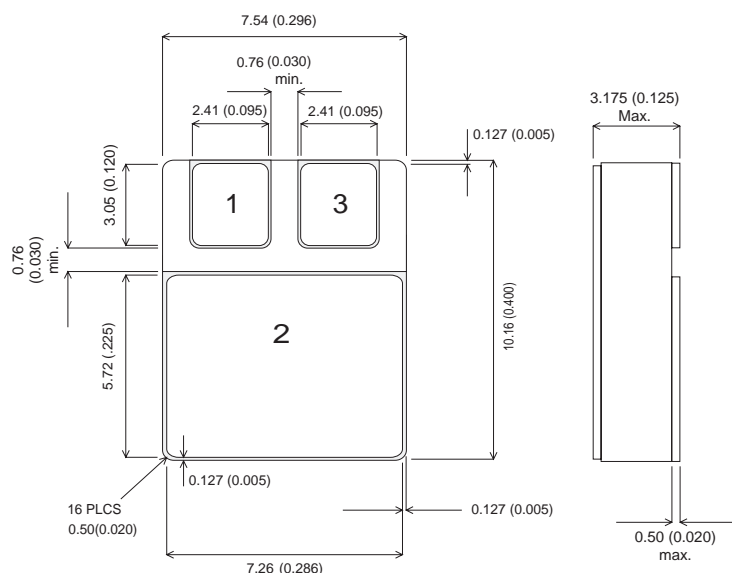


**MECHANICAL DATA**

Dimensions in mm (inches)



**SMD05 (TO-276AA)**

**IRF9130SMD05**

PAD1 = GATE PAD 2 DRAIN PAD3 = SOURCE

**IRFNJ9130**

PAD1 = SOURCE PAD 2 = DRAIN PAD3 = GATE

**P-CHANNEL  
POWER MOSFET  
FOR HI-REL  
APPLICATIONS**

$V_{DSS}$             **-100V**  
 $I_{D(cont)}$         **-11A**  
 $R_{DS(on)}$         **0.30Ω**

**FEATURES**

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

**ABSOLUTE MAXIMUM RATINGS** ( $T_{case} = 25^{\circ}C$  unless otherwise stated)

$V_{GS}$	Gate – Source Voltage	±20V
$I_D$	Continuous Drain Current @ $T_{case} = 25^{\circ}C$	-11A
$I_D$	Continuous Drain Current @ $T_{case} = 100^{\circ}C$	-7A
$I_{DM}$	Pulsed Drain Current	-50A
$P_D$	Power Dissipation @ $T_{case} = 25^{\circ}C$	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.

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

**ELECTRICAL CHARACTERISTICS** ( $T_C = 25^\circ\text{C}$  unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
<b>STATIC ELECTRICAL RATINGS</b>					
$BV_{DSS}$	Drain – Source Breakdown Voltage	$V_{GS} = 0$	$I_D = -1\text{mA}$	-100	V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to $25^\circ\text{C}$ $I_D = -1\text{mA}$		-0.1	$\text{V}/^\circ\text{C}$
$R_{DS(on)}$	Static Drain – Source On–State Resistance	$V_{GS} = -10\text{V}$	$I_D = -7\text{A}$		0.30
		$V_{GS} = -10\text{V}$	$I_D = -11\text{A}$		0.35
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = -250\mu\text{A}$	-2	-4
$g_{fs}$	Forward Transconductance	$V_{DS} \geq -15\text{V}$	$I_{DS} = -7\text{A}$	3	$S(\bar{r}_s)$
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{GS} = 0$	$V_{DS} = -80\text{V}$		-25
			$T_J = 125^\circ\text{C}$		-250
$I_{GSS}$	Forward Gate – Source Leakage	$V_{GS} = -20\text{V}$			-100
$I_{GSS}$	Reverse Gate – Source Leakage	$V_{GS} = 20\text{V}$			100
<b>DYNAMIC CHARACTERISTICS</b>					
$C_{iss}$	Input Capacitance	$V_{GS} = 0$		860	pF
$C_{oss}$	Output Capacitance	$V_{DS} = 25\text{V}$		350	
$C_{rss}$	Reverse Transfer Capacitance	$f = 1\text{MHz}$		125	
$Q_g$	Total Gate Charge	$V_{GS} = -10\text{V}$			29
$Q_{gs}$	Gate – Source Charge	$V_{DS} = -50\text{V}$			7.1
$Q_{gd}$	Gate – Drain (“Miller”) Charge	$I_D = -11\text{A}$			21
$t_{d(on)}$	Turn–On Delay Time	$V_{DD} = -50\text{V}$			60
$t_r$	Rise Time	$I_D = -11\text{A}$			140
$t_{d(off)}$	Turn–Off Delay Time	$R_G = 7.5\Omega$			140
$t_f$	Fall Time				140
<b>SOURCE – DRAIN DIODE CHARACTERISTICS</b>					
$I_S$	Continuous Source Current				-11
$I_{SM}$	Pulse Source Current				-50
$V_{SD}$	Diode Forward Voltage	$I_S = -11\text{A}$	$T_J = 25^\circ\text{C}$		-4.7
		$V_{GS} = 0$			
$t_{rr}$	Reverse Recovery Time	$I_S = -11\text{A}$	$T_J = 25^\circ\text{C}$		250
$Q_{rr}$	Reverse Recovery Charge	$d_i / d_t \leq -100\text{A}/\mu\text{s}$		$V_{DD} \leq 150\text{V}$	3