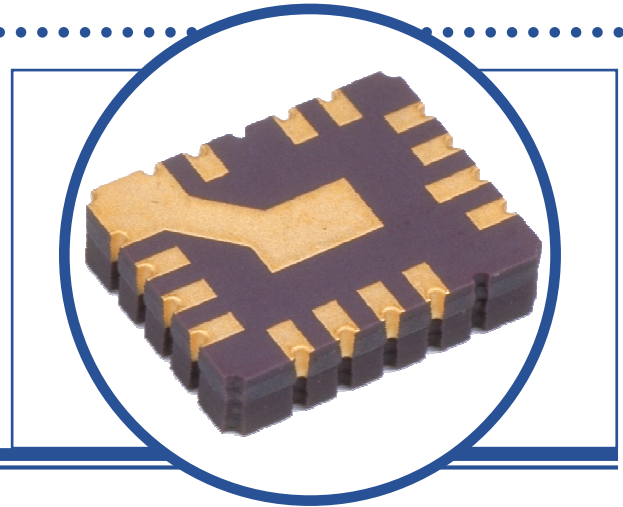


P-CHANNEL POWER MOSFET

IRFE9130

- Hermetically Sealed, Light Weight, Small Footprint Surface Mount Package
- Dynamic dv/dt Rating
- Avalanche Energy Rating
- Simple Drive Requirements
- Screening Options Available



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

V _{DS}	Drain – Source Voltage	-100V
V _{GS}	Gate – Source Voltage	±20V
I _D	Continuous Drain Current @ T _{case} = 25°C	-6.1A
I _D	Continuous Drain Current @ T _{case} = 100°C	-3.8A
I _{DM}	Pulsed Drain Current ¹	-24A
P _D	Total Power Dissipation @ T _{case} = 25°C	22W
	Linear De-rating Factor @ T _{case} ≥ 25°C	0.17W/°C
E _{AS}	Single Pulse Avalanche Energy ²	92mJ
dv/dt	Peak Diode Recovery dv/dt ³	-5.5V/ns
T _J , T _{stg}	Operating and Storage Temperature Range	-55°C to +150°C
	Package Mounting Surface Temperature	300°C (for 5 sec.)

THERMAL CHARACTERISTICS

Symbol	Parameters	Max	Units
R _{θJC}	Thermal Resistance, Junction To Case	5.8	°C/W
R _{θJPCB}	Thermal Resistance, Junction To PCB	19	°C/W

Notes:

- 1) Repetitive Rating; Pulse width limited by maximum junction temperature
- 2) V_{DD} = -25V, starting T_J = 25°C, Peak I_L = -6.1A
- 3) I_{SD} ≤ -6.1A, di/dt ≤ -390A/μs, V_{DD} ≤ -100V, T_J ≤ 150°C, Suggested R_G = 7.5Ω
- 4) Pulse width ≤ 300 μs; Duty Cycle ≤ 2%

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.



P-CHANNEL POWER MOSFET IRFE9130

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

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 I _D = -1.0mA	-100			V
$\frac{\Delta BV_{DSS}}{\Delta T_j}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = -1.0mA		-0.1		V/°C
R _{DS(on)} ⁴	Static Drain-Source On-State Resistance	V _{GS} = -10V I _D = -3.8A			0.30	Ω
		V _{GS} = -10V I _D = -6.1A			0.345	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} I _D = -250μA	-2		-4	V
g _{fs} ⁴	Forward Transconductance	V _{DS} ≥ -15V I _{DS} = -3.8A	2.5			S(Ω)
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0 V _{DS} = 0.8BV _{DSS} T _j = 125°C			-25	μA
					-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		800		pF
C _{oss}	Output Capacitance	V _{DS} = -25V		350		
C _{rss}	Reverse Transfer Capacitance	f = 1.0MHz		125		
Q _g	Total Gate Charge	V _{GS} = -10V	14.7		38.4	nC
Q _{gs}	Gate-Source Charge	I _D = -6.1A	1.0		7.1	
Q _{gd}	Gate-Drain Charge	V _{DS} = 0.5BV _{DSS}	2.0		21	
t _{d(on)}	Turn-On Delay Time	V _{DD} = -50V I _D = -6.1A R _G = 7.5Ω			60	ns
t _r	Rise Time				140	
t _{d(off)}	Turn-Off Delay Time				140	
t _f	Fall Time				140	

