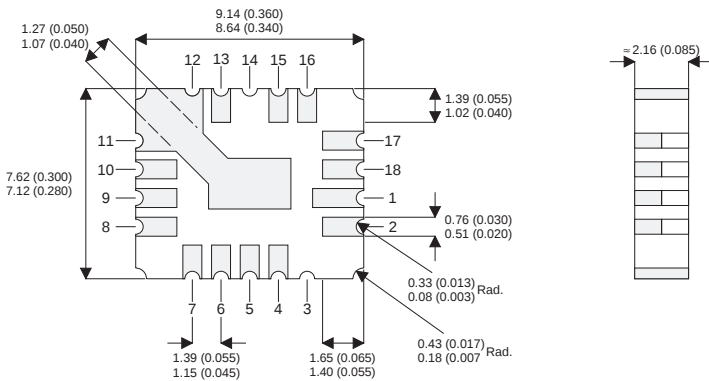


IRFE230

MECHANICAL DATA

Dimensions in mm (inches)



LCC4

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

N-CHANNEL POWER MOSFET

V_{DSS} 200V

$I_{D(cont)}$ 4.8A

$R_{DS(on)}$ 0.46 Ω

FEATURES

- SURFACE MOUNT
- SMALL FOOTPRINT
- HERMETICALLY SEALED
- DYNAMIC dv/dt RATING
- AVALANCHE ENERGY RATING
- SIMPLE DRIVE REQUIREMENTS
- LIGHT WEIGHT

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

V_{GS}	Gate – Source Voltage	$\pm 20V$
I_D	Continuous Drain Current ($V_{GS} = 10V$, $T_{case} = 25^{\circ}C$)	4.8A
I_D	Continuous Drain Current ($V_{GS} = 10V$, $T_{case} = 100^{\circ}C$)	3.1A
I_{DM}	Pulsed Drain Current ¹	19A
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	22W
	Linear Derating Factor	0.17W/ $^{\circ}C$
E_{AS}	Single Pulse Avalanche Energy ²	54mJ
dv/dt	Peak Diode Recovery ³	4.5V/ns
T_J , T_{stg}	Operating and Storage Temperature Range	-55 to +150 $^{\circ}C$
	Surface Temperature (for 5 sec).	300 $^{\circ}C$

Notes

- 1) Pulse Test: Pulse Width $\leq 300\mu s$, $\delta \leq 2\%$
- 2) @ $V_{DD} = 50V$, $L \geq 570\mu H$, $R_G = 25\Omega$, Peak $I_L = 14A$, Starting $T_J = 25^{\circ}C$
- 3) @ $I_{SD} \leq 14A$, $di/dt \leq 140A/\mu s$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150^{\circ}C$, Suggested $R_G = 7.5\Omega$

ELECTRICAL CHARACTERISTICS ($T_{\text{case}} = 25^{\circ}\text{C}$ 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	200			V
ΔBV _{DSS}	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = 1mA			0.25		V/°C
R _{DS(on)}	Static Drain – Source On–State Resistance ¹	V _{GS} = 10V	I _D = 3.1A			0.40	Ω
		V _{GS} = 10V	I _D = 4.8A			0.46	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS}	I _D = 250mA	2		4	V
g _{fs}	Forward Transconductance ¹	V _{DS} ≥ 15V	I _{DS} = 3.1A	2.5			S (V)
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			600		pF
C _{oss}	Output Capacitance	V _{DS} = 25V			250		
C _{rss}	Reverse Transfer Capacitance	f = 1MHz			80		
Q _g	Total Gate Charge	V _{GS} = 10V		7.4		42.1	nC
Q _{gs}	Gate – Source Charge	I _D = 4.8A		2.5		5.3	
Q _{gd}	Gate – Drain (“Miller”) Charge	V _{DS} = 0.5BV _{DSS}		6.0		28.1	
t _{d(on)}	Turn–On Delay Time	V _{DD} = 100V I _D =4.8A R _G = 7.5Ω				30	ns
t _r	Rise Time					50	
t _{d(off)}	Turn–Off Delay Time					50	
t _f	Fall Time					40	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I _S	Continuous Source Current					4.8	A
I _{SM}	Pulse Source Current ²					19	
V _{SD}	Diode Forward Voltage ¹	I _S = 4.8A V _{GS} = 0	T _J = 25°C			1.4	V
t _{rr}	Reverse Recovery Time	I _F = 4.8A	T _J = 25°C			6.0	ns
Q _{rr}	Reverse Recovery Charge ¹	d _i / d _t ≤ 100A/μs V _{DD} ≤ 50V				3.0	μC
t _{on}	Forward Turn–On Time			Negligible			
PACKAGE CHARACTERISTICS							
L _D	Internal Drain Inductance (measured from 6mm down drain lead to centre of die)				1.8		nH
L _S	Internal Source Inductance (from 6mm down source lead to source bond pad)				4.3		
THERMAL CHARACTERISTICS							
R _{θJC}	Thermal Resistance Junction – Case					5.8	°C/W
R _{θJPC}	Thermal Resistance Junction – PC Board					19	

Notes

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

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

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