Solid State Devices, Inc.
14701 Firestone Blvd * La Mirada, CA 90638
Phone: (562) 404-4470 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

SFF9130

DESIGNER'S DATA SHEET

Part Number / Ordering Information 1/

SFF9130 ___ ___ ___

- ___ **Screening**2/
  - ___ = Not Screened
  - TX = TX Level
  - TXV = TXV Level
  - S = S Level
- ___ **Lead Option** (for TO-25X packages only)
  - ___ = Straight Leads
  - DB = Down Bend
  - UB = Up Bend
- **Package**
  - -28D = LCC28D (Dual)
  - S.5 = SMD.5
  - J = TO-257
  - M = TO-254
  - Z = TO-254Z

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

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	Unit
Drain – Source Voltage		V_{DS}	-100	V
Gate – Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C = 25°C T_C = 100°C	I_D	-11 -7	A
Operating & Storage Temperature		T_{OP} & T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	LCC28 SMD.5 TO-257 TO-254 / TO-254Z	$R_{\theta JC}$	3.5 2 2.5 2	°C/W
Total Device Power Dissipation **LCC28**	T_C = 25°C T_C = -55°C	P_D	36 37	W
Total Device Power Dissipation **TO-257**	T_C = 25°C T_C = -55°C	P_D	50 38	W
Total Device Power Dissipation **SMD.5, TO-254, TO-254Z**	T_C = 25°C T_C = -55°C	P_D	63 48	W
Single Pulse Avalanche Energy		E_{AS}	81	mJ
Repetitive Avalanche Energy		E_{AR}	7.5	mJ

NOTES:

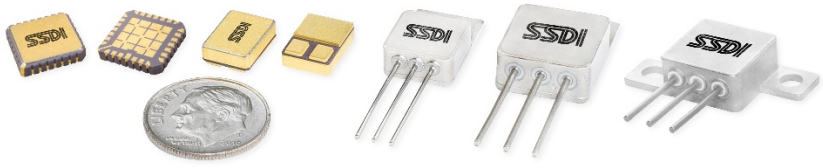
*Pulse Test: Pulse Width = 300µsec, Duty Cycle = 2%.

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 @25ºC.

LCC28 (-28) **SMD.5 (S.5)** **TO-257 (J)** **TO-254 (M)** **TO-254Z (Z)**



**Dime used for size reference*

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Electrical Characteristics[3/]		Symbol	Min	Typ	Max	Unit
Drain to Source Breakdown Voltage (V_{GS} = 0 V, I_D = 1 mA)		BV_{DSS}	-100	—	—	**V**
Temperature Coefficient of Breakdown Voltage		$\frac{\Delta BV_{DSS}}{\Delta Tj}$	—	87	—	**mV/°C**
Drain to Source On State Resistance (V_{GS} = -10 V)	I_D = 7 A I_D = 11 A	$R_{DS(on)}$	— —	— —	0.30 0.35	**Ω**
Gate Threshold Voltage (V_{DS} = V_{GS}, I_D = -250 µA)		$V_{GS(th)}$	-2.0	—	-4.0	**V**
Forward Transconductance (V_{DS} > $I_{D(on)}$ x $R_{DS(on)}$ Max, I_{DS} = 7 A)		g_{fs}	3.0	5.0	—	**S(Ʊ)**
Zero Gate Voltage Drain Current (V_{DS} = 80% max rated voltage, V_{GS} = 0 V) (V_{DS} = 80% rated V_{DS}, V_{GS} = 0 V, T_A = 125°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} = -10 V 50% rated VDS I_D = -11 A	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 Ω	$t_{(on)}$ t_r $t_{d(off)}$ t_r	— — — —	15 10 30 12	60 140 140 140	**nsec**
Diode Forward Voltage	I_S = Rated I_D V_{GS} = 0 V T_J = 25°C	V_{SD}	—	—	-4.7	**V**
Diode Reverse Recovery Time **Reverse Recovery Charge**	T_J = 25°C I_F = 10 A di/dt = 100 A/µsec	t_{rr} Q_{rr}	— —	125 —	250 3	**nsec** **µC**
Input Capacitance **Output Capacitance** **Reverse Transfer Capacitance**	V_{GS} = 0 V V_{DS} = -25 V f = 1 MHz	C_{iss} C_{oss} C_{rss}	— — —	860 350 125	— — —	**pF**

