

2N6845LCC4 **IRFE9120**

MECHANICAL DATA

Dimensions in mm (inches)

0.43 (0.017) 0.18 (0.007 Rad

LCC4

GATE Pins 4,5

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

P-CHANNEL **POWER MOSFET**

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

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 $(V_{GS} = -10V, T_{case} = 25^{\circ}C)$	-3.5A
I_D	Continuous Drain Current $(V_{GS} = -10V, T_{case} = 100^{\circ}C)$	-2.2A
I_{DM}	Pulsed Drain Current ¹	-14A
P_{D}	Power Dissipation @ T _{case} = 25°C	14W
	Linear Derating Factor	0.09W/°C
E _{AS}	Single Pulse Avalanche Energy ²	115mJ
dv/dt	Peak Diode Recovery ³	-5.0V/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 $\leq 300 \mu s$, $\delta \leq 2\%$
- 2) @ $V_{DD} = -25V$, Peak $I_L = -3.5A$, Starting $T_J = 25^{\circ}C$
- 3) @ $I_{SD} \le$ -3.5A , di/dt \le -110A/ μs , $V_{DD} \le BV_{DSS}$, $T_J \le$ 150°C , Suggested $R_G = 7.5\Omega$

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Issue 1



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

Parameter	Test Cond	ditions	Min.	Тур.	Max.	Unit	
STATIC ELECTRICAL RATINGS	•				I		
Drain – Source Breakdown Voltage	$V_{GS} = 0$	I _D = -1mA	-100			V	
Temperature Coefficient of	Reference to 25°C			-0.10		V/00	
Breakdown Voltage						V/°C	
Static Drain – Source On–State	V _{GS} = -10V	= -10V I _D = -2.2A			0.6		
Resistance ¹	V _{GS} = -10V	$I_D = -3.5A$			0.69	\cap Ω	
Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = -250 \mu A$	-2		-4	V	
Forward Transconductance ¹	V _{DS} ≥ -15V	I _{DS} = -2.2A	1.25			S(\overline{U})	
Zero Gate Voltage Drain Current	V _{GS} = 0	$V_{DS} = -80V$			-25	μΑ	
		$T_{J} = 125^{\circ}C$			-250		
Forward Gate – Source Leakage	$V_{GS} = -20V$				-100		
Reverse Gate – Source Leakage	$V_{GS} = 20V$				100	⊢ nA	
DYNAMIC CHARACTERISTICS	•					.4	
Input Capacitance	V _{GS} = 0			380		pF	
Output Capacitance	$V_{DS} = -25V$			170			
Reverse Transfer Capacitance	f = 1MHz			45		1 1	
Total Gate Charge	V _{GS} = -10V				16.3		
Gate - Source Charge	I _D = -3.5A				4.7	nC	
Gate - Drain ("Miller") Charge	$V_{DS} = -50V$				9.0		
Turn-On Delay Time					60		
Rise Time					100] no	
Turn-Off Delay Time	-				50	ns	
Fall Time	$R_G = 7.5\Omega$				70	1	
SOURCE - DRAIN DIODE CHARACT	TERISTICS						
Continuous Source Current					-3.5		
Pulse Source Current ²					-14	A	
Diode Forward Voltage ¹	$I_S = -3.5A$ $V_{GS} = 0$	$T_J = 25^{\circ}C$			-4.8	V	
Reverse Recovery Time		T ₁ = 25°C			200	ns	
'	↓ '	0				μC	
Forward Turn-On Time	1 (. 00		Negligible		 •	
THERMAL CHARACTERISTICS	1		_1	<u> </u>			
Thermal Resistance Junction – Case					9.1	1.0.5.1	
						°C/W	
	Drain – Source Breakdown Voltage Temperature Coefficient of Breakdown Voltage Static Drain – Source On—State Resistance 1 Gate Threshold Voltage Forward Transconductance 1 Zero Gate Voltage Drain Current Forward Gate – Source Leakage Reverse Gate – Source Leakage Reverse Gate – Source Leakage DYNAMIC CHARACTERISTICS Input Capacitance Output Capacitance Output Capacitance Total Gate Charge Gate – Source Charge Gate – Drain ("Miller") Charge Turn—On Delay Time Rise Time Turn—Off Delay Time Fall Time SOURCE – DRAIN DIODE CHARAC Continuous Source Current Pulse Source Current Pulse Source Charge 1 Reverse Recovery Time Reverse Recovery Time Reverse Recovery Charge 1 Forward Turn—On Time THERMAL CHARACTERISTICS Thermal Resistance Junction – Case	STATIC ELECTRICAL RATINGSDrain − Source Breakdown Voltage $V_{GS} = 0$ Temperature Coefficient of Breakdown VoltageReference to 2 ID = -1mAStatic Drain − Source On−State Resistance 1 $V_{GS} = -10V$ Resistance 1 $V_{GS} = -10V$ Gate Threshold Voltage $V_{DS} = V_{GS}$ Forward Transconductance 1 $V_{DS} \ge -15V$ Zero Gate Voltage Drain Current $V_{GS} = 0$ Forward Gate − Source Leakage $V_{GS} = -20V$ Reverse Gate − Source Leakage $V_{GS} = 20V$ DYNAMIC CHARACTERISTICSInput Capacitance $V_{GS} = 0$ Output Capacitance $V_{GS} = -25V$ Reverse Transfer Capacitance $V_{GS} = -25V$ Gate − Source Charge $V_{GS} = -10V$ Gate − Drain ("Miller") Charge $V_{GS} = -10V$ Turn−On Delay Time $V_{DD} = -50V$ Rise Time $V_{DD} = -50V$ Turn−Off Delay Time $V_{DD} = -50V$ Fall Time $V_{DD} = -50V$ SOURCE − DRAIN DIODE CHARACTERISTICSContinuous Source Current $V_{DD} = -3.5A$ Pulse Source Current 2 $V_{DD} = -3.5A$ Diode Forward Voltage 1 $V_{DD} = -3.5A$ Reverse Recovery Time $V_{DD} = -3.5A$ Reverse Recovery Charge 1 $V_{DD} = -3.5A$ THERMAL CHARACTERISTICS	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	

- 1) Pulse Test: Pulse Width \leq 300ms, $\delta \leq$ 2%
- 2) Repetitive Rating Pulse width limited by maximum junction temperature.

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