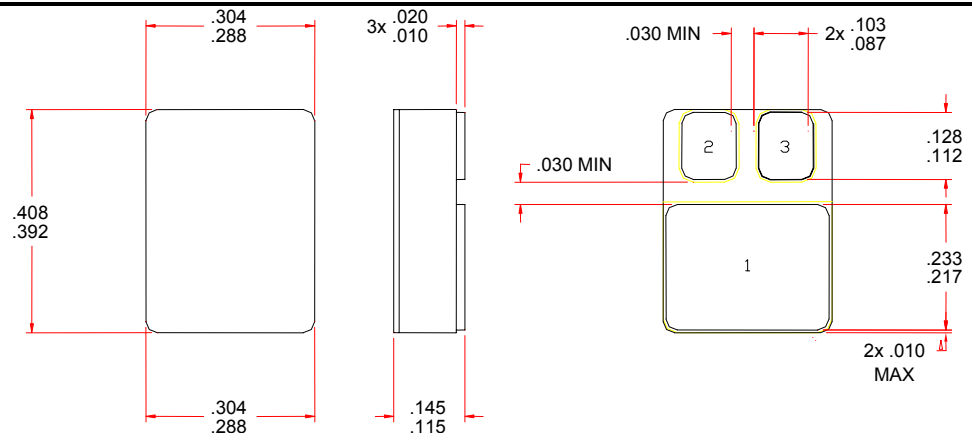
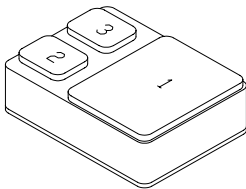
SMD.5

PINOUT:

PIN 1: DRAIN

PIN 2: SOURCE

PIN 3: GATE



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

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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.

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