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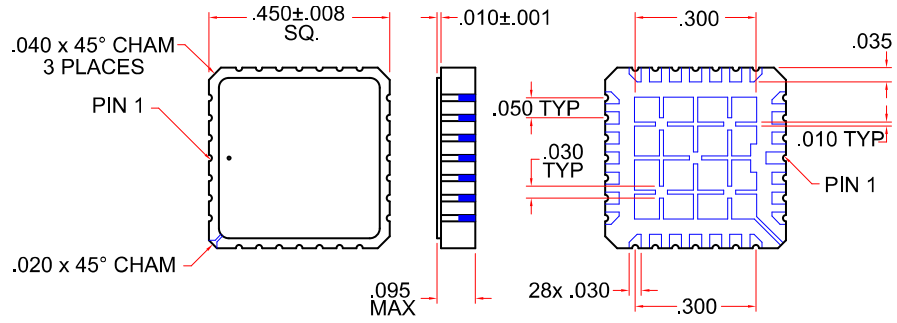
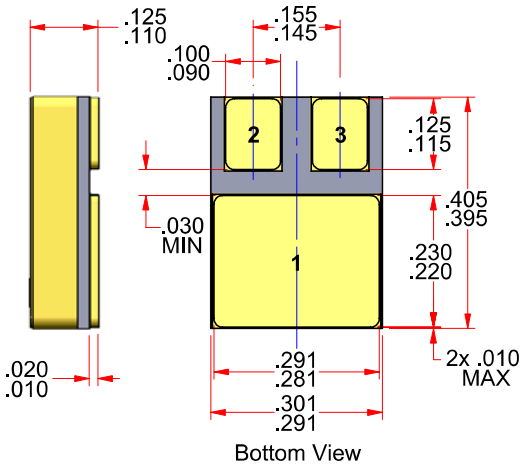
PACKAGE OUTLINE: LCC28 (-28D)



PIN ASSIGNMENT (LCC28, -28D)	
Source (1)	**16 -21**
Drain (1)	**24 – 28**
Gate (1)	**22**
Source (2)	**9 – 14**
Drain (2)	**2 – 6**
Gate (2)	**8**

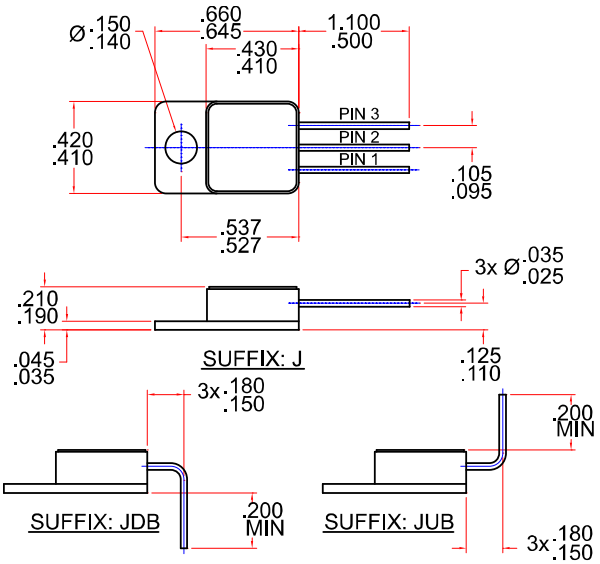
Note: All drain / source pins must be connected on the PC board in order to maximize current carrying capability and to minimize RDS(on)

PACKAGE OUTLINE: SMD.5 (S.5)



Bottom View

PACKAGE OUTLINE: TO-257 (J)



Available with glass or ceramic seals – contact factory for details.

