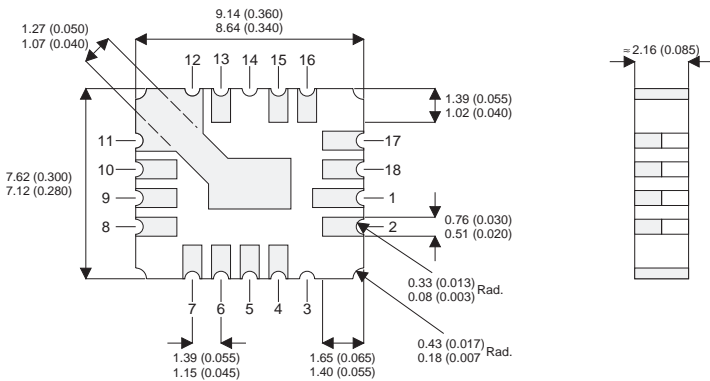


**MECHANICAL DATA**

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**

$V_{DSS}$             **100V**  
 $I_{D(cont)}$         **7.44A**  
 $R_{DS(on)}$         **0.207 $\Omega$**

**FEATURES**

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

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

$V_{GS}$	Gate – Source Voltage	$\pm 20V$
$I_D$	Continuous Drain Current ( $V_{GS} = 10V$ , $T_{case} = 25^{\circ}C$ )	7.4A
$I_D$	Continuous Drain Current ( $V_{GS} = 10V$ , $T_{case} = 100^{\circ}C$ )	4.7A
$I_{DM}$	Pulsed Drain Current <sup>1</sup>	30A
$P_D$	Power Dissipation @ $T_{case} = 25^{\circ}C$	22W
	Linear Derating Factor	0.17W/ $^{\circ}C$
$E_{AS}$	Single Pulse Avalanche Energy <sup>2</sup>	75mJ
dv/dt	Peak Diode Recovery <sup>3</sup>	5.5V/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
<b>STATIC ELECTRICAL RATINGS</b>					
$BV_{\text{DSS}}$ Drain – Source Breakdown Voltage	$V_{\text{GS}} = 0$ $I_{\text{D}} = 1\text{mA}$	100			V
$\frac{\Delta BV_{\text{DSS}}}{\Delta T_{\text{J}}}$ Temperature Coefficient of Breakdown Voltage	Reference to $25^{\circ}\text{C}$ $I_{\text{D}} = 1\text{mA}$		0.10		$\text{V}/^{\circ}\text{C}$
$R_{\text{DS(on)}}$ Static Drain – Source On-State Resistance <sup>1</sup>	$V_{\text{GS}} = 10\text{V}$ $I_{\text{D}} = 4.7\text{A}$			0.18	$\Omega$
	$V_{\text{GS}} = 10\text{V}$ $I_{\text{D}} = 7.4\text{A}$			0.207	
$V_{\text{GS(th)}}$ Gate Threshold Voltage	$V_{\text{DS}} = V_{\text{GS}}$ $I_{\text{D}} = 250\text{mA}$	2		4	V
$g_{\text{fs}}$ Forward Transconductance <sup>1</sup>	$V_{\text{DS}} \geq 15\text{V}$ $I_{\text{DS}} = 4.7\text{A}$	3			S ( $\bar{\cup}$ )
$I_{\text{DSS}}$ Zero Gate Voltage Drain Current	$V_{\text{GS}} = 0$ $V_{\text{DS}} = 0.8BV_{\text{DSS}}$ $T_{\text{J}} = 125^{\circ}\text{C}$			25	$\mu\text{A}$
				250	
$I_{\text{GSS}}$ Forward Gate – Source Leakage	$V_{\text{GS}} = 20\text{V}$			100	nA
$I_{\text{GSS}}$ Reverse Gate – Source Leakage	$V_{\text{GS}} = -20\text{V}$			-100	
<b>DYNAMIC CHARACTERISTICS</b>					
$C_{\text{iss}}$ Input Capacitance	$V_{\text{GS}} = 0$		650		pF
$C_{\text{oss}}$ Output Capacitance	$V_{\text{DS}} = 25\text{V}$		240		
$C_{\text{riss}}$ Reverse Transfer Capacitance	$f = 1\text{MHz}$		44		
$Q_{\text{g}}$ Total Gate Charge	$V_{\text{GS}} = 10\text{V}$	12.8		28.5	nC
$Q_{\text{gs}}$ Gate – Source Charge	$I_{\text{D}} = 7.4\text{A}$	1.0		6.3	
$Q_{\text{gd}}$ Gate – Drain (“Miller”) Charge	$V_{\text{DS}} = 0.5BV_{\text{DSS}}$	3.8		16.6	
$t_{\text{d(on)}}$ Turn-On Delay Time	$V_{\text{DD}} = 50\text{V}$ $I_{\text{D}} = 7.4\text{A}$ $R_{\text{G}} = 7.5\Omega$			30	ns
$t_{\text{r}}$ Rise Time				75	
$t_{\text{d(off)}}$ Turn-Off Delay Time				40	
$t_{\text{f}}$ Fall Time				45	
<b>SOURCE – DRAIN DIODE CHARACTERISTICS</b>					
$I_{\text{S}}$ Continuous Source Current				7.4	A
$I_{\text{SM}}$ Pulse Source Current <sup>2</sup>				30	
$V_{\text{SD}}$ Diode Forward Voltage <sup>1</sup>	$I_{\text{S}} = 7.4\text{A}$ $T_{\text{J}} = 25^{\circ}\text{C}$ $V_{\text{GS}} = 0$			1.5	V
$t_{\text{rr}}$ Reverse Recovery Time	$I_{\text{F}} = 7.4\text{A}$ $T_{\text{J}} = 25^{\circ}\text{C}$			300	ns
$Q_{\text{rr}}$ Reverse Recovery Charge <sup>1</sup>	$d_i / d_t \leq 100\text{A}/\mu\text{s}$ $V_{\text{DD}} \leq 50\text{V}$			3.0	$\mu\text{C}$
$t_{\text{on}}$ Forward Turn-On Time			Negligible		
<b>PACKAGE CHARACTERISTICS</b>					
$L_{\text{D}}$ Internal Drain Inductance (measured from 6mm down drain lead to centre of die)			1.8		nH
$L_{\text{S}}$ Internal Source Inductance (from 6mm down source lead to source bond pad)			4.3		
<b>THERMAL CHARACTERISTICS</b>					
$R_{\theta\text{JC}}$ Thermal Resistance Junction – Case				5.8	$^{\circ}\text{C}/\text{W}$
$R_{\theta\text{JPC}}$ 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.