

LMN3112Z 30V N-Channel MOSFET
Features

- 30V, 12.6A, $R_{DS(ON)}=10m\Omega@V_{GS}=10V$
- Improved dv/dt capability
- Fast switching
- 100% EAS guaranteed
- Green Device Available

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.

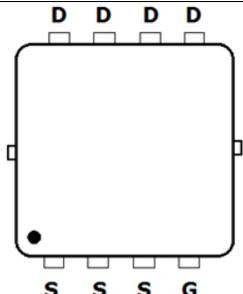
Product Description

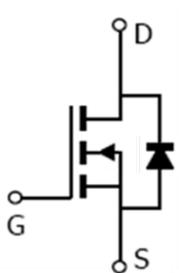
These N-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has

Applications

- MB / VGA / Vcore
- DC-DC Converters
- Power Management Functions

Pin Configuration

LMN3112ZF (DFN3X3-8L)	
	
Pin	Description
1,2,3	Source
4	Gate
5,6,7,8	Drain



Ordering Information

Ordering Information					
Part Number	P/N	PKG code	Pb Free code	Package	Quantity
LMN3112ZF	LMN3112	Z	F	DFN3x3-8L	5000 PCS

Marking Information

Marking Information		
Part Marking	Part Number	LFC code
3112ZF XWMMMM	3112ZF	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	±20	V
I _D	Continuous Drain Current	T _A =25°C	12.6
		T _A =75°C	10
I _{DM}	Pulsed Drain Current ¹	45	A
E _{AS}	Single Pulse Avalanche Energy ²	21	
P _D	Power Dissipation	T _A =25°C	2.3
		T _A =75°C	1.5
T _J	Operating Junction Temperature	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient	53	°C/W
R _{θJC}	Thermal Resistance-Junction to Case	4.7	°C/W

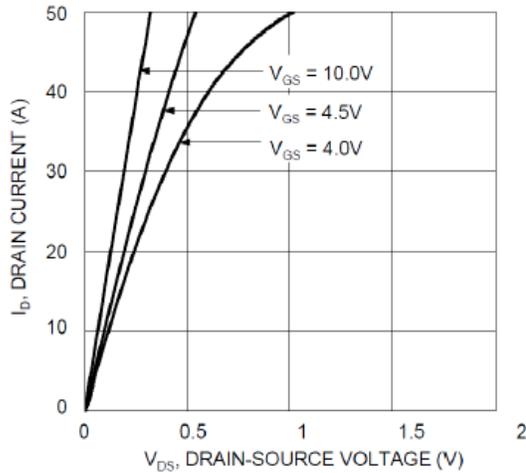
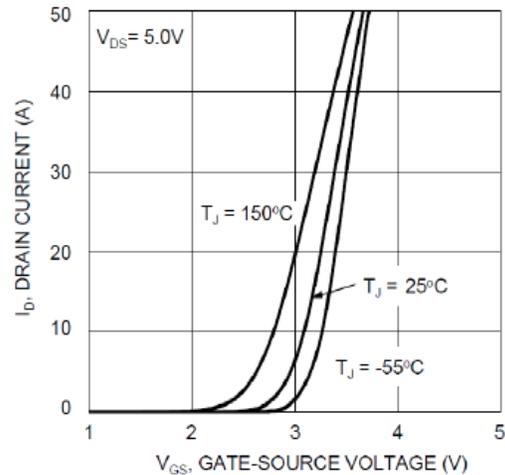
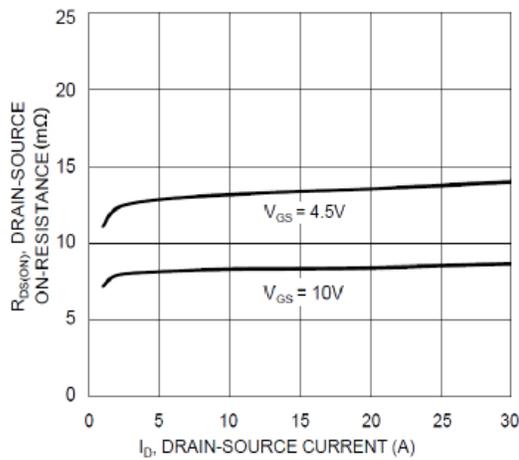
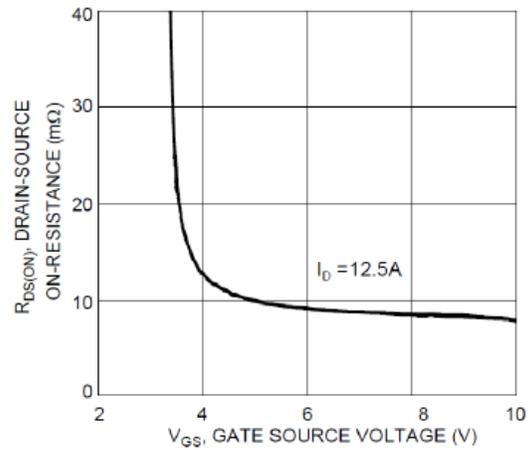
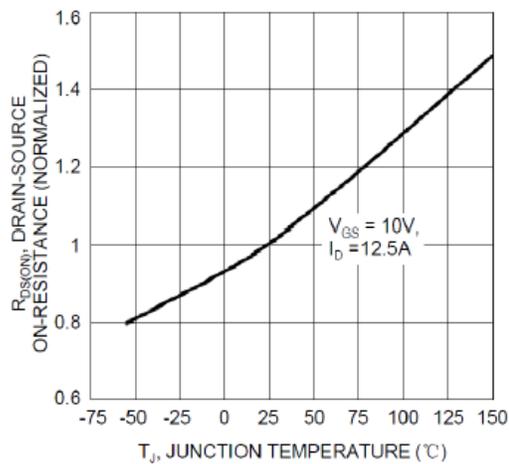
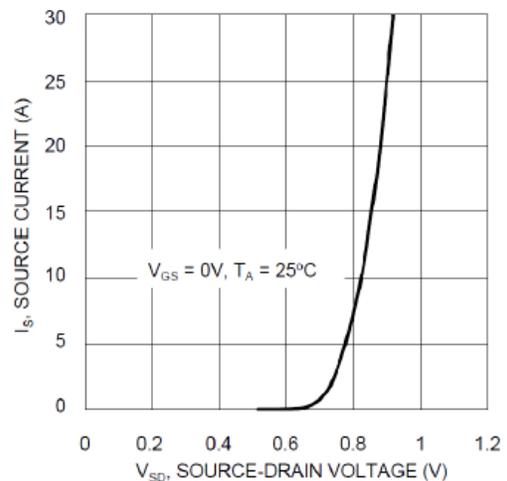
Electrical Characteristics

