SEME LAB

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.

1   3

10.16 (0.400)

5.72 (.225)

2

0.127 (0.005)

16 PLCS
0.50(0.020)

0.127 (0.005)

7.26 (0.286)

0.50 (0.020)
0.26 (0.010)
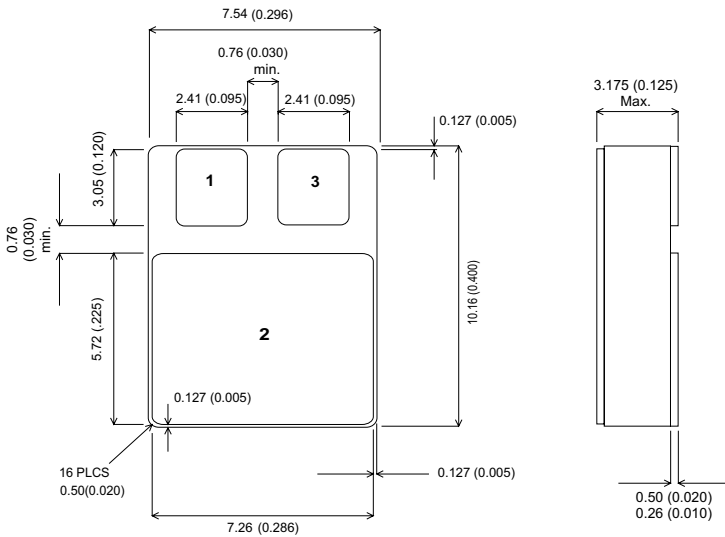
SMD 05

IRF130SMD05

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($\mho$)
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	$V_{GS} = 10V$ $\quad I_D = 11A$ $V_{DS} = 0.5BV_{DSS}$		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		