

LMP3385ZF 30V P-Channel MOSFET
Features

- -30V/-40A, $R_{DS(ON)} < 8.5m\Omega @ V_{GS} = -10V$
- Fast switching
- Suit for -4.5V Gate Drive Applications
- Green Device Available
- DFN3X3-8L package design

Product Description

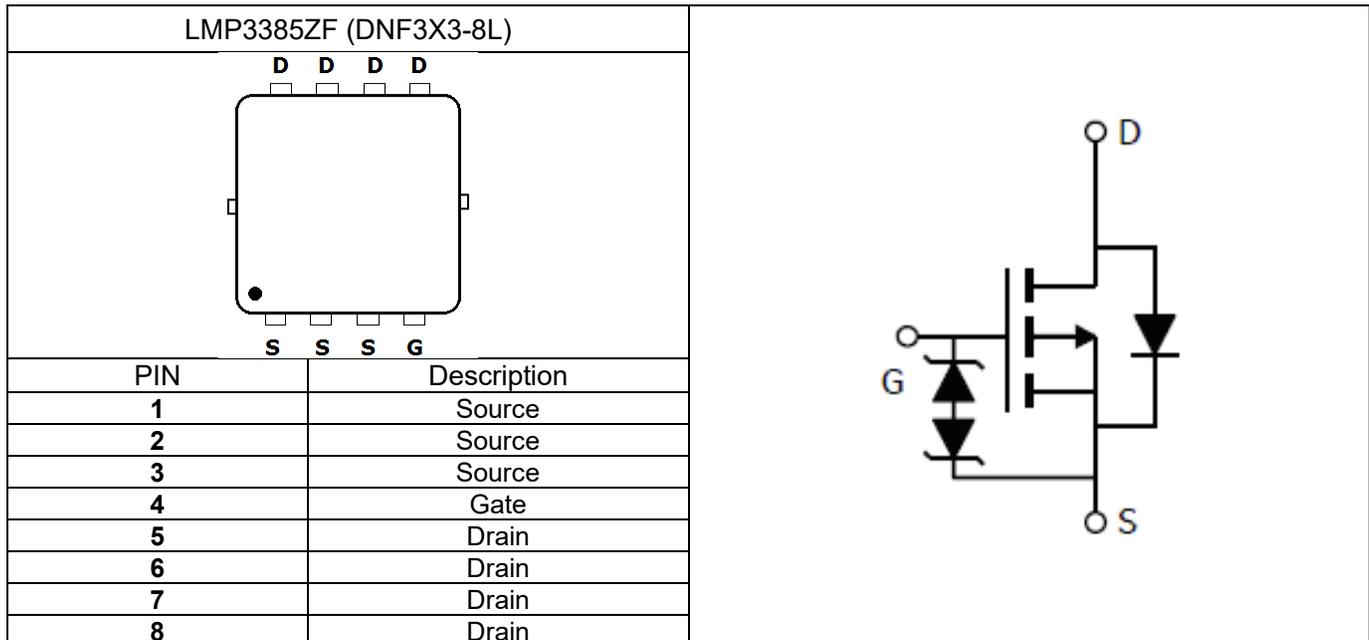
These P-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance,

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

- MB / VGA / Vcore
- POL Applications
- Load Switch
- LED Application

Pin Configuration


Ordering Information

Ordering Information					
Part Number	P/N	PKG code	Pb Free code	Package	Quantity
LMP3385ZF	LMP3385	Z	F	DFN3X3-8L	5000

Marking Information

Marking Information		
Part Marking	Part Number	LFC code
3385ZF XWMMMM	3385ZF	XWMMMM

Absolute Maximum Ratings

 (T_C=25°C 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°C	-40
		T _C =100°C	-25
I _{DM}	Pulsed Drain Current ¹	-128	A
P _D	Power Dissipation	T _C =25°C	21
		T _C =100°C	8.3
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
R _{θJC}	Thermal Resistance-Junction to Case	6	°C/W

Electrical Characteristics

 (T_C=25°C 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 _{DSON}	Drain-Source On-Resistance ³	V _{GS} =-10V, I _D =-10A		7.1	8.5	mΩ
		V _{GS} =-4.5V, I _D =-6A		11.3	14	
Gate charge characteristics						
Q _g	Total Gate Charge ^{3,4}	V _{DD} =-15V, V _{GS} =-4.5V, I _D =-15A		30		nC
Q _{gs}	Gate-Source Charge ^{3,4}			10		
Q _{gd}	Gate-Drain Charge ^{3,4}			10.4		
Dynamic characteristics						
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1.0MHz		4319		pF
C _{oss}	Output Capacitance			439		
C _{rss}	Reverse Transfer Capacitance			299		
t _{d(on)}	Turn-On Time	V _{DD} =-15V, V _{GS} =-10V, R _G =3.3Ω, I _D =-15A		9.4		ns
t _r	Rise Time			10.2		
t _{d(off)}	Turn-Off Time			117		
t _f	Fall Time			24		

