SEME LAB

IRF130SMD

MECHANICAL DATA
Dimensions in mm (inches)

0.89
(0.035)
min.

3.70 (0.146)
3.41 (0.134)

3.70 (0.146)
3.41 (0.134)

3.60 (0.142)
Max.

4.14 (0.163)
3.84 (0.151)

0.76
(0.030)
min.

1   3

16.02 (0.631)
15.73 (0.619)

2

10.69 (0.421)
10.39 (0.409)

9.67 (0.381)
9.38 (0.369)

11.58 (0.456)
11.28 (0.444)

0.50 (0.020)
0.26 (0.010)
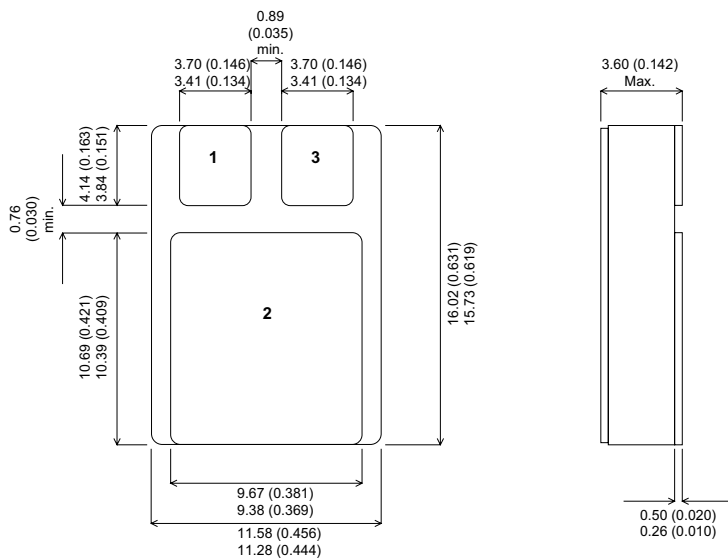
SMD 1

Pad 1 – Gate   Pad 2 – Drain   Pad 3 – Source

N–CHANNEL POWER MOSFET FOR HI–REL APPLICATIONS

V_{DSS}	**100V**
$I_{D(cont)}$	**11A**
$R_{DS(on)}$	**0.19Ω**

FEATURES

- **HERMETICALLY SEALED**
- **SIMPLE DRIVE REQUIREMENTS**
- **LIGHTWEIGHT**
- **SCREENING OPTIONS AVAILABLE**
- **ALL LEADS ISOLATED FROM CASE**

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V_{GS}	Gate – Source Voltage	±20V
I_D	Continuous Drain Current @ T_{case} = 25°C	11A
I_D	Continuous Drain Current @ T_{case} = 100°C	7A
I_{DM}	Pulsed Drain Current	44A
P_D	Power Dissipation @ T_{case} = 25°C	45W
	Linear Derating Factor	0.36W/°C
T_J , T_{stg}	Operating and Storage Temperature Range	–55 to 150°C
$R_{\theta JC}$	Thermal Resistance Junction to Case	2.8°C/W max.

ELECTRICAL CHARACTERISTICS $(T_C = 25°C$ unless otherwise stated)

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS						
BV_{DSS}	Drain – Source Breakdown Voltage	$V_{GS} = 0$ $\quad$ $I_D = 1mA$	100			V
$\dfrac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C $I_D = 1mA$		0.1		V/°C
$R_{DS(on)}$	Static Drain – Source On–State Resistance	$V_{GS} = 10V$ $\quad$ $I_D = 7A$			0.19	Ω
		$V_{GS} = 10V$ $\quad$ $I_D = 11A$			0.22	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ $\quad$ $I_D = 250\mu A$	2		4	V
g_{fs}	Forward Transconductance	$V_{DS} \geq 15V$ $\quad$ $I_{DS} = 7A$	3			S($\mho$)
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0$ $\quad$ $V_{DS} = 0.8BV_{DSS}$			25	μA
		$T_J = 125°C$			250	
I_{GSS}	Forward Gate – Source Leakage	$V_{GS} = 20V$			100	nA
I_{GSS}	Reverse Gate – Source Leakage	$V_{GS} = -20V$			-100	
DYNAMIC CHARACTERISTICS						
C_{iss}	Input Capacitance	$V_{GS} = 0$		650		pF
C_{oss}	Output Capacitance	$V_{DS} = 25V$		240		
C_{rss}	Reverse Transfer Capacitance	$f = 1MHz$		44		
Q_g	Total Gate Charge	$V_{GS} = 10V$ $\quad$ $I_D = 11A$ $V_{DS} = 0.5BV_{DSS}$	12.8		28.5	nC
Q_{gs}	Gate – Source Charge	$I_D = 11A$	1.0		6.3	nC
Q_{gd}	Gate – Drain ("Miller") Charge	$V_{DS} = 0.5BV_{DSS}$	3.8		16.6	
$t_{d(on)}$	Turn–On Delay Time	$V_{DD} = 50V$ $I_D = 11A$ $R_G = 7.5\Omega$			30	ns
t_r	Rise Time				75	
$t_{d(off)}$	Turn–Off Delay Time				40	
t_f	Fall Time				45	
SOURCE – DRAIN DIODE CHARACTERISTICS						
I_S	Continuous Source Current				11	A
I_{SM}	Pulse Source Current				43	
V_{SD}	Diode Forward Voltage	$I_S = 11A$ $\quad$ $T_J = 25°C$ $V_{GS} = 0$			1.5	V
t_{rr}	Reverse Recovery Time	$I_S = 11A$ $\quad$ $T_J = 25°C$			300	ns
Q_{rr}	Reverse Recovery Charge	$d_i / d_t \leq 100A/\mu s$ $V_{DD} \leq 50V$			3	μC
PACKAGE CHARACTERISTICS						
L_D	Internal Drain Inductance (from 6mm down drain lead pad to centre of die)			8.7		nH
L_S	Internal Source Inductance (from 6mm down source lead to centre of source bond pad)			8.7		