

LMP3117ZF 30V P-Channel Enhancement Mode MOSFET

Features

- $R_{DS(ON)} = 13.5m\Omega @ V_{GS} = -10V$
- Fast switching
- Suit for -4.5V Gate Drive Applications
- Green Device Available
- DFN3X3-8L package design

Product Description

The P-Channel enhancement mode power field effect transistors is 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

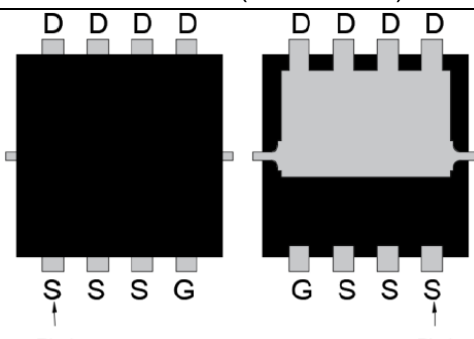
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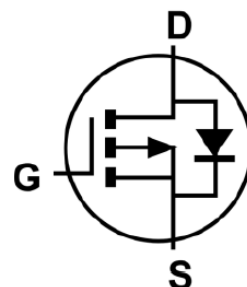
This device is well suited for high efficiency fast switching applications.

Applications

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

Pin Configuration

LMP3117ZF (DFN3X3-8L)	
	
PIN	Description
1	Source
2	Source
3	Source
4	Gate
5	Drain
6	Drain
7	Drain
8	Drain



Ordering Information

Ordering Information					
Part Number	P/N	PKG code	Pb Free code	Package	Quantity
LMP3117ZF	LMP3117	Z	F	DFN3x3-8L	5000pcs

Marking Information

Marking Information	
Product Code	LFC code
<u>3117ZF</u>	□□□□□□

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 _J =150°C)	T _A =25°C	A
		T _A =100°C	
I _{DM}	Pulsed Drain Current	-70	A
P _D	Power Dissipation	T _A =25°C	W
		T _A =100°C	
T _J	Operating Junction Temperature	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
R _{θJC}	Thermal Resistance Junction to ambient	5.8	°C/W

Electrical Characteristics

(T_C=25°C Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
BV _{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	I _S =-1A, V _{GS} =0V			-1	V
R _{DS(on)}	Drain-Source On-Resistance ³	V _{GS} =-10V, I _D =-10A		10.8	13.5	mΩ
		V _{GS} =-4.5V, I _D =-6A		17	25	
Gate charge characteristics						
Q _g	Total Gate Charge ^{3,4}	V _{DD} =-15V, V _{GS} =-4.5V, I _D =-15A		22		nC
Q _{gs}	Gate-Source Charge ^{3,4}			8.7		
Q _{gd}	Gate-Drain Charge ^{3,4}			7.2		
Dynamic characteristics						
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1.0MHz		2215		pF
C _{oss}	Output Capacitance			310		
C _{rss}	Reverse Transfer Capacitance			237		
t _{d(on)}	Turn-On Time	V _{DD} =-15V, V _{GS} =-10V, R _g =3.3Ω, I _D =-15A		8		ns
t _r				73.7		
t _{d(off)}	Turn-Off Time			61.8		
t _f				24.4		