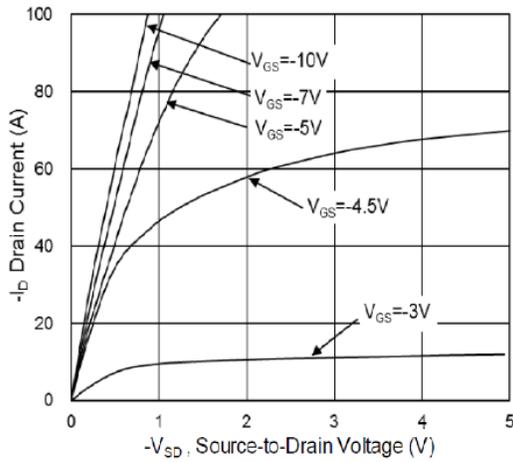
Typical Performance Characteristics


Figure 1. Output Characteristics

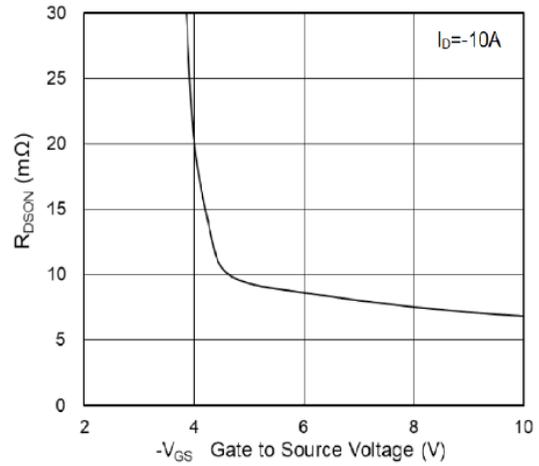
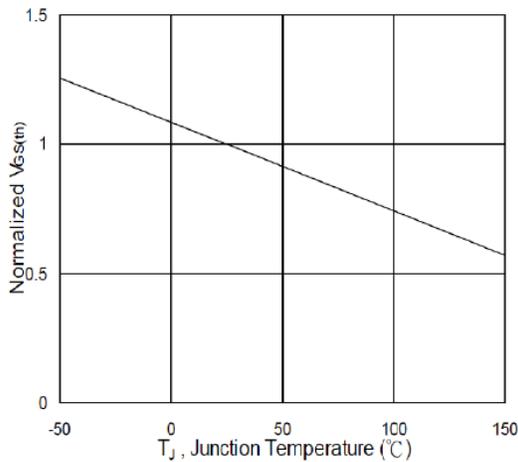
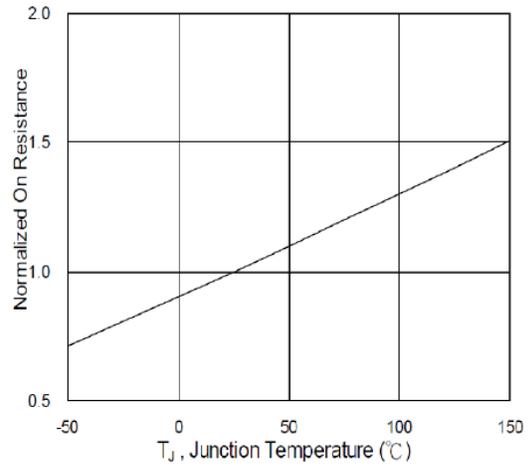
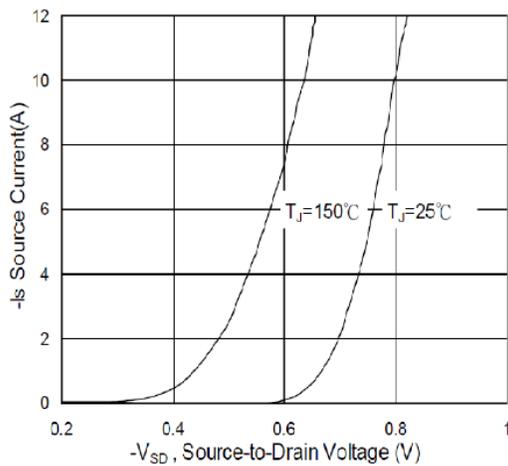

 Figure 2. On-Resistance Variation with V_{GS}

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

 Figure 4. Normalized $R_{DS(on)}$ vs. T_J


Figure 5. Diode Forward Voltage vs. Current

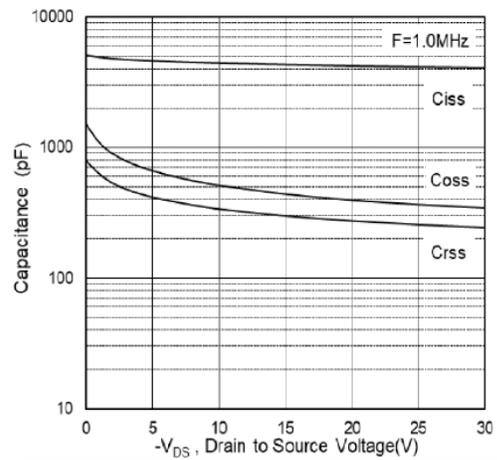


Figure 6. Capacitance

Typical Performance Characteristics(continue)

