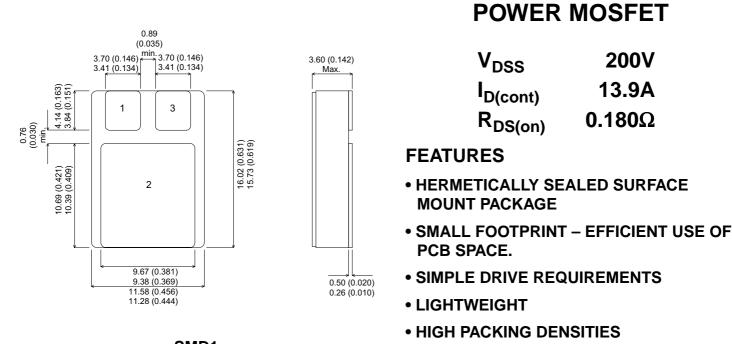
IRFN240SMD



MECHANICAL DATA Dimensions in mm (inches)



SMD1

Pad 2 – Drain

Pad 1 – Source

Pad 3 – Gate

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

N-CHANNEL

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

V _{GS}	Gate – Source Voltage	±20V		
I _D	Continuous Drain Current $(V_{GS} = 0, T_{case} = 25^{\circ}C)$	13.9A		
I _D	Continuous Drain Current $(V_{GS} = 0, T_{case} = 100^{\circ}C)$	8.8A		
I _{DM}	Pulsed Drain Current ¹	56A		
P _D	Power Dissipation @ T _{case} = 25°C	75W		
	Linear Derating Factor	0.6W/°C		
E _{AS}	Single Pulse Avalanche Energy ²	450mJ		
dv/dt	Peak Diode Recovery ³	5.0V/ns		
T _J , T _{stg}	Operating and Storage Temperature Range	–55 to 150°C		
ΤL	Package Mounting Surface Temperature (for 5 sec)	300°C		
$R_{ extsf{ heta}JC}$	Thermal Resistance Junction to Case	1.67°C/W		
$R_{\thetaJ-PCB}$	Thermal Resistance Junction to PCB (Typical)	4°C/W		

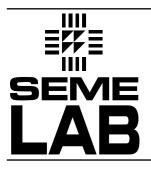
Notes

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

2) @ V_DD = 50V , L \geq 1.5mH , R_G = 25 Ω , Peak I_L = 22A , Starting T_J = 25°C

3) @ I_{SD} \leq 13.9A , di/dt \leq 150A/ μ s , V_{DD} \leq BV_{DSS} , T_J \leq 150°C , SUGGESTED R_G = 9.1 Ω

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612. E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk



IRFN240SMD

ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C unless otherwise stated)

	Parameter Test Conditions		Min.	Тур.	Max.	Unit			
	STATIC ELECTRICAL RATINGS	•							
BV _{DSS}	Drain – Source Breakdown Voltage	$V_{GS} = 0$	I _D = 1mA	200			V		
ΔBV_{DSS}	Temperature Coefficient of	Reference to $25^{\circ}C$ I _D = 1mA			0.29		V/°C		
ΔT_{J}	Breakdown Voltage								
R _{DS(on)}	Static Drain – Source On–State	V _{GS} = 10V	I _D = 8.8A			0.180) Ω		
	Resistance ¹	V _{GS} = 10V	I _D = 13.9A			0.250) 12		
V _{GS(th)}	Gate Threshold Voltage	$V_{DS} = V_{GS}$	I _D = 250μA	2		4	V		
9 _{fs}	Forward Transconductance ¹	$V_{DS} \ge 15V$	I _{DS} = 8.8A	6.1			2(Q)		
I _{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0$	$V_{DS} = 0.8 B V_{DSS}$			25	- μΑ		
			T _J = 125°C			250			
I _{GSS}	Forward Gate – Source Leakage	$V_{GS} = 20V$ $V_{GS} = -20V$				100	nA		
I _{GSS}	Reverse Gate – Source Leakage					-100			
	DYNAMIC CHARACTERISTICS								
C _{iss}	Input Capacitance	$V_{GS} = 0$			1300				
C _{oss}	Output Capacitance	V _{DS} = 25V		400		pF			
C _{rss}	Reverse Transfer Capacitance	f = 1MHz		130					
Qg	Total Gate Charge ¹	V _{GS} = 10V	I _D = 13.9A	22		<u> </u>	nC		
		$V_{DS} = 0.5 B V_{DSS}$	6	32		60			
Q _{gs}	Gate – Source Charge ¹	I _D = 13.9A		2.2		10.6	nC		
Q _{gd}	Gate – Drain ("Miller") Charge ¹	$V_{DS} = 0.5BV_{DSS}$	14.2		37.6				
t _{d(on)}	Turn–On Delay Time	V 100V			20	ns			
t _r	Rise Time	$V_{DD} = 100V$ $I_{D} = 13.9A$					152		
t _{d(off)}	Turn–Off Delay Time						58		
t _f	Fall Time	$R_{G} = 9.1\Omega$				67			
	SOURCE - DRAIN DIODE CHARAC	TERISTICS							
I _S	Continuous Source Current					13.9			
I _{SM}	Pulse Source Current ²					56	A		
V _{SD}	Diode Forward Voltage	I _S = 13.9A	T _J = 25°C			1 5	V		
		$V_{GS} = 0$				1.5	V		
t _{rr}	Reverse Recovery Time	I _F = 13.9A	T _J = 25°C			500	ns		
Q _{rr}	Reverse Recovery Charge	d _i / d _t ≤ 100A/μs	V _{DD} ≤ 50V			5.3	μC		
t _{on}	orward 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				
Notos							•		

Notes

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

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