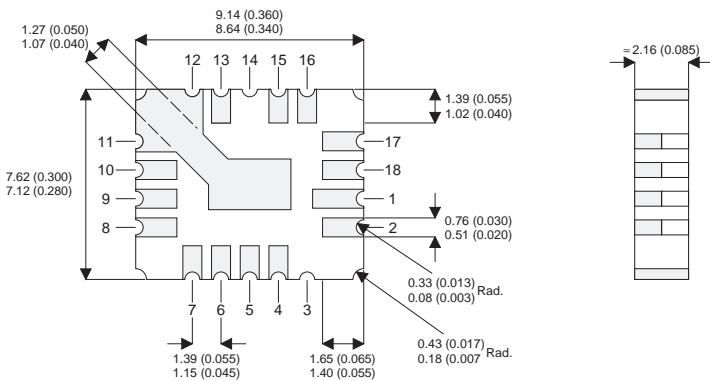


**MECHANICAL DATA**

Dimensions in mm (inches)

**P-CHANNEL  
POWER MOSFET**



$V_{DSS}$                 **-200V**  
 $I_{D(cont)}$             **-3.6A**  
 $R_{DS(on)}$              **0.825Ω**

**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

**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	±20V
$I_D$	Continuous Drain Current @ $T_{case} = 25^{\circ}C$	- 3.6A
$I_D$	Continuous Drain Current @ $T_{case} = 100^{\circ}C$	- 2.2A
$I_{DM}$	Pulsed Drain Current	- 14.4A
$P_D$	Power Dissipation @ $T_{case} = 25^{\circ}C$	22W
	Linear Derating Factor	0.17W/°C
$E_{AS}$	Single Pulse Avalanche Energy <sup>2</sup>	75mJ
dv/dt	Peak Diode Recovery <sup>3</sup>	- 5V/ns
$T_J, T_{stg}$	Operating and Storage Temperature Range	- 55 to +150°C
	Surface Temperature ( for 5 sec).	300°C

**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	$V_{\text{GS}} = 0$ $I_{\text{D}} = -1\text{mA}$	-200		V
$\frac{\Delta BV_{\text{DSS}}}{\Delta T_{\text{J}}}$	Temperature Coefficient of Breakdown Voltage	Reference to $25^{\circ}\text{C}$ $I_{\text{D}} = -1\text{mA}$		-0.22	$\text{V}/^{\circ}\text{C}$
$R_{\text{DS(on)}}$	Static Drain – Source On–State Resistance <sup>1</sup>	$V_{\text{GS}} = -10\text{V}$ $I_{\text{D}} = -2.2\text{A}$		0.80	$\Omega$
		$V_{\text{GS}} = -10\text{V}$ $I_{\text{D}} = -3.6\text{A}$		0.825	
$V_{\text{GS(th)}}$	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>	$V_{\text{DS}} \geq -15\text{V}$ $I_{\text{DS}} = -2.2\text{A}$	2.2		$\text{S} (\bar{V})$
$I_{\text{DSS}}$	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	$V_{\text{GS}} = 0$		700	pF
$C_{\text{oss}}$	Output Capacitance	$V_{\text{DS}} = -25\text{V}$		200	
$C_{\text{rss}}$	Reverse Transfer Capacitance	$f = 1\text{MHz}$		40	
$Q_{\text{g}}$	Total Gate Charge	$V_{\text{GS}} = -10\text{V}$	14.7	34.8	nC
$Q_{\text{gs}}$	Gate – Source Charge	$I_{\text{D}} = -3.6\text{A}$	0.8	7.0	
$Q_{\text{gd}}$	Gate – Drain (“Miller”) Charge	$V_{\text{DS}} = 0.5BV_{\text{DSS}}$	5.0	17	
$t_{\text{d(on)}}$	Turn–On Delay Time	$V_{\text{DD}} = -100\text{V}$ $I_{\text{D}} = -3.6\text{A}$ $R_{\text{G}} = 7.5\Omega$		50	ns
$t_{\text{r}}$	Rise Time			100	
$t_{\text{d(off)}}$	Turn–Off Delay Time			100	
$t_{\text{f}}$	Fall Time			80	
<b>SOURCE – DRAIN DIODE CHARACTERISTICS</b>					
$I_{\text{S}}$	Continuous Source Current			-3.6	A
$I_{\text{SM}}$	Pulse Source Current <sup>2</sup>			-14.4	
$V_{\text{SD}}$	Diode Forward Voltage <sup>1</sup>	$I_{\text{S}} = -3.6\text{A}$ $T_{\text{J}} = 25^{\circ}\text{C}$ $V_{\text{GS}} = 0$		-6.0	V
$t_{\text{rr}}$	Reverse Recovery Time	$I_{\text{F}} = -3.6\text{A}$ $T_{\text{J}} = 25^{\circ}\text{C}$		400	ns
$Q_{\text{rr}}$	Reverse Recovery Charge <sup>1</sup>	$d_{\text{i}} / d_{\text{t}} \leq -100\text{A}/\mu\text{s}$ $V_{\text{DD}} \leq -50\text{V}$		4.0	$\mu\text{C}$
$t_{\text{on}}$	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.



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