Available Part Numbers:

SFF9130-28D, SFF9130S.5,
SFF9130J, SFF9130JUB, SFF9130JDB

PIN ASSIGNMENT (Standard)			
Package	**Drain**	**Source**	**Gate**
SMD.5 (S.5)	Pin 1	Pin 2	Pin 3
TO-257 (J)	Pin 1	Pin 2	Pin 3
LCC28 (-28D)	see table above		

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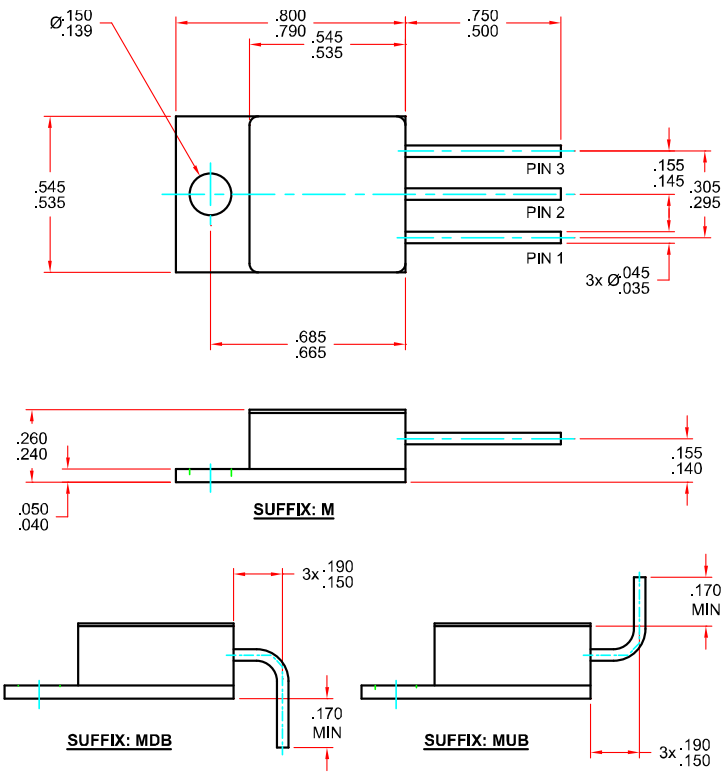
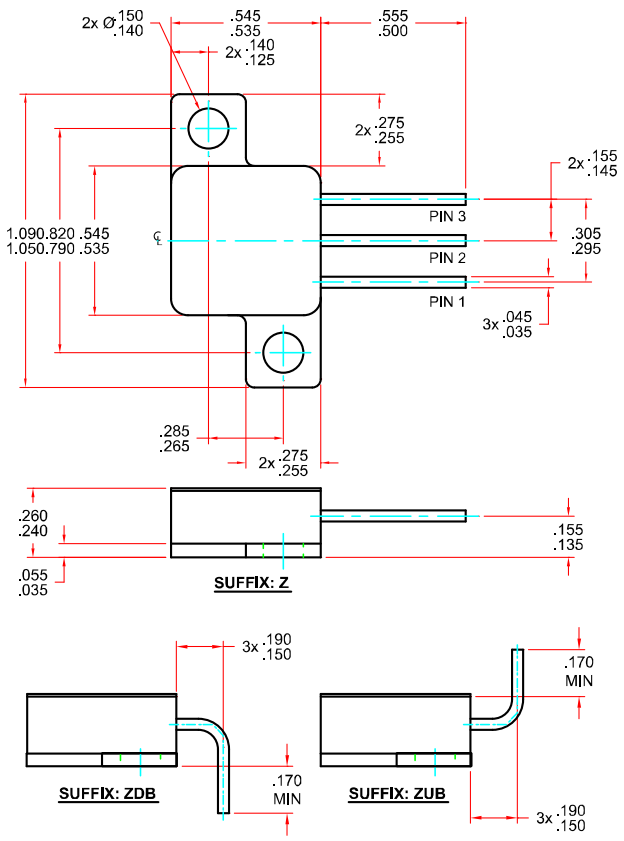
PACKAGE OUTLINE: TO-254 (M)



PACKAGE OUTLINE: TO-254Z (Z)



Available with glass or ceramic seals – contact factory for details.

Available Part Numbers:

SFF9130M, SFF9130MUB, SFF9130MDB, SFF9130Z, SFF9130ZUB, SFF9130ZDB

PIN ASSIGNMENT (Standard)

Package	Drain	Source	Gate
TO-254 (M)	Pin 1	Pin 2	Pin 3
TO-254Z (Z)	Pin 1	Pin 2	Pin 3