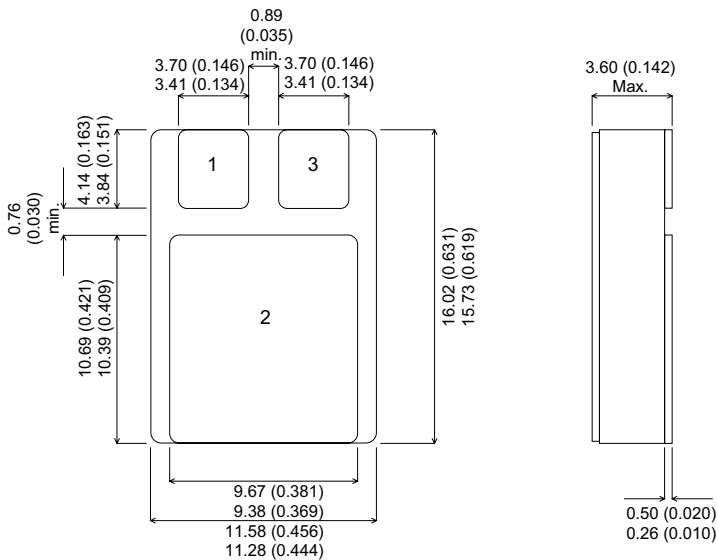


MECHANICAL DATA

Dimensions in mm (inches)


**P-CHANNEL
POWER MOSFET**

V_{DSS}	-200V
$I_{D(cont)}$	-8A
$R_{DS(on)}$	0.051Ω

FEATURES

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

SMD1 PACKAGE

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 ($V_{GS} = 0, T_{case} = 25^{\circ}C$)	-8.0A
I_D	Continuous Drain Current ($V_{GS} = 0, T_{case} = 100^{\circ}C$)	-5.0A
I_{DM}	Pulsed Drain Current ¹	-32A
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	-5.5V/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 $\leq 300ms$, $\delta \leq 2\%$
- 2) @ $V_{DD} = -50V$, $L \geq 11.7mH$, $R_G = 25\Omega$, Peak $I_L = -8A$, Starting $T_J = 25^{\circ}C$
- 3) @ $I_{SD} \leq -8A$, $di/dt \leq -150A/\mu s$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150^{\circ}C$, SUGGESTED $R_G = 9.1\Omega$

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.

 E-mail: sales@semelab.co.uk Website: <http://www.semelab.co.uk>

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	$V_{GS} = 0$ $I_D = -1\text{mA}$	-200			V
ΔBV_{DSS} Temperature Coefficient of Breakdown Voltage	Reference to 25°C $I_D = -1\text{mA}$		-0.020		V/ $^{\circ}\text{C}$
$R_{DS(on)}$ Static Drain – Source On-State Resistance ¹	$V_{GS} = -10\text{V}$ $I_D = -5\text{A}$			0.51	Ω
	$V_{GS} = -10\text{V}$ $I_D = -8\text{A}$			0.52	
$V_{GS(th)}$ Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = -250\mu\text{A}$	-2		-4	V
g_{fs} Forward Transconductance ¹	$V_{DS} \geq -15\text{V}$ $I_{DS} = -5\text{A}$	4.0			S(\bar{v})
I_{DSS} Zero Gate Voltage Drain Current	$V_{GS} = 0$ $V_{DS} = 0.8BV_{DSS}$ $T_J = 125^{\circ}\text{C}$			-25	μA
				-250	
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	$V_{GS} = 0$		1200		pF
C_{oss} Output Capacitance	$V_{DS} = -25\text{V}$		570		
C_{rss} Reverse Transfer Capacitance	$f = 1\text{MHz}$		81		
Q_g Total Gate Charge ¹	$V_{GS} = -10\text{V}$ $I_D = -8\text{A}$ $V_{DS} = 0.5BV_{DSS}$	28		60	nC
Q_{gs} Gate – Source Charge ¹	$I_D = -8\text{A}$	3.0		15	nC
Q_{gd} Gate – Drain (“Miller”) Charge ¹	$V_{DS} = 0.5BV_{DSS}$	4.5		38	
$t_{d(on)}$ Turn-On Delay Time	$V_{DD} = -100\text{V}$ $I_D = -8\text{A}$ $R_G = 9.1\Omega$			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				-8	A
I_{SM} Pulse Source Current ²				-32	
V_{SD} Diode Forward Voltage	$I_S = -8\text{A}$ $T_J = 25^{\circ}\text{C}$ $V_{GS} = 0$			-4.6	V
t_{rr} Reverse Recovery Time	$I_F = -8\text{A}$ $T_J = 25^{\circ}\text{C}$			440	ns
Q_{rr} Reverse Recovery Charge	$d_i / d_t \leq -100\text{A}/\mu\text{s}$ $V_{DD} \leq -50\text{V}$			7.2	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.