LMP3335XF 30V P-Channel MOSFET

Features

- -30V/-90A, $R_{DS(ON)}$<3.5mΩ@V_{GS}=-10V
- Fast switching
- Suit for -4.5V Gate Drive Applications
- Green Device Available
- DFN5X6-8L package design

Product Description

These P-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode.

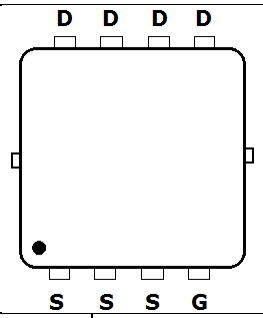
These devices are well suited for high efficiency fast switching applications.

Applications

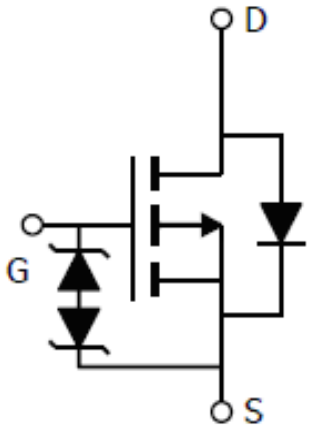
- Motor Driver Applications
- POL Applications
- Load Switch
- LED Application

Pin Configuration

LMP3335XF (DNF5X6-8L)



PIN	Description
1	Source
2	Source
3	Source
4	Gate
5	Drain
6	Drain
7	Drain
8	Drain



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Ordering Information

Ordering Information					
Part Number	P/N	PKG code	Pb Free code	Package	Quantity
LMP3335XF	LMP3335	X	F	DFN5X6-8L	3000

Marking Information

Marking Information		
Part Marking	Part Number	LFC code
3335XF XWMMMM	3335XF	XWMMMM

Absolute Maximum Ratings

(T_C=25ºC Unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DS}	Drain-Source Voltage		-30	V
V_{GS}	Gate-Source Voltage		±25	V
I_D	Continuous Drain Current	T_C=25℃	-90	A
		T_C=100℃	-56	
I_{DM}	Pulsed Drain Current[1]		-360	A
P_D	Power Dissipation	T_C=25℃	136	W
T_J	Operating Junction Temperature Range		-55 to +150	℃
T_{STG}	Storage Temperature Range		-55 to +150	℃
$R_{\theta JC}$	Thermal Resistance-Junction to Case		0.92	℃/W

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Electrical Characteristics

(T_C=25ºC Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-30			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-1.2	-1.6	-2.5	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±25V			±100	nA
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-30V, V_{GS}=0V			-1	uA
V_{SD}	Diode Forward Voltage[3]	V_{GS}=0V, I_S=-1A			-1	V
$R_{DS(on)}$	Drain-Source On-Resistance[3]	V_{GS}=-10V, I_D=-30A		3.4	4	mΩ
		V_{GS}=-4.5V, I_D=-10A		5.6	6.8	
Gate charge characteristics						
Q_g	Total Gate Charge[3,4]	V_{DD}=-15V, V_{GS}=10V, I_D=-50A		150		nC
Q_{gs}	Gate-Source Charge[3,4]			24		
Q_{gd}	Gate-Drain Charge[3,4]			28		
Dynamic characteristics						
C_{iss}	Input Capacitance	V_{DS}=-15V,V_{GS}=0V, f=1.0MHz		7500		pF
C_{oss}	Output Capacitance			1200		
C_{rss}	Reverse Transfer Capacitance			940		
$t_{d(on)}$	Turn-On Time	V_{DD}=-15V, V_{GS}=-10V, Rg=6Ω, I_D=-1A		25		ns
t_r	Rise Time			35		
$t_{d(off)}$	Turn-Off Time			100		
t_f	Fall Time			50		

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Typical Performance Characteristics