Typical Performance Characteristics

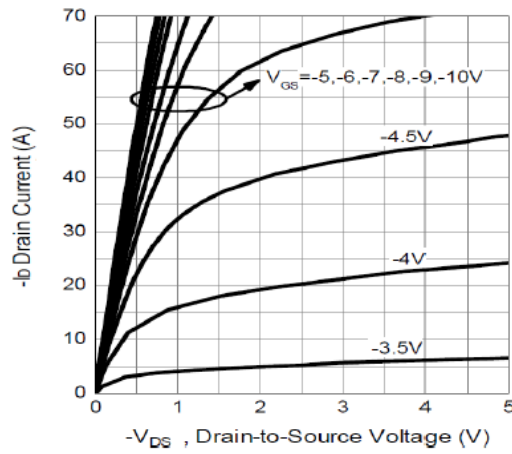


Figure 1. Output Characteristics

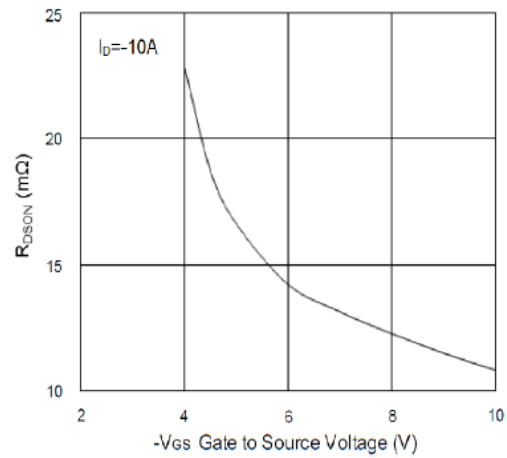


Figure 2. On-Resistance Variation with V_{GS}

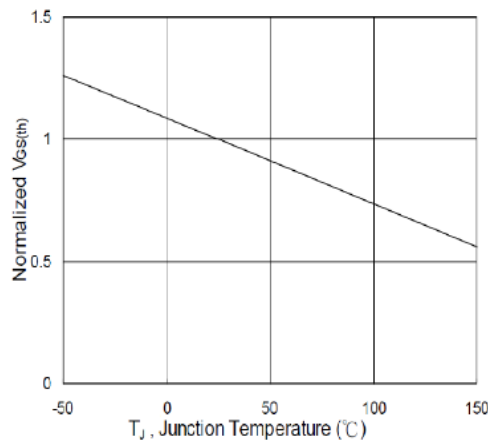


Figure 3. Normalized $V_{GS(th)}$ vs. T_J

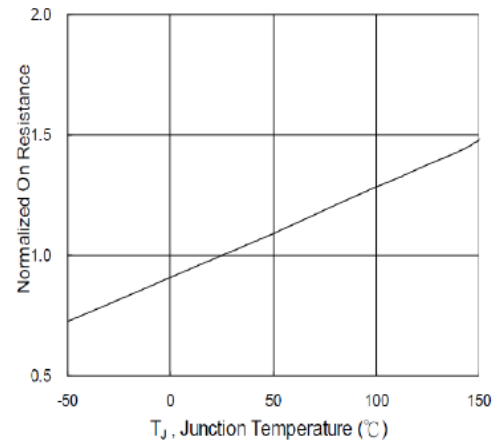


Figure 4. Normalized $R_{DS(on)}$ vs. T_J

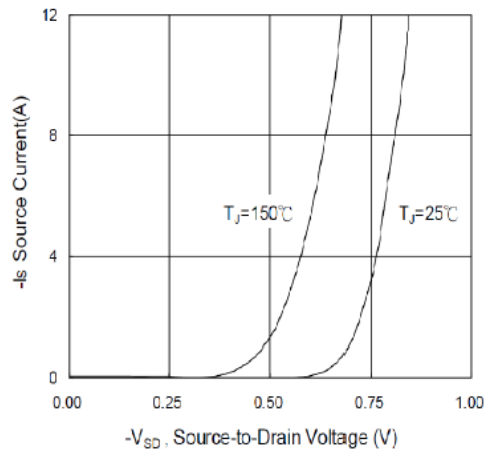


Figure 5. Diode Forward Voltage vs. Current

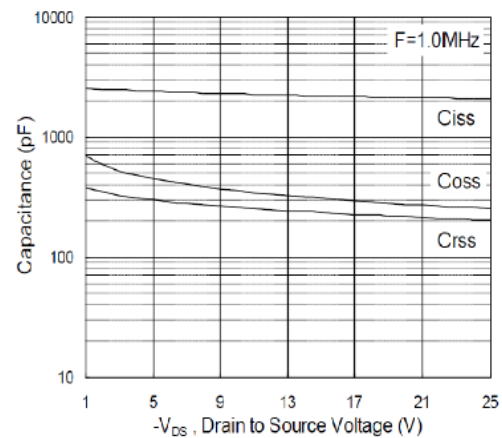
