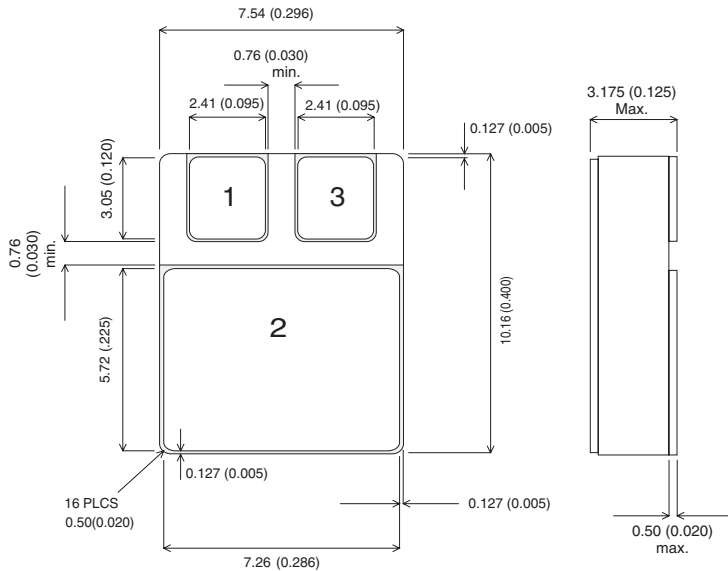


MECHANICAL DATA

Dimensions in mm (inches)



SMD 05 (TO-276AA)

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

(also available as IRF9530SMD05 with Gate and Source reversed)

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

V_{DS} 100V
I_{D(cont)} 12A
R_{DS(on)} 0.052Ω

FEATURES

- HERMETICALLY SEALED
- SIMPLE DRIVE REQUIREMENTS
- LIGHTWEIGHT
- SCREENING OPTIONS AVAILABLE

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

BV _{DS}	Drain – Source Breakdown Voltage	100V
V _{GS}	Gate – Source Voltage	±20V
I _D	Continuous Drain Current @ T _{case} = 25°C	22A
I _D	Continuous Drain Current @ T _{case} = 100°C	16A
I _{DM}	Pulsed Drain Current	88A
P _D	Power Dissipation @ T _{case} = 25°C	75W
	Linear Derating Factor	0.6W/°C
T _J , T _{stg}	Operating and Storage Temperature Range	-55 to +150°C
R _{θJC}	Thermal Resistance Junction to Case	1.67°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
STATIC ELECTRICAL RATINGS					
BV_{DSS}	Drain – Source Breakdown Voltage	$V_{GS} = 0$	$I_D = 250\mu\text{A}$	100	V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C	$I_D = 1\text{mA}$	0.11	$\text{V}/^\circ\text{C}$
$R_{DS(on)}$	Static Drain – Source On–State Resistance*	$V_{GS} = 10\text{V}$	$I_D = 16\text{A}$		0.052 Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = 250\mu\text{A}$	2	4 V
g_{fs}	Forward Transconductance*	$V_{DS} \geq 50\text{V}$	$I_{DS} = 16\text{A}$	11	$S(\bar{v})$
I_{DSS}	Zero Gate Voltage Drain Current ($V_{GS} = 0$)	$V_{DS} = 100\text{V}$			25 μA
		$V_{DS} = 80\text{V}$	$T_J = 150^\circ\text{C}$		250 μA
I_{GSS}	Forward Gate – Source Leakage	$V_{GS} = 20\text{V}$			100 nA
I_{GSS}	Reverse Gate – Source Leakage	$V_{GS} = -20\text{V}$			-100 nA
DYNAMIC CHARACTERISTICS					
C_{iss}	Input Capacitance	$V_{GS} = 0$		1487	pF
C_{oss}	Output Capacitance	$V_{DS} = 25\text{V}$		353	
C_{riss}	Reverse Transfer Capacitance	$f = 1\text{MHz}$		182	
Q_g	Total Gate Charge	$V_{GS} = 10\text{V}$			104 nC
Q_{gs}	Gate – Source Charge	$I_D = 16\text{A}$			20 nC
Q_{gd}	Gate – Drain (“Miller”) Charge	$V_{DS} = 0.8BV_{DSS}$			43 nC
$t_{d(on)}$	Turn–On Delay Time	$V_{DD} = 50\text{V}$			24 ns
t_r	Rise Time	$I_D = 16\text{A}$			125 ns
$t_{d(off)}$	Turn–Off Delay Time	$R_G = 7.5\Omega$			86 ns
t_f	Fall Time	$V_{GS} = 10\text{V}$			82 ns
SOURCE – DRAIN DIODE CHARACTERISTICS					
I_S	Continuous Source Current			22	A
I_{SM}	Pulse Source Current			88	
V_{SD}	Diode Forward Voltage*	$I_S = 16\text{A}$	$V_{GS} = 0\text{V}$	1.3	V
t_{rr}	Reverse Recovery Time	$I_F = 16\text{A}$	$V_{DD} \leq 50\text{V}$	240	ns
Q_{rr}	Reverse Recovery Charge	$d_i / d_t \leq 100\text{A}/\mu\text{s}$		1.67	μC

Notes

* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$