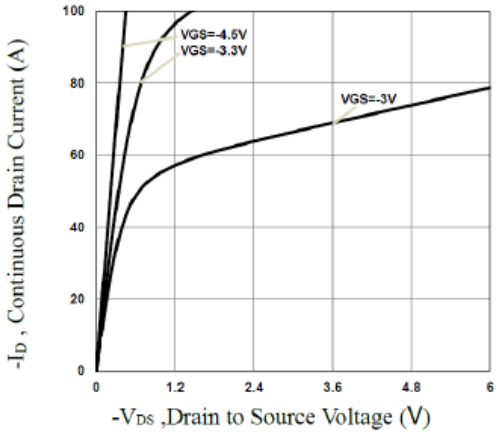

Figure 1. Output Characteristics

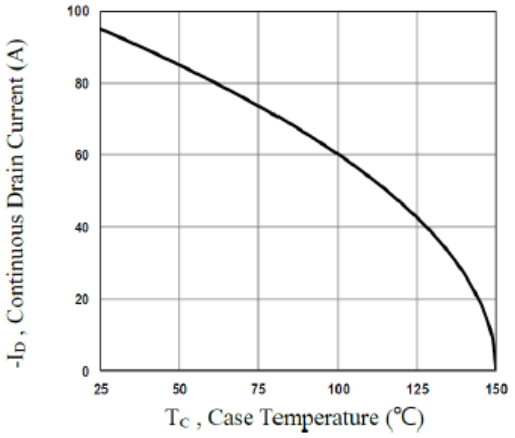

Figure 2. On-Resistance Variation with V_{GS}

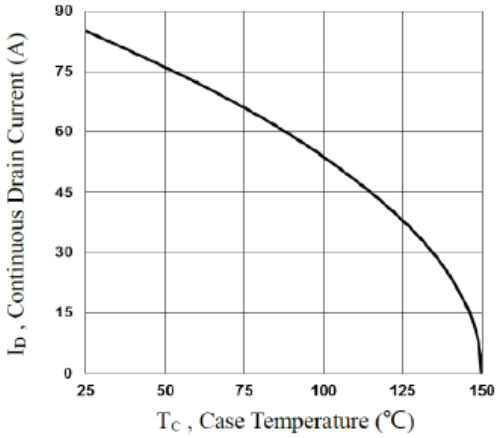

Figure 3. Normalized $V_{GS(th)}$ vs. T_J

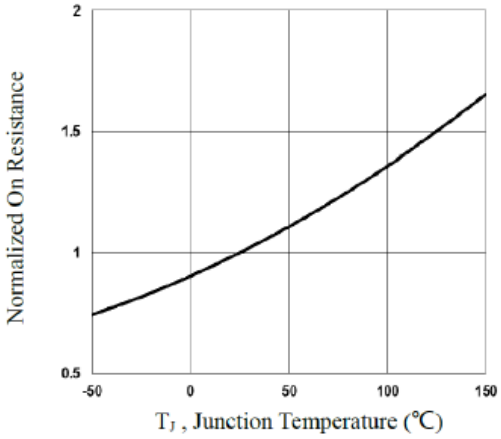

Figure 4. Normalized R_{DSON} vs. T_J

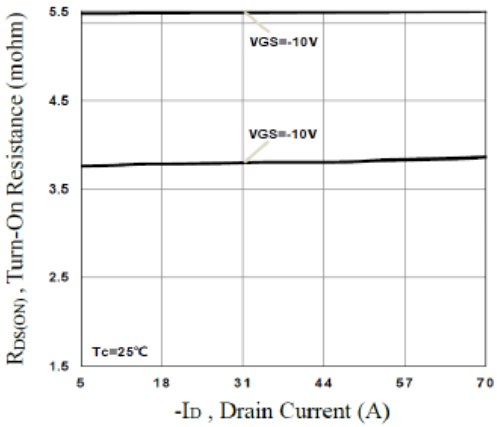

Figure 5. Turn-On Resistance vs. I_D

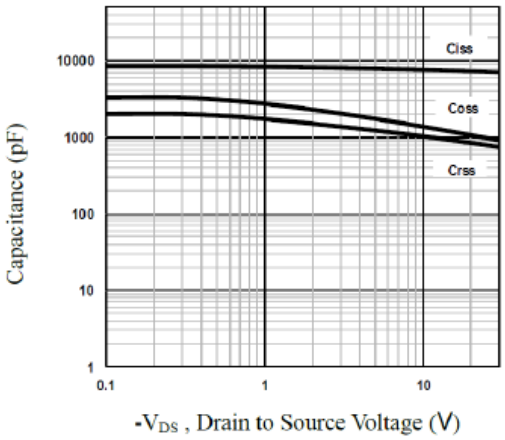

Figure 6. Capacitance

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Typical Performance Characteristics(continue)