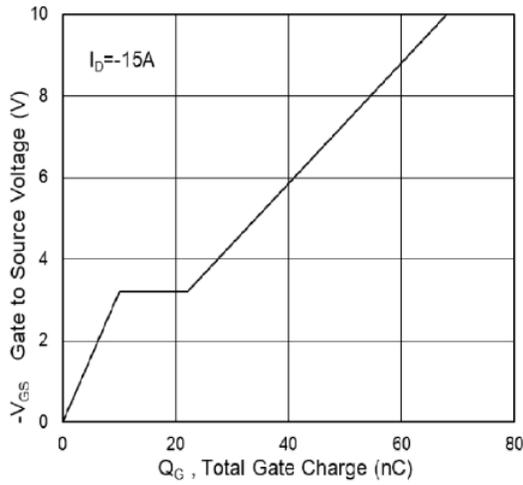


Figure 7. Gate Charge Waveform

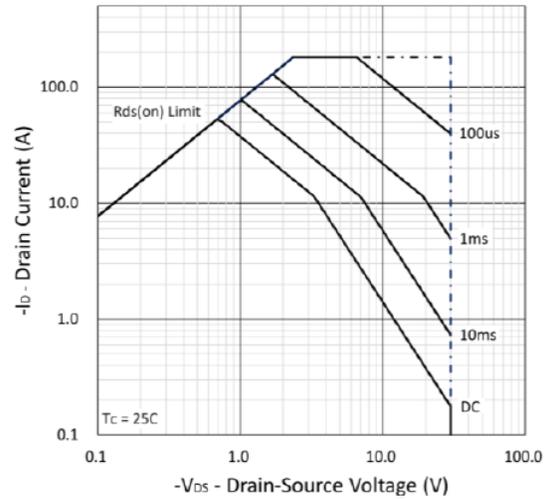


Figure 8. Maximum Safe Operating Area

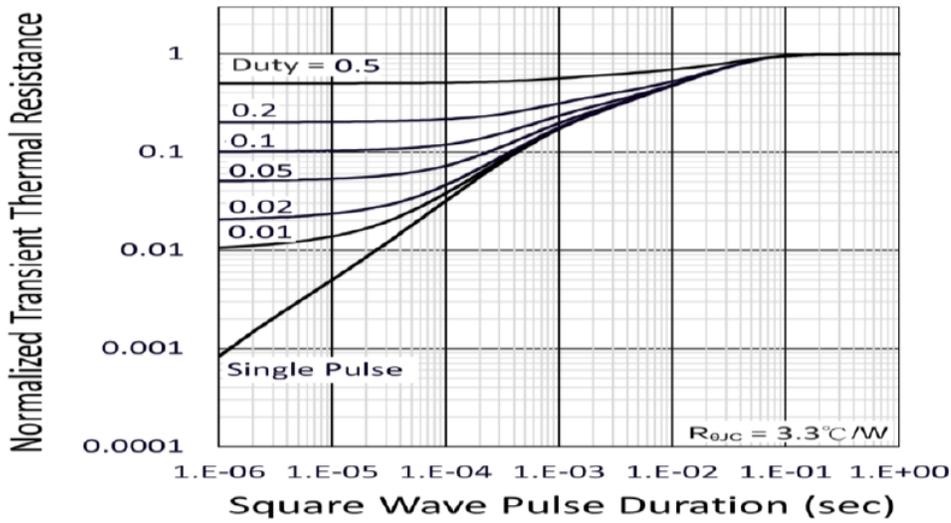
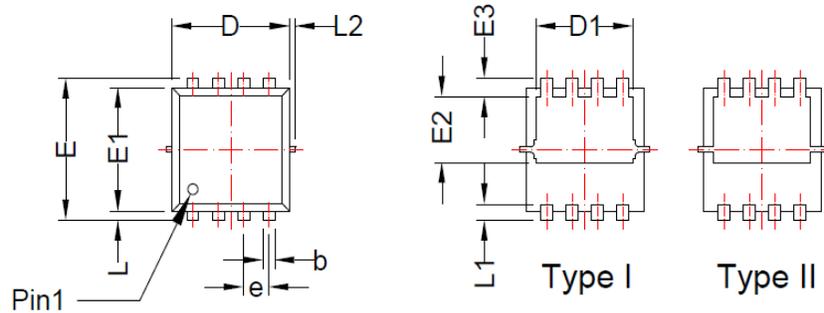


Figure 9. Normalized Transient Thermal Resistance

Package Dimension:
DFN3X3-8L

BACKSIDE VIEW


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

Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.028	0.035
A1	0.00	0.05	0.000	0.002
b	0.24	0.37	0.009	0.015
c	0.10	0.25	0.004	0.010
D	2.90	3.25	0.114	0.128
D1	2.35	2.60	0.093	0.102
E	3.05	3.45	0.120	0.136
E1	2.90	3.20	0.114	0.126
E2	1.35	2.00	0.053	0.079
E3	0.30	0.60	0.012	0.024
e	0.65 BSC		0.026 BSC	
L	0.02	0.2	0.001	0.008
L1	0.28	0.5	0.011	0.020
L2	---	0.15	---	0.006

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