SOURCE – DRAIN DIODE CHARACTERISTICS

I _S	Continuous Source Current				-6.1	A
I _{SM}	Pulse Source Current				-24	
V _{SD} ⁴	Diode Forward Voltage	I _S = -6.1A V _{GS} = 0			-4.7	V
t _{rr} ⁴	Reverse Recovery Time	I _F = -6.1A V _{DD} ≤ -50V			250	ns
Q _{rr} ⁴	Reverse Recovery Charge	di/dt ≤ -100A/μs			3.0	μC
t _{on}	Forward Turn - on Time		Negligible			

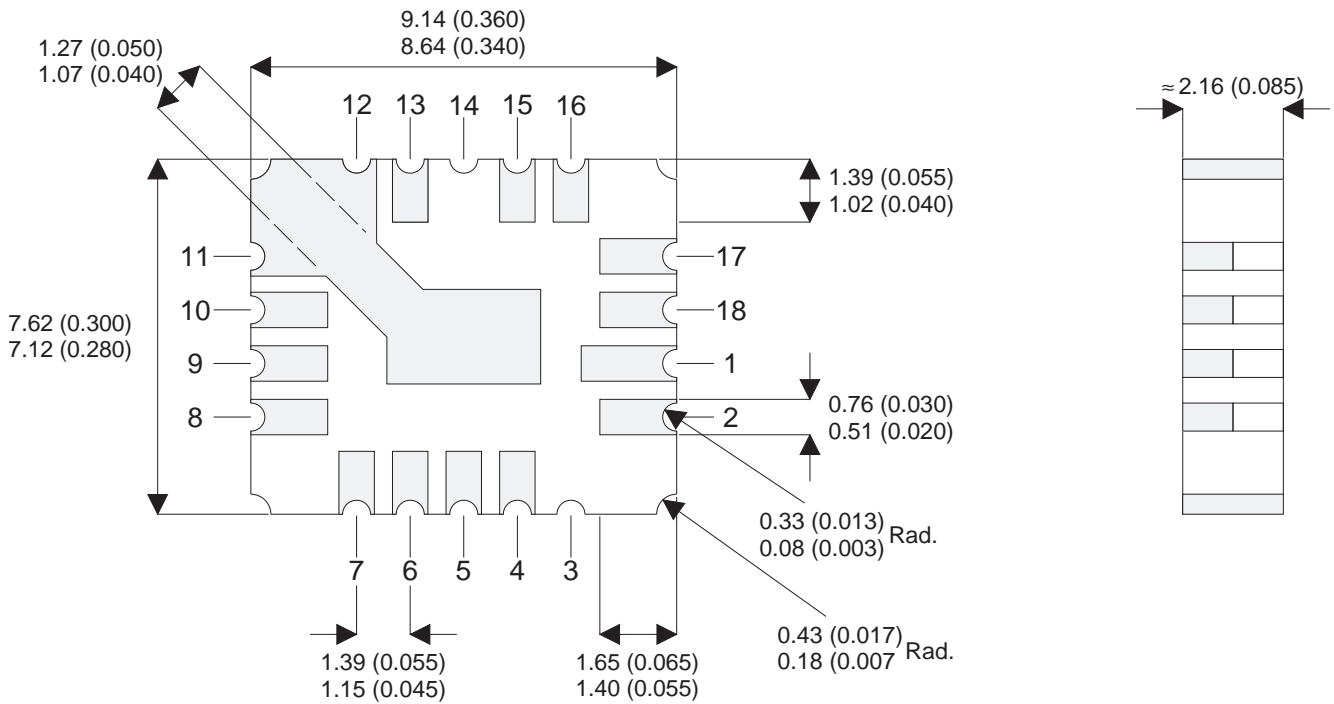
PACKAGE CHARACTERISTICS

L _D	Internal Drain Inductance		1.8		nH
L _S	Internal Source Inductance		4.3		

P-CHANNEL POWER MOSFET IRFE9130

MECHANICAL DATA

Dimensions in mm (inches)



LCC4

MOSFET	PINS
GATE	4,5
DRAIN	1,2,15,16,17,18
SOURCE	6,7,8,9,10,11,12,13,LID