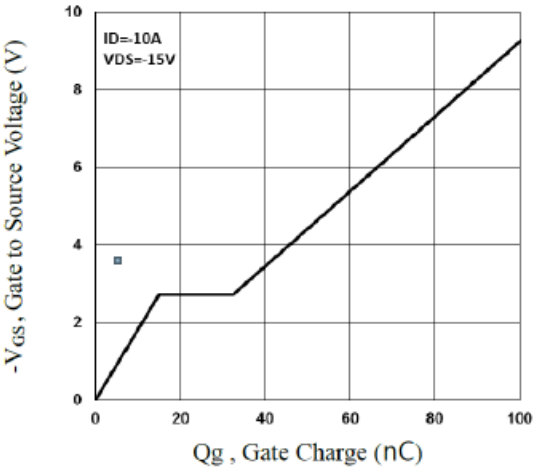

Figure 7. Gate Charge Waveform

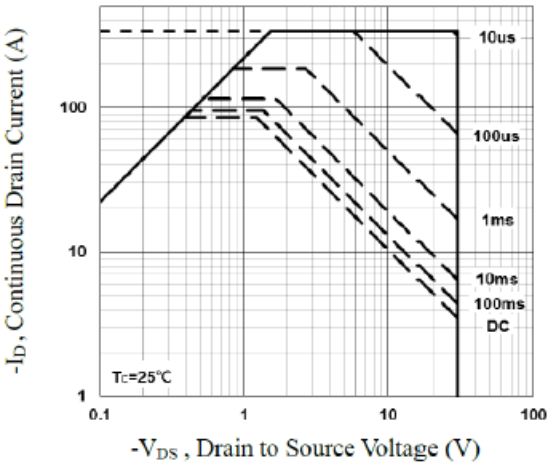

Figure 8. Maximum Safe Operating Area

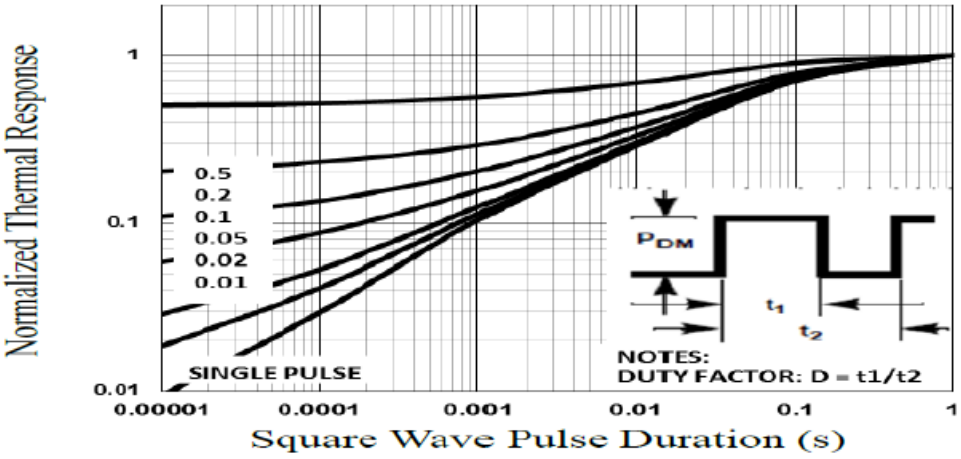

Figure 9. Normalized Transient Thermal Resistance

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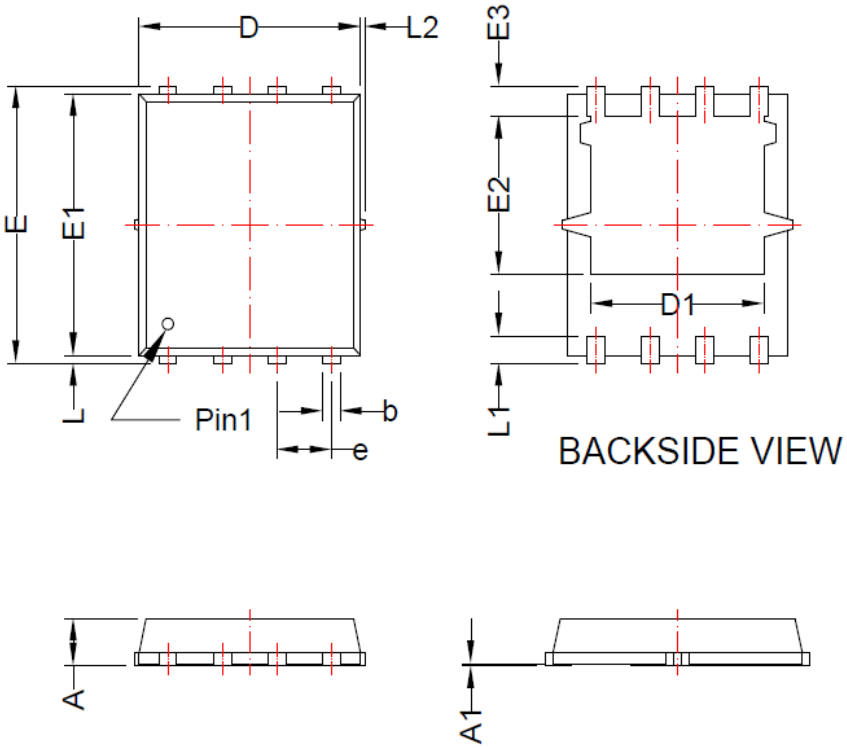
Package Dimension:

DFN5X6-8L



DIMENSION D AND E1 DOES NOT INCLUDE MOLD FLASH,PROTRUSIONS OR GATE BURRS.MOLD FLASH,PROTRUSIONS OR GATE BURRS SHALL HOT EXCEED 0.5mm PER INTERLEAD FLASH OR PROTRUSIOB SHALL NOT EXCEED 0.5mm PER SIDE.

Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.80	1.20	0.031	0.047
A1	0.00	0.05	0.000	0.002
b	0.25	0.51	0.010	0.020
c	0.20	0.35	0.008	0.014
D	4.90	5.40	0.193	0.213
D1	3.40	4.60	0.134	0.181
e	1.27 BSC		0.050 BSC	
L	0.1	0.25	0.004	0.010
L1	0.45	0.75	0.018	0.030
L2	---	0.15	---	0.006

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