Solid State Devices, Inc.
14701 Firestone Blvd * La Mirada, CA 90638
Phone: (562) 404-4474 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

SFR130 series

DESIGNER'S DATA SHEET

RADIATION TOLERANT
30 AMP, 100 Volts, 25 mΩ
Avalanche Rated N-MOSFET

Part Number / Ordering Information [1/]

SFR130 **J** ___

Screening [2/]
___ = Not Screened
TX = TX Level
TXV = TXV Level
S = S Level

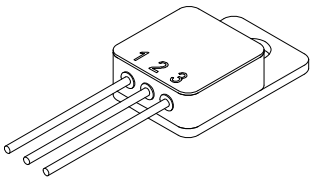
Package [3/]
J = TO-257
S.5= SMD.5
G= Cerpack

Features:
- Rugged Trench Technology
- Lowest ON-resistance in the industry: 20mΩ typ
- Radiation tolerant: less than 0.5V typical gate threshold shift @ TID= 100kRAD
- SEU and SEGR resistant to LET 38
- Avalanche rated
- Hermetically Sealed Power Packaging
- Low Total Gate Charge, Fast Switching
- Replacement for IRF130 types
- TX, TXV, S-Level screening available

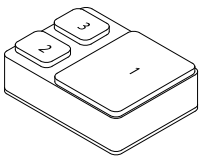
Maximum Ratings		Symbol	Value	Units
Drain - Source Voltage		V_{DSS}	100	V
Gate – Source Voltage, continuous Gate – Source Voltage, transient		V_{GS}	±20 ±30	V
Max. Continuous Drain Current (package limited)	@ T_C = 25ºC @ T_C = 100ºC	I_{D1} I_{D2}	30 30	A
Max. Avalanche Current	@ L= 5.0mH	I_{AR}	10	A
Max. Continuous Drain Current (Tj limited)	@ Tj= 150ºC	I_{DM}	140	A
Single Pulse Avalanche Energy	@ L= 5.0mH	E_{AS}	500	mJ
Total Power Dissipation @ T_C = 25ºC	TO-257 SMD.5, Cerpack	P_D	120 150	W
Operating & Storage Temperature		T_{OP} & T_{STG}	-55 to +175	ºC
Maximum Thermal Resistance (Junction to Case)	TO-257 SMD.5, Cerpack	$R_{\theta JC}$	1.25 1.00	ºC/W

NOTES:
*Pulse Test: Pulse Width = 300µsec, Duty Cycle = 2%.
1/ For ordering information, price, and availability - contact factory.
2/ Screening based on MIL-PRF-19500. Screening flows available on request.
3/ Unless otherwise specified, all electrical characteristics @25°C.

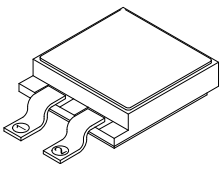
TO-257 (J)



SMD.5 (S.5)



Cerpack (G)



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Electrical Characteristics [3/]		Symbol	Min	Typ	Max	Units
Drain to Source Breakdown Voltage	V_{GS} = 0V, I_D =0.25 mA	BV_{DSS}	100	- 110	-	V
Drain to Source On State Resistance, SFR130J	V_{GS} = 10V, I_D = 30A, Tj= 25°C V_{GS} = 10V, I_D = 30A, Tj= 125°C	$R_{DS(on)}$	- -	24 40	30 -	mΩ
Drain to Source On State Resistance, SFR130G, SFR130S.5	V_{GS} = 10V, I_D = 30A, Tj= 25°C V_{GS} = 10V, I_D = 30A, Tj= 125°C	$R_{DS(on)}$	- -	20 35	25 -	mΩ
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 50μA, Tj= 25°C V_{DS} = V_{GS}, I_D = 50μA, Tj= 125°C V_{DS} = V_{GS}, I_D = 50μA, Tj= -55°C	$V_{GS(th)}$	2.5 1.5 -	3.5 2.5 4.0	4.5 - 5.0	V
Gate to Source Leakage	V_{GS} = ±20V, Tj= 25°C V_{GS} = ±20V, Tj= 125°C	I_{GSS}	-	5 10	±100 ±200	nA
Zero Gate Voltage Drain Current	V_{DS} = -100V, V_{GS} = 0V, T_j = 25°C V_{DS} = 100V, V_{GS} = 0V, T_j = 125°C	I_{DSS}	- -	0.05 3	1 100	μA μA
Forward Transconductance	V_{DS} = 10V, I_D = 30A, T_j = 25°C	g_{fs}	15	20	-	Mho
Total Gate Charge **Gate to Source Charge** **Gate to Drain Charge**	V_{GS} = 10V V_{DS} = 50V I_D = 10A	Q_g Q_{gs} Q_{gd}	- - -	52 25 12	80 - -	nC
Turn on Delay Time **Rise Time** **Turn off Delay Time** **Fall Time**	V_{GS} = 10V V_{DS} = 50V I_D = 10A R_G = 15Ω	$t_{d(on)}$ t_r $t_{d(off)}$ t_f	- - - -	30 40 45 40	45 60 100 75	nsec
Diode Forward Voltage	I_F = 10A, V_{GS} = 0V	V_{SD}	-	0.85	2.0	V
Diode Reverse Recovery Time **Peak Reverse Recovery Current** **Reverse Recovery Charge**	I_F = 10A, di/dt = 100A/usec	t_{rr} Q_{rr}	-	85 350	- -	nsec nC
Input Capacitance **Output Capacitance** **Reverse Transfer Capacitance**	V_{GS} = 0V V_{DS} = 25V f = 1 MHz	C_{iss} C_{oss} C_{rss}	- - -	2400 350 80	3500 400 120	pF

