SEME LAB

IRFNJ130
IRFN130SMD05

MECHANICAL DATA
Dimensions in mm (inches)

7.54 (0.296)

0.76 (0.030) min.

2.41 (0.095)   2.41 (0.095)

0.127 (0.005)

3.175 (0.125) Max.

3.05 (0.120)

0.76 (0.030) min.

5.72 (.225)

1   3

2

10.16 (0.400)

0.127 (0.005)

16 PLCS
0.50(0.020)

0.127 (0.005)

7.26 (0.286)

0.50 (0.020) max.

SMD05 (TO-276AA)

IRFNJ130
PAD1 = GATE   PAD 2 DRAIN   PAD3 = SOURCE

IRFN130SMD05
PAD1 = SOURCE   PAD 2 = DRAIN   PAD3 = GATE
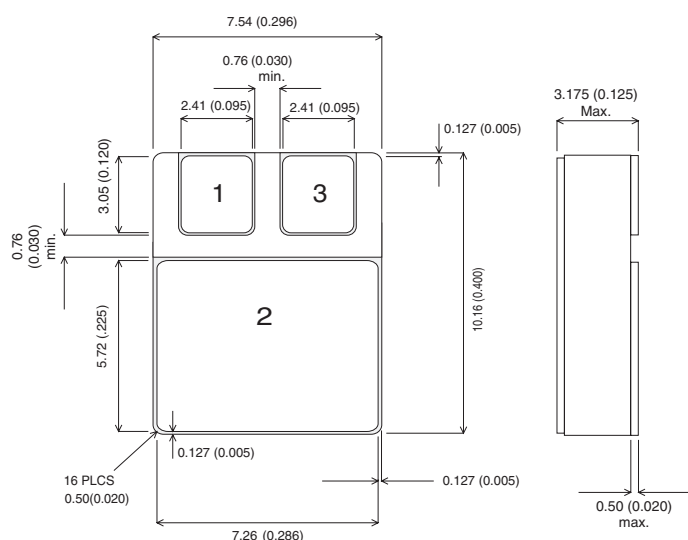
N–CHANNEL POWER MOSFET FOR HI–REL APPLICATIONS

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	$V_{GS} = 0$	$I_D = 1mA$	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	$V_{GS} = 10V$ $I_D = 7A$				0.19	Ω
		$V_{GS} = 10V$ $I_D = 11A$				0.22	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = 250\mu A$		2		4	V
g_{fs}	Forward Transconductance	$V_{DS} \geq 15V$ $I_{DS} = 7A$		3			S(℧)
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0$	$V_{DS} = 0.8BV_{DSS}$			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	$V_{GS} = 10V$ $I_D = 11A$ $V_{DS} = 0.5BV_{DSS}$		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	$I_S = 11A$ $T_J = 25°C$ $V_{GS} = 0$				1.5	V
t_{rr}	Reverse Recovery Time	$I_S = 11A$ $T_J = 25°C$				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		