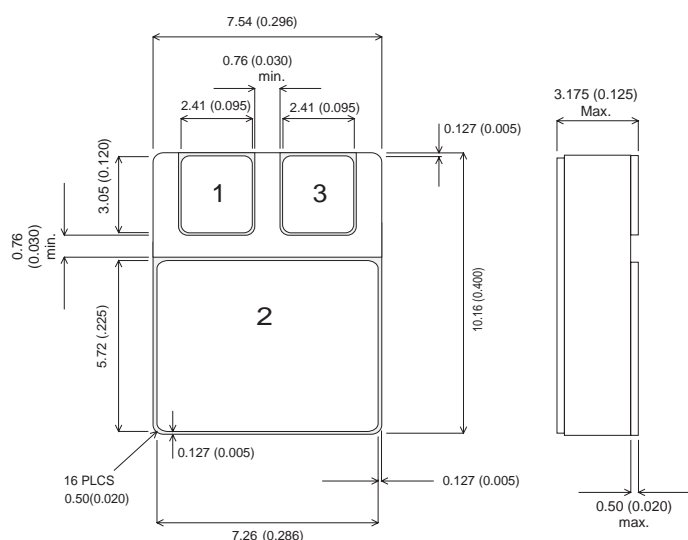


MECHANICAL DATA

Dimensions in mm (inches)



SMD05 (TO-276AA)

**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

IRFNJ130

PAD1 = GATE PAD 2 DRAIN PAD3 = SOURCE

IRFN130SMD05

PAD1 = SOURCE PAD 2 = DRAIN PAD3 = GATE

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	44A
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.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS					
BV_{DSS}	Drain – Source Breakdown Voltage	$V_{GS} = 0$	$I_D = 1\text{mA}$	100	V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C $I_D = 1\text{mA}$		0.1	$\text{V}/^\circ\text{C}$
$R_{DS(on)}$	Static Drain – Source On–State Resistance	$V_{GS} = 10\text{V}$	$I_D = 7\text{A}$		0.19
		$V_{GS} = 10\text{V}$	$I_D = 11\text{A}$		0.22
$V_{GS(th)}$	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	$\text{S}(\overline{75})$
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0$	$V_{DS} = 0.8BV_{DSS}$		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
DYNAMIC CHARACTERISTICS					
C_{iss}	Input Capacitance	$V_{GS} = 0$		650	pF
C_{oss}	Output Capacitance	$V_{DS} = 25\text{V}$		240	
C_{rss}	Reverse Transfer Capacitance	$f = 1\text{MHz}$		44	
Q_g	Total Gate Charge	$V_{GS} = 10\text{V}$	$I_D = 11\text{A}$	12.8	28.5
Q_{gs}	Gate – Source Charge	$V_{DS} = 0.5BV_{DSS}$			nC
Q_{gd}	Gate – Drain (“Miller”) Charge	$I_D = 11\text{A}$		1.0	6.3
$t_{d(on)}$	Turn–On Delay Time	$V_{DS} = 0.5BV_{DSS}$		3.8	16.6
t_r	Rise Time	$V_{DD} = 50\text{V}$			30
$t_{d(off)}$	Turn–Off Delay Time	$I_D = 11\text{A}$			75
t_f	Fall Time	$R_G = 7.5\Omega$			40
					45
SOURCE – DRAIN DIODE CHARACTERISTICS					
I_S	Continuous Source Current				11
I_{SM}	Pulse Source Current				43
V_{SD}	Diode Forward Voltage	$I_S = 11\text{A}$	$T_J = 25^\circ\text{C}$		1.5
t_{rr}	Reverse Recovery Time	$V_{GS} = 0$			ns
Q_{rr}	Reverse Recovery Charge	$I_S = 11\text{A}$	$T_J = 25^\circ\text{C}$		300
		$d_i / d_t \leq 100\text{A}/\mu\text{s}$		$V_{DD} \leq 50\text{V}$	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	

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