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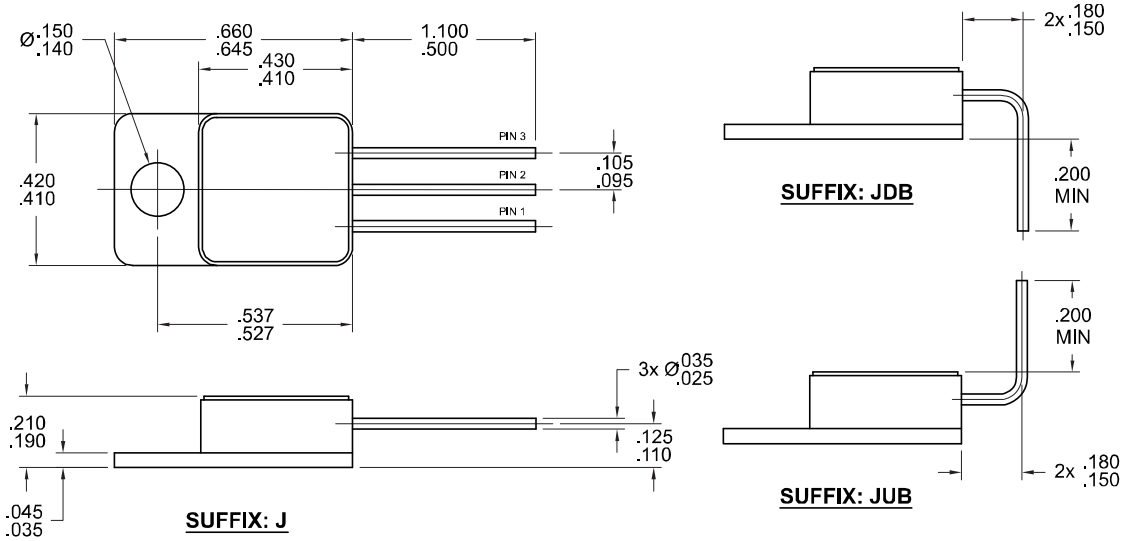
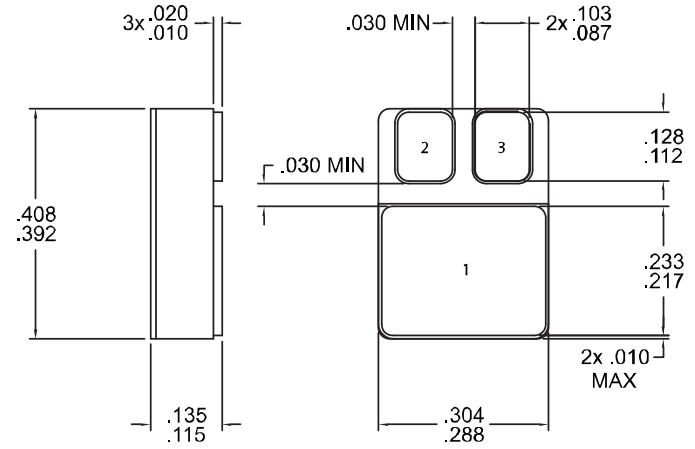
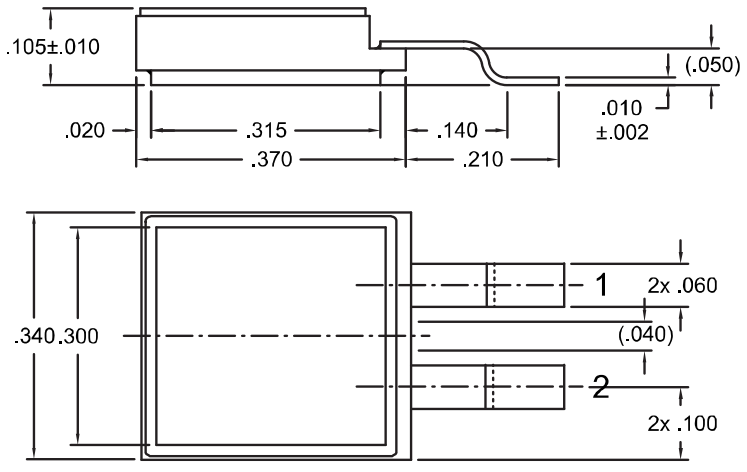
PACKAGE OUTLINE:
TO-257 (J)
PINOUT:
PIN 1: DRAIN
PIN 2: SOURCE
PIN 3: GATE



PACKAGE OUTLINE:
SMD.5 (S.5)
PINOUT:
PIN 1: DRAIN
PIN 2: SOURCE
PIN 3: GATE



PACKAGE OUTLINE:
Cerpack (G)
PINOUT:
PIN 1: DRAIN
PIN 2: SOURCE
BOTTOM PAD: 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 #: FT0055A**	**DOC**