

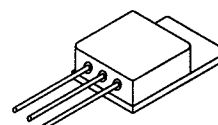


PRELIMINARY

**SOLID STATE DEVICES, INC**14849 Firestone Boulevard · La Mirada, CA 90638  
Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424**SFF9130J****Designer's Data Sheet****FEATURES:**

- Rugged construction with poly silicon gate
- Low RDS(on) and high transconductance
- Excellent high temperature stability
- Very fast switching speed
- Fast recovery and superior dv/dt performance
- Increased reverse energy capability
- Low input and transfer capacitance for easy paralleling
- Hermetically sealed
- TX, TXV and Space Level Screening available
- Replaces: IRF9130 Types

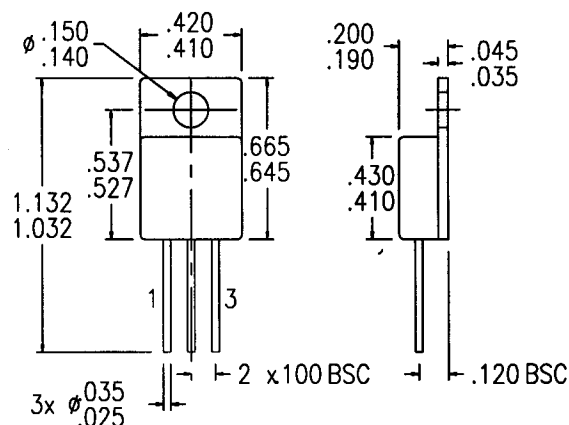
**-11 AMP**  
**-100 VOLTS**  
**0.30  $\Omega$**   
**P-CHANNEL**  
**POWER MOSFET**

**TO-257****MAXIMUM RATINGS**

| CHARACTERISTIC                                                           | SYMBOL                             | VALUE       | UNIT  |
|--------------------------------------------------------------------------|------------------------------------|-------------|-------|
| Drain to Source Voltage                                                  | V <sub>DS</sub>                    | -100        | Volts |
| Gate to Source Voltage                                                   | V <sub>GS</sub>                    | ±20         | Volts |
| Continuous Drain Current<br>@TC=25°C<br>@TC=100°C                        | I <sub>D</sub>                     | -11<br>-7   | Amps  |
| Operating and Storage Temperature                                        | T <sub>OP</sub> & T <sub>STG</sub> | -55 to +150 | °C    |
| Thermal Resistance, Junction to Case                                     | R <sub>θJC</sub>                   | 2.5         | °C/W  |
| Total Device Dissipation @ TC=25°C<br>Total Device Dissipation @ TC=55°C | P <sub>D</sub>                     | 50<br>38    | Watts |
| Single Pulse Avalanche Energy                                            | E <sub>AS</sub>                    | 81          | mJ    |
| Repetitive Avalanche Energy                                              | E <sub>AR</sub>                    | 7.5         | mJ    |

**PACKAGE OUTLINE: TO-257****PIN OUT:**

**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 #: FP0023 C****MED**

**SFF9130J**

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**ELECTRICAL CHARACTERISTICS @  $T_J=25^\circ\text{C}$  (Unless Otherwise Specified)**

| RATING                                                                                                                                                                          |                                                                                   | SYMBOL                                        | MIN          | TYP                  | MAX                     | UNIT                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------|--------------|----------------------|-------------------------|-----------------------|
| Drain to Source Breakdown Voltage<br>( $V_{GS}=0\text{ V}$ , $I_D=1\text{ mA}$ )                                                                                                |                                                                                   | $BV_{DSS}$                                    | -100         | ---                  | ---                     | V                     |
| Temperature Coefficient of Breakdown Voltage                                                                                                                                    |                                                                                   | $\frac{\Delta BV_{DSS}}{\Delta T_J}$          | ---          | 87                   | ---                     | mV/ $^\circ\text{C}$  |
| Drain to Source on State Resistance<br>( $V_{GS}=-10\text{ V}$ )                                                                                                                | $I_D=7\text{ A}$<br>$I_D=11\text{ A}$                                             | $R_{DS(on)}$                                  |              | ---                  | 0.30<br>0.35            | $\Omega$              |
| Gate Threshold Voltage<br>( $V_{DS}=V_{GS}$ , $I_D=-250\mu\text{A}$ )                                                                                                           |                                                                                   | $V_{GS(th)}$                                  | -2.0         |                      | -4.0                    | V                     |
| Forward Transconductance<br>( $V_{DS}>I_D(on) \times R_{DS(on)}$ Max,<br>$I_{DS}=7\text{ A}$ )                                                                                  |                                                                                   | $g_{fs}$                                      | 3.0          | 5.0                  | ---                     | S(V)                  |
| Zero Gate Voltage Drain Current<br>( $V_{DS}=80\%$ max rated voltage, $V_{GS}=0\text{ V}$ )<br>( $V_{DS}=80\%$ rated $V_{DS}$ , $V_{GS}=0\text{ V}$ , $T_A=125^\circ\text{C}$ ) |                                                                                   | $I_{DSS}$                                     | ---          | ---                  | -25<br>250              | $\mu\text{A}$         |
| Gate to Source Leakage Forward<br>Gate to Source Leakage Reverse                                                                                                                | At rated $V_{GS}$                                                                 | $I_{GSS}$                                     | ---          | ---                  | -100<br>100             | nA                    |
| Total Gate Charge<br>Gate to Source Charge<br>Gate to Drain Charge                                                                                                              | $V_{GS}=-10\text{ Volts}$<br>50% rated $V_{DS}$<br>$I_D=-11\text{ A}$             | $Q_g$<br>$Q_{gs}$<br>$Q_{gd}$                 | 15<br>1<br>2 | 26<br>3<br>14        | 29<br>7.1<br>21         | nC                    |
| Turn on Delay Time<br>Rise Time<br>Turn Off Delay Time<br>Fall Time                                                                                                             | $V_{DD}=50\%$<br>rated $V_{DS}$<br>$I_D=11\text{ A}$<br>$R_G=7.5\Omega$           | $t_{d(on)}$<br>$t_r$<br>$t_{d(off)}$<br>$t_f$ | ---          | 15<br>10<br>30<br>12 | 60<br>140<br>140<br>140 | nsec                  |
| Diode Forward Voltage<br>( $I_S=\text{rated } I_D$ , $V_{GS}=0\text{ V}$ , $T_J=25^\circ\text{C}$ )                                                                             |                                                                                   | $V_{SD}$                                      | ---          | ---                  | -4.7                    | V                     |
| Diode Reverse Recovery Time<br>Reverse Recovery Charge                                                                                                                          | $T_J=25^\circ\text{C}$<br>$I_F=10\text{ A}$<br>$di/dt=100\text{ A}/\mu\text{sec}$ | $t_{rr}$<br>$Q_{RR}$                          | ---          | 125<br>---           | 250<br>3                | nsec<br>$\mu\text{C}$ |
| Input Capacitance<br>Output Capacitance<br>Reverse Transfer Capacitance                                                                                                         | $V_{GS}=0\text{ Volts}$<br>$V_{DS}=-25\text{ Volts}$<br>$f=1\text{ MHz}$          | $C_{iss}$<br>$C_{oss}$<br>$C_{rss}$           | ---          | 860<br>350<br>125    | ---                     | pF                    |

 SAFE OPERATING AREA (S.O.A.)  
 $T_C = 25^\circ\text{C}$ , D.C. CONDITION
