



Solid State Devices, Inc.

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SFF9130M SFF9130Z

-11 AMP P-Channel POWER MOSFET 100 Volts 0.30 Ω typical

DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}
SFF9130

| | | | |
|--|--|--|--|
| | | | <p>Screening^{2/}</p> <p>— = Not Screened TX = TX Level TXV = TXV Level S = S Level</p> <p>Lead Option</p> <p>— = Straight Leads DB = Down Bend UB = Up Bend</p> <p>Package</p> <p>M = TO-254 Z = TO-254Z</p> |
|--|--|--|--|

- 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

| Maximum Ratings ^{3/} | Symbol | Value | Units |
|--------------------------------------|------------------------------------|---|-------|
| Drain – Source Voltage | V _{DS} | -100 | V |
| Gate – Source Voltage | V _{GS} | ±20 | V |
| Continuous Drain Current | I _D | -11 -7 | A |
| | | T _C = 25°C T _C = 100°C | |
| Operating & Storage Temperature | T _{OP} & T _{STG} | -55 to +150 | °C |
| Thermal Resistance, Junction to Case | R _{θJC} | 2 | °C/W |
| Total Device Power Dissipation | P _D | 63 48 | Watts |
| | | T _C = 25°C T _C = -55°C | |
| Single Pulse Avalanche Energy | E _{AS} | 81 | mJ |
| Repetitive Avalanche Energy | E _{AR} | 7.5 | mJ |

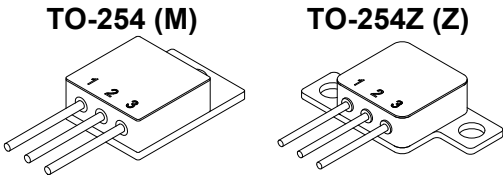
NOTES:

*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.





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SFF9130M
SFF9130Z

| Electrical Characteristics ^{3/} | | Symbol | Min | Typ | Max | Units |
|---|---|--|------------------|----------------------|-------------------------|-----------------|
| Drain to Source Breakdown Voltage ($V_{GS} = 0V, I_D = 1mA$) | | BV_{DSS} | -100 | — | — | V |
| Temperature Coefficient of Breakdown Voltage | | $\frac{\Delta BV_{DSS}}{\Delta T_j}$ | — | 87 | — | mV/°C |
| Drain to Source On State Resistance ($V_{GS} = -10V$) | $I_D = 7A$ $I_D = 11A$ | $R_{DS(on)}$ | — — | — — | 0.30 0.35 | Ω |
| Gate Threshold Voltage ($V_{DS} = V_{GS}, I_D = -250\mu A$) | | $V_{GS(th)}$ | -2.0 | — | -4.0 | V |
| Forward Transconductance ($V_{DS} > I_{D(on)} \times R_{DS(on)}$ Max, $I_{DS} = 7A$) | | g_{fs} | 3.0 | 5.0 | — | S(Ω) |
| Zero Gate Voltage Drain Current ($V_{DS} = 80\%$ max rated voltage, $V_{GS} = 0V$) ($V_{DS} = 80\%$ rated V_{DS} , $V_{GS} = 0V, T_A = 125^\circ C$) | | I_{DSS} | — — | — — | -25 250 | μA |
| Gate to Source Leakage Forward Gate to Source Leakage Reverse | At Rated V_{GS} | I_{GSS} | — — | — — | -100 100 | nA |
| Total Gate Charge Gate to Source Charge Gate to Drain Charge | $V_{GS} = -10V$ 50% rated VDS $I_D = -11A$ | Q_g Q_{gs} Q_{gd} | 15 1 2 | 26 3 14 | 29 9.5 21 | nC |
| Turn on Delay Time Rise Time Turn off Delay Time Fall Time | $V_{DD} = 50\%$ Rated VDS $I_D = 11 A$ $R_G = 7.5\Omega$ | $t_{(on)}$ t_r $t_{d(off)}$ t_f | — — — — | 15 10 30 12 | 60 140 140 140 | nsec |
| Diode Forward Voltage | $I_S = \text{Rated } I_D$ $V_{GS} = 0V$ $T_J = 25^\circ C$ | V_{SD} | — | — | -4.7 | V |
| Diode Reverse Recovery Time Reverse Recovery Charge | $T_J = 25^\circ C$ $I_F = 10A$ $di/dt = 100A/\mu sec$ | t_{rr} Q_{rr} | — — | 125 — | 250 3 | nsec μC |
| Input Capacitance Output Capacitance Reverse Transfer Capacitance | $V_{GS} = 0V$ $V_{DS} = -25V$ $f = 1 MHz$ | C_{iss} C_{oss} C_{rss} | — — — | 860 350 125 | — — — | pF |

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

DATA SHEET #: FP0025E

DOC

