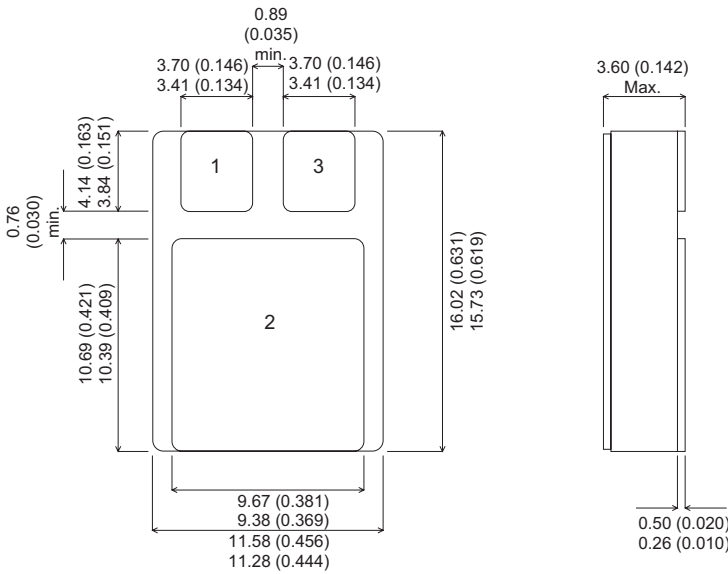


MECHANICAL DATA

Dimensions in mm (inches)



SMD 1 (TO-276AB)

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

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

V_{DS} **-100V**
 $I_{D(cont)}$ **-12A**
 $R_{DS(on)}$ **0.3Ω**

FEATURES

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

(also available as IRF9530SMD with Gate and Source reversed)

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

BV_{DS}	Drain – Source Breakdown Voltage	-100V
V_{GS}	Gate – Source Voltage	±20V
I_D	Continuous Drain Current @ $T_{case} = 25^{\circ}C$	-12A
I_D	Continuous Drain Current @ $T_{case} = 100^{\circ}C$	-8A
I_{DM}	Pulsed Drain Current	-48A
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	75W
	Linear Derating Factor	0.6W/°C
T_J, T_{stg}	Operating and Storage Temperature Range	-55 to +175°C
$R_{\theta JC}$	Thermal Resistance Junction to Case	1.7°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	$I_D = -1\text{mA}$	-0.1	$\text{V}/^\circ\text{C}$
$R_{DS(on)}$	Static Drain – Source On–State Resistance*	$V_{GS} = -10\text{V}$	$I_D = -7\text{A}$		0.30 Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = -250\mu\text{A}$	-2	-4 V
g_{fs}	Forward Transconductance*	$V_{DS} \geq -50\text{V}$	$I_{DS} = -7\text{A}$	3.7	$\text{S}(\overline{75})$
I_{DSS}	Zero Gate Voltage Drain Current ($V_{GS} = 0$)	$V_{DS} = -100\text{V}$			-100 μA
		$V_{DS} = -80\text{V}$	$T_J = 150^\circ\text{C}$		-500 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	$V_{GS} = 0$		860	pF
C_{oss}	Output Capacitance	$V_{DS} = -25\text{V}$		340	
C_{rss}	Reverse Transfer Capacitance	$f = 1\text{MHz}$		93	
Q_g	Total Gate Charge	$V_{GS} = -10\text{V}$			38 nC
Q_{gs}	Gate – Source Charge	$I_D = -12\text{A}$			6.8 nC
Q_{gd}	Gate – Drain (“Miller”) Charge	$V_{DS} = 0.8BV_{DSS}$			21 nC
$t_{d(on)}$	Turn–On Delay Time	$V_{DD} = -50\text{V}$		12	ns
t_r	Rise Time	$I_D = -12\text{A}$		52	
$t_{d(off)}$	Turn–Off Delay Time	$R_G = 12\Omega$		31	
t_f	Fall Time	$R_D = 3.9\Omega$		39	
SOURCE – DRAIN DIODE CHARACTERISTICS					
I_S	Continuous Source Current				-12 A
I_{SM}	Pulse Source Current				-48 A
V_{SD}	Diode Forward Voltage*	$I_S = -12\text{A}$	$V_{GS} = 0\text{V}$		-6.3 V
t_{rr}	Reverse Recovery Time	$I_F = -12\text{A}$	$V_{DD} \leq -50\text{V}$	120	240 ns
Q_{rr}	Reverse Recovery Charge	$d_i / d_t \leq -100\text{A}/\mu\text{s}$		0.46	0.92 μC

Notes

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