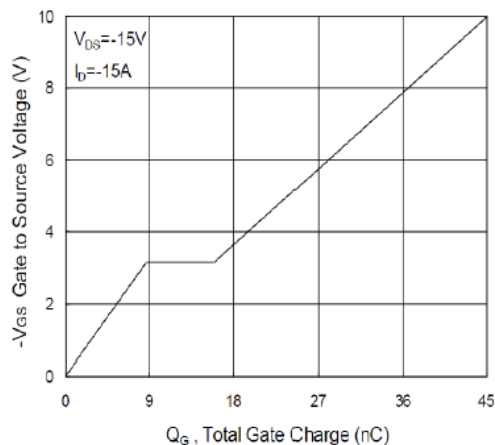
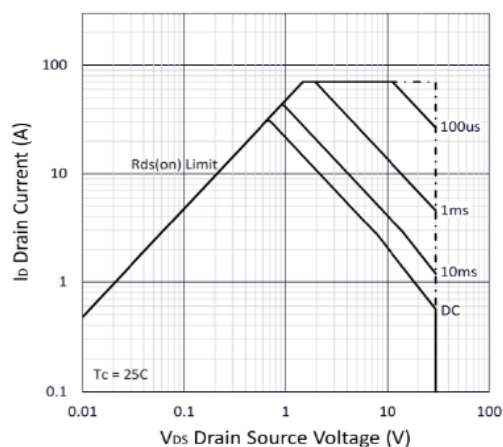
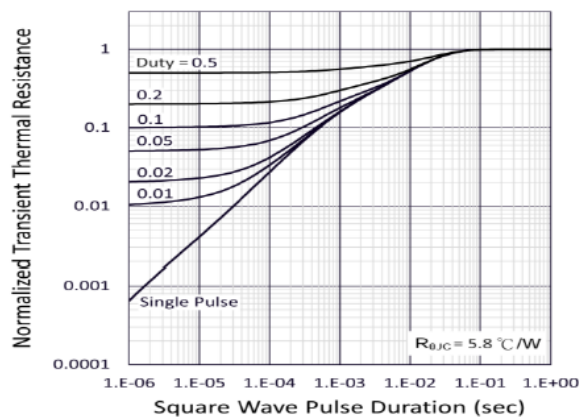
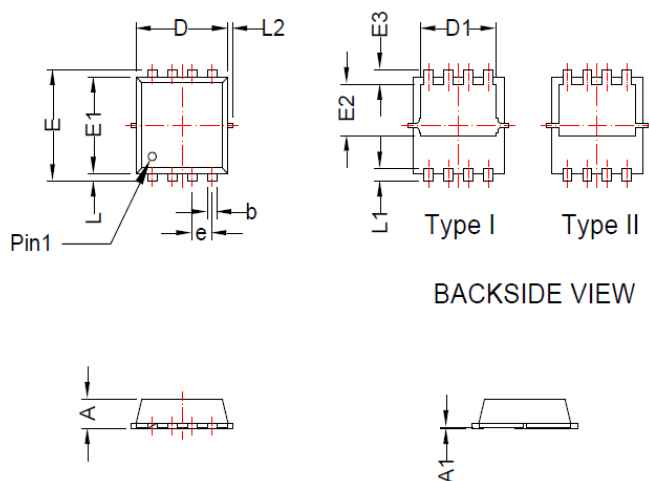
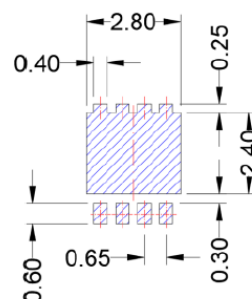


Figure 6. Capacitance

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

Package Dimension

Recommended Land Pattern


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

NOTE:

Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions

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