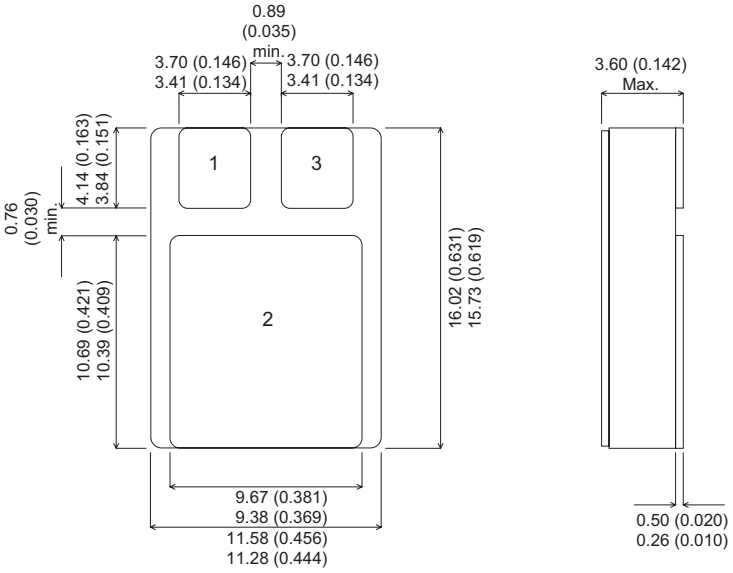
IRFN5210

MECHANICAL DATA
Dimensions in mm (inches)



SMD 1 PACKAGE (TO-276AB)

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

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**

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

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

V_{GS}	Gate – Source Voltage		±20V
I_D	Continuous Drain Current	(V_{GS} = 0 , T_{case} = 25°C)	-31A
I_D	Continuous Drain Current	(V_{GS} = 0 , T_{case} = 100°C)	-19A
I_{DM}	Pulsed Drain Current [1]		-124A
P_D	Power Dissipation @ T_{case} = 25°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 ≤ 300ms, δ ≤ 2%

2) @ V_{DD} = -25V , L = 1.9mH , Peak I_{AS} = -19A , V_{GS} = -10V, R_G = 25Ω, Starting T_J = 25°C

3) @ I_{SD} ≤ -19A , di/dt ≤ -390A/μs , V_{DD} ≤ -100V , T_J ≤ 150°C

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SEME LAB

IRFN5210

ELECTRICAL CHARACTERISTICS (T_{amb} = 25°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 = -250µA	-100			V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I_D = -1mA			-0.11		V/°C
$R_{DS(on)}$	Static Drain – Source On–State Resistance [1]	V_{GS} = -10V	I_D = -19A			0.06	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}	I_D = -250µA	-2.0		-4.0	V
g_{fs}	Forward Transconductance [1]	V_{DS} = -50V	I_{DS} = -19A	10			S(℧)
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS} = 0	V_{DS} = -80V			-25	µA
			T_J = 125°C			-250	
I_{GSS}	Forward Gate – Source Leakage	V_{GS} = -20V				-100	nA
I_{GSS}	Reverse Gate – Source Leakage	V_{GS} = 20V				100	
	DYNAMIC CHARACTERISTICS						
C_{iss}	Input Capacitance	V_{GS} = 0			2700		pF
C_{oss}	Output Capacitance	V_{DS} = -25V			830		
C_{rss}	Reverse Transfer Capacitance	f = 1MHz			470		
Q_g	Total Gate Charge [1]	V_{GS} = -10V V_{DS} = -80V	I_D = -19A			215	nC
Q_{gs}	Gate – Source Charge [1]	V_{GS} = -10V	I_D = -19A			30	nC
Q_{gd}	Gate – Drain (“Miller”) Charge [1]	V_{DS} = -80V				115	
$t_{d(on)}$	Turn–On Delay Time	V_{DD} = -50V I_D = -19A R_G = 2.5Ω	V_{GS} = -10V			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 = -19A V_{GS} = 0	T_J = 25°C			-1.6	V
t_{rr}	Reverse Recovery Time	I_F = -19A	T_J = 25°C			290	ns
Q_{rr}	Reverse Recovery Charge	$d_i / d_t \leq$ 100A/µs	$V_{DD} \leq$ -50V			2.1	µC
t_{on}	Forward Turn–On Time				Negligible		

Notes

1) Pulse Test: Pulse Width ≤ 300ms, δ ≤ 2%

2) Repetitive Rating – Pulse width limited by maximum junction temperature.

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