 (T_C=25°C Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
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		2.5	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V			1	uA
R _{DS(on)}	Drain-Source On-Resistance ³	V _{GS} =10V, I _D =10A		7.9	10	mΩ
		V _{GS} =4.5V, I _D =5A		13	16	
g _{FS}	Forward Transconductance	V _{DS} =10V, I _D =3A			10	S
V _{SD}	Diode Forward Voltage ³	I _S =1A, V _{GS} =0V		0.7	1	V
Dynamic						
Q _g	Total Gate Charge ^{3,4}	V _{DS} =15V, V _{GS} =4.5V, I _D =12.5A		8		nC
Q _{gs}	Gate-Source Charge ^{3,4}			4		
Q _{gd}	Gate-Drain Charge ^{3,4}			2		
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz		1040		pF
C _{oss}	Output Capacitance			445		
C _{rss}	Reverse Transfer Capacitance			40		
t _{d(on)}	Turn-On Time ^{3,4}	V _{DD} =15V, I _D =12.5A, V _{GS} =10V, R _G =6Ω		10		ns
t _r	Rise Time ^{3,4}			9		
t _{d(off)}	Turn-Off Time ^{3,4}			24		
t _f	Fall Time ^{3,4}			8		
R _g	Gate Resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz		1.1		Ω

Note:

1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
2. V_{DD}=15V, V_{GS}=10V, L=0.1mH, I_{AS}=12A, Starting T_J=25°C.
3. The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.
4. Essentially independent of operating temperature.

Typical Performance Characteristics

Fig. 1 Typical Output Characteristics

Fig. 2 Typical Transfer Characteristics

Fig. 3 Typical On-Resistance vs I_D and V_{GS}

Fig. 4 Typical Transfer Characteristic

Figure. 5 On-Resistance Variation with T_J

Fig. 6 Diode Forward Voltage vs. Current

Typical Performance Characteristics(continue)

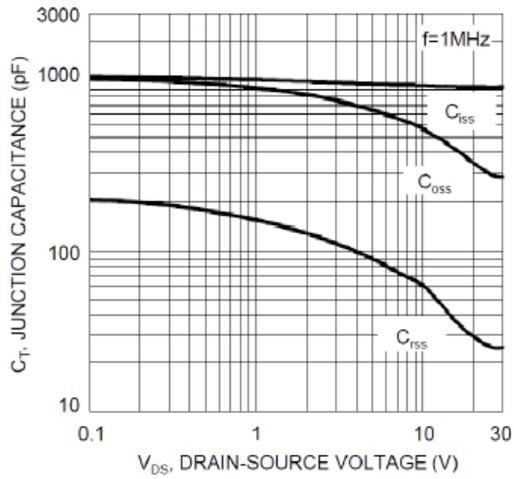


Fig. 7 Typical Capacitance

