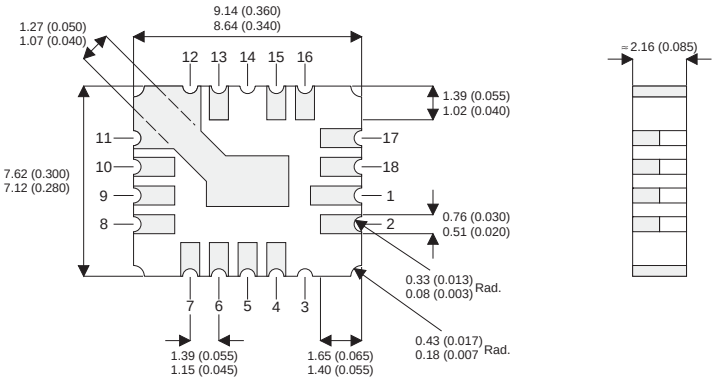
2N6782LCC4
IRFE110

MECHANICAL DATA
Dimensions in mm (inches)



LCC4

GATE	Pins 4,5
DRAIN	Pins1,2,15,16,17,18
SOURCE	Pins 6,7,8,9,10,11,12,13

N–CHANNEL POWER MOSFET

V_{DSS}	100V
$I_{D(cont)}$	3.5A
$R_{DS(on)}$	0.6Ω

FEATURES

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

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

V_{GS}	Gate – Source Voltage		±20V
I_D	Continuous Drain Current	(V_{GS} = 10V , T_{case} = 25°C)	3.5A
I_D	Continuous Drain Current	(V_{GS} = 10V , T_{case} = 100°C)	2.25A
I_{DM}	Pulsed Drain Current [1]		14A
P_D	Power Dissipation @ T_{case} = 25°C		15W
	Linear Derating Factor		0.09W/°C
E_{AS}	Single Pulse Avalanche Energy [2]		7.0mJ
dv/dt	Peak Diode Recovery [3]		9.0V/ns
T_J , T_{stg}	Operating and Storage Temperature Range		-55 to +150°C
	Surface Temperature (for 5 sec).		300°C

Notes

1) Pulse Test: Pulse Width ≤ 300µs, δ ≤ 2%

2) @ V_{DD} = 25V , Peak I_L = 3.1A , Starting T_J = 25°C

3) @ I_{SD} ≤ 3.1A , di/dt ≤ 75A/µs , V_{DD} ≤ BV_{DSS} , T_J ≤ 150°C , Suggested R_G = 7.5Ω

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SEME LAB

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ELECTRICAL CHARACTERISTICS (T_{case} = 25°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
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I_D = 1mA		0.12		V/°C
$R_{DS(on)}$	Static Drain – Source On–State Resistance [1]	V_{GS} = 10V I_D = 2.25A			0.6	Ω
		V_{GS} = 10V I_D = 3.5A			0.69	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS} I_D = 250µA	2		4	V
g_{fs}	Forward Transconductance [1]	V_{DS} ≥ 15V I_{DS} = 2.25A	0.8			S (℧)
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		190		pF
C_{oss}	Output Capacitance	V_{DS} = 25V		86		
C_{rss}	Reverse Transfer Capacitance	f = 1MHz		13		
Q_g	Total Gate Charge	V_{GS} = 10V			6.6	nC
Q_{gs}	Gate – Source Charge	I_D = 3.5A			1.7	
Q_{gd}	Gate – Drain (“Miller”) Charge	V_{DS} = 0.5BV_{DSS}			3.5	
$t_{d(on)}$	Turn–On Delay Time	V_{DD} = 50V I_D = 3.1A R_G = 7.5Ω			15	ns
t_r	Rise Time				25	
$t_{d(off)}$	Turn–Off Delay Time				25	
t_f	Fall Time				20	
	SOURCE – DRAIN DIODE CHARACTERISTICS					
I_S	Continuous Source Current				3.5	A
I_{SM}	Pulse Source Current [2]				14	
V_{SD}	Diode Forward Voltage [1]	I_S = 3.5A T_J = 25°C V_{GS} = 0			1.5	V
t_{rr}	Reverse Recovery Time	I_F = 3.5A T_J = 25°C			180	ns
Q_{rr}	Reverse Recovery Charge [1]	d_i / d_t ≤ 100A/µs V_{DD} ≤ 50V			2.0	µC
t_{on}	Forward Turn–On Time			Negligible		
	THERMAL CHARACTERISTICS					
$R_{\theta JC}$	Thermal Resistance Junction – Case				8.3	°C/W
$R_{\theta JPC}$	Thermal Resistance Junction – PC Board				27	

Notes

1) Pulse Test: Pulse Width ≤ 300ms, δ ≤ 2%
2) Repetitive Rating – Pulse width limited by maximum junction temperature.

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