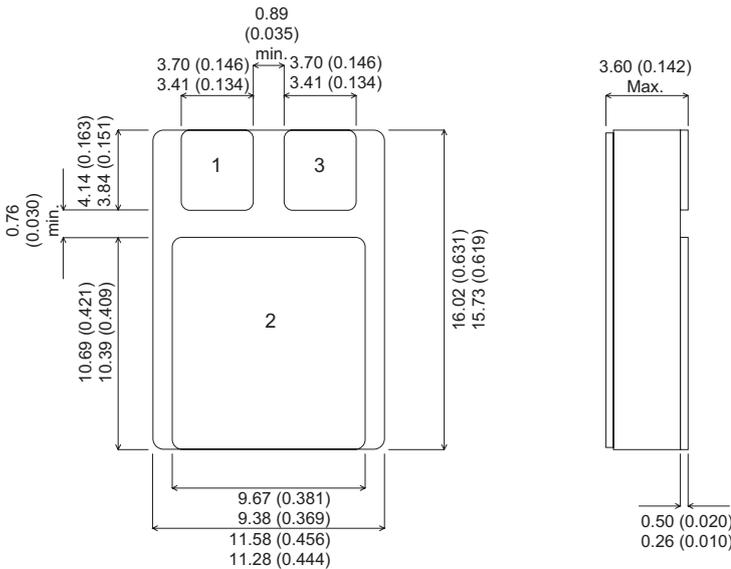


MECHANICAL DATA

Dimensions in mm (inches)



**P-CHANNEL
POWER MOSFET**

V_{DSS} **-100V**
 $I_{D(cont)}$ **-31A**
 $R_{DS(on)}$ **0.060Ω**

FEATURES

- HERMETICALLY SEALED SURFACE MOUNT PACKAGE
- SMALL FOOTPRINT – EFFICIENT USE OF PCB SPACE.
- SIMPLE DRIVE REQUIREMENTS
- LIGHTWEIGHT
- HIGH PACKING DENSITIES

SMD 1 PACKAGE (TO-276AB)

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

Note: IRF5210SMD also available with pins 1 and 3 reversed.

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

V_{GS}	Gate – Source Voltage	±20V
I_D	Continuous Drain Current ($V_{GS} = 0, T_{case} = 25^{\circ}C$)	-31A
I_D	Continuous Drain Current ($V_{GS} = 0, T_{case} = 100^{\circ}C$)	-19A
I_{DM}	Pulsed Drain Current ¹	-124A
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	125W
	Linear Derating Factor	1.0W/°C
E_{AS}	Single Pulse Avalanche Energy ²	340mJ
dv/dt	Peak Diode Recovery ³	4.0V/ns
T_J, T_{stg}	Operating and Storage Temperature Range	-55 to 150°C
T_L	Package Mounting Surface Temperature (for 5 sec)	300°C
$R_{\theta JC}$	Thermal Resistance Junction to Case	1.0°C/W

- Notes**
- 1) Pulse Test: Pulse Width $\leq 300ms, \delta \leq 2\%$
 - 2) @ $V_{DD} = -25V, L = 1.9mH, Peak I_{AS} = -19A, V_{GS} = -10V, R_G = 25\Omega, Starting T_J = 25^{\circ}C$
 - 3) @ $I_{SD} \leq -19A, di/dt \leq -390A/\mu s, V_{DD} \leq -100V, T_J \leq 150^{\circ}C$

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 ($T_{amb} = 25^{\circ}\text{C}$ 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
ΔBV_{DSS}	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 ¹	$V_{GS} = -10\text{V}$	$I_D = -19\text{A}$		0.06 Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = -250\mu\text{A}$	-2.0	-4.0 V
g_{fs}	Forward Transconductance ¹	$V_{DS} = -50\text{V}$	$I_{DS} = -19\text{A}$	10	$S(\bar{v})$
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0$	$V_{DS} = -80\text{V}$ $T_J = 125^{\circ}\text{C}$		-25 -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	$V_{GS} = 0$		2700	pF
C_{oss}	Output Capacitance	$V_{DS} = -25\text{V}$		830	
C_{rss}	Reverse Transfer Capacitance	$f = 1\text{MHz}$		470	
Q_g	Total Gate Charge ¹	$V_{GS} = -10\text{V}$	$I_D = -19\text{A}$		215 nC
Q_{gs}	Gate – Source Charge ¹	$V_{GS} = -10\text{V}$	$I_D = -19\text{A}$		30 nC
Q_{gd}	Gate – Drain (“Miller”) Charge ¹	$V_{DS} = -80\text{V}$			115 nC
$t_{d(on)}$	Turn–On Delay Time	$V_{DD} = -50\text{V}$	$V_{GS} = -10\text{V}$		28 ns
t_r	Rise Time	$I_D = -19\text{A}$			150 ns
$t_{d(off)}$	Turn–Off Delay Time	$R_G = 2.5\Omega$			103 ns
t_f	Fall Time				116 ns
SOURCE – DRAIN DIODE CHARACTERISTICS					
I_S	Continuous Source Current				-31 A
I_{SM}	Pulse Source Current ²				-124 A
V_{SD}	Diode Forward Voltage	$I_S = -19\text{A}$	$T_J = 25^{\circ}\text{C}$		-1.6 V
t_{rr}	Reverse Recovery Time	$V_{GS} = 0$			290 ns
Q_{rr}	Reverse Recovery Charge	$I_F = -19\text{A}$	$T_J = 25^{\circ}\text{C}$		2.1 μC
t_{on}	Forward Turn–On Time	$d_i / d_t \leq 100\text{A}/\mu\text{s}$	$V_{DD} \leq -50\text{V}$		Negligible

Notes

- 1) Pulse Test: Pulse Width $\leq 300\text{ms}$, $\delta \leq 2\%$
- 2) Repetitive Rating – Pulse width limited by maximum junction temperature.

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