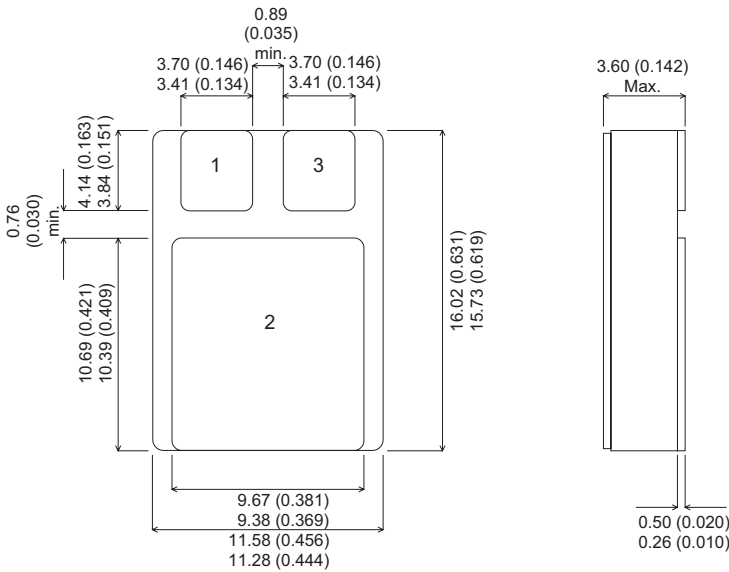


MECHANICAL DATA

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	$\pm 20V$
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/ $^{\circ}C$
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 $^{\circ}C$
T_L	Package Mounting Surface Temperature (for 5 sec)	300 $^{\circ}C$
$R_{\theta JC}$	Thermal Resistance Junction to Case	1.0 $^{\circ}C/W$

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) @ $I_{SD} \leq -19A, di/dt \leq -390A/\mu s, V_{DD} \leq -100V, T_J \leq 150^{\circ}C$

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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
$\frac{\Delta BV_{DSS}}{\Delta T_J}$ 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 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			$\text{S}(\overline{75})$
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	
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	$V_{GS} = -10\text{V}$ $I_D = -19\text{A}$ $V_{DS} = -80\text{V}$			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	
$t_{d(on)}$ Turn–On Delay Time	$V_{DD} = -50\text{V}$ $V_{GS} = -10\text{V}$ $I_D = -19\text{A}$ $R_G = 2.5\Omega$			28	ns
t_r Rise Time				150	
$t_{d(off)}$ Turn–Off Delay Time				103	
t_f Fall Time				116	
SOURCE – DRAIN DIODE CHARACTERISTICS					
I_S Continuous Source Current				-31	A
I_{SM} Pulse Source Current ²				-124	
V_{SD} Diode Forward Voltage	$I_S = -19\text{A}$ $T_J = 25^{\circ}\text{C}$ $V_{GS} = 0$			-1.6	V
t_{rr} Reverse Recovery Time	$I_F = -19\text{A}$ $T_J = 25^{\circ}\text{C}$			290	ns
Q_{rr} Reverse Recovery Charge	$d_i / d_t \leq 100\text{A}/\mu\text{s}$ $V_{DD} \leq -50\text{V}$			2.1	μC
t_{on} Forward Turn–On Time		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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