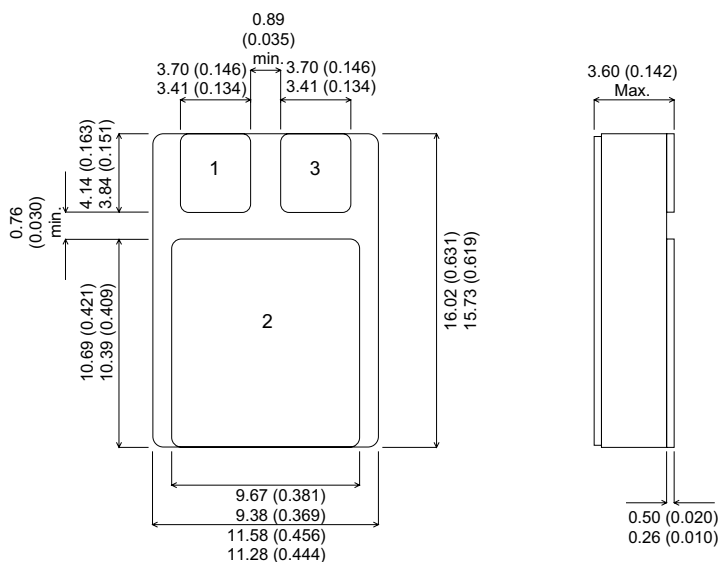


MECHANICAL DATA

Dimensions in mm (inches)



P-CHANNEL POWER MOSFET

V_{DSS}	$-100V$
$I_{D(cont)}$	$-14A$
$R_{DS(on)}$	0.020Ω

FEATURES

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

SMD1

Pad 1 – Source

Pad 2 – Drain

Pad 3 – Gate

Note: IRFxxxSM 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 ($V_{GS} = 0$, $T_{case} = 25^{\circ}C$)	$-14A$
I_D	Continuous Drain Current ($V_{GS} = 0$, $T_{case} = 100^{\circ}C$)	$-9.0A$
I_{DM}	Pulsed Drain Current ¹	$-56A$
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	$75W$
	Linear Derating Factor	$0.6W/^{\circ}C$
E_{AS}	Single Pulse Avalanche Energy ²	$500mJ$
dv/dt	Peak Diode Recovery ³	$-5.0V/ns$
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	$1.67^{\circ}C/W$
$R_{\theta J-PCB}$	Thermal Resistance Junction to PCB (Typical)	$4^{\circ}C/W$

Notes

1) Pulse Test: Pulse Width $\leq 300\text{ms}$, $\delta \leq 2\%$

2) @ $V_{DD} = -25V$, $L \geq 3.8mH$, $R_G = 25\Omega$, Peak $I_l = -14A$, Starting $T_{ij} = 25^\circ C$

3) @ $I_{SD} \leq -14A$, $di/dt \leq -100A/\mu s$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150^\circ C$, SUGGESTED $R_G = 9.1\Omega$

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 = −1mA	−100			V
ΔBV _{DSS} ΔT _J	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = −1mA			−0.087		V/°C
R _{DS(on)}	Static Drain – Source On–State Resistance ¹	V _{GS} = −10V	I _D = −9A			0.20	Ω
		V _{GS} = −10V	I _D = −14A			0.22	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS}	I _D = −250μA	−2		−4	V
g _{fs}	Forward Transconductance ¹	V _{DS} ≥ −15V	I _{DS} = −9A	6.2			S(Ω)
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0	V _{DS} = 0.8BV _{DSS}			−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			1400		pF
C _{oss}	Output Capacitance	V _{DS} = −25V			600		
C _{rss}	Reverse Transfer Capacitance	f = 1MHz			200		
Q _g	Total Gate Charge ¹	V _{GS} = −10V	I _D = −14A	31		60	nC
		V _{DS} = 0.5BV _{DSS}					
Q _{gs}	Gate – Source Charge ¹	I _D = −14A		3.7		13	nC
Q _{gd}	Gate – Drain (“Miller”) Charge ¹	V _{DS} = 0.5BV _{DSS}		7		35.2	
t _{d(on)}	Turn–On Delay Time	V _{DD} = −50V I _D = −14A R _G = 9.1Ω				35	ns
t _r	Rise Time					85	
t _{d(off)}	Turn–Off Delay Time					85	
t _f	Fall Time					65	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I _S	Continuous Source Current					−14	A
I _{SM}	Pulse Source Current ²					−56	
V _{SD}	Diode Forward Voltage	I _S = −14A	T _J = 25°C			−4.2	V
		V _{GS} = 0					
t _{rr}	Reverse Recovery Time	I _F = −14A	T _J = 25°C			280	ns
Q _{rr}	Reverse Recovery Charge	d _i / d _t ≤ −100A/μs V _{DD} ≤ −50V				3.6	μC
t _{on}	Forward Turn–On Time			negligible			
PACKAGE CHARACTERISTICS							
L _D	Internal Drain Inductance (from centre of drain pad to die)				0.8		nH
L _S	Internal Source Inductance (from centre of source pad to end of source bond wire)				2.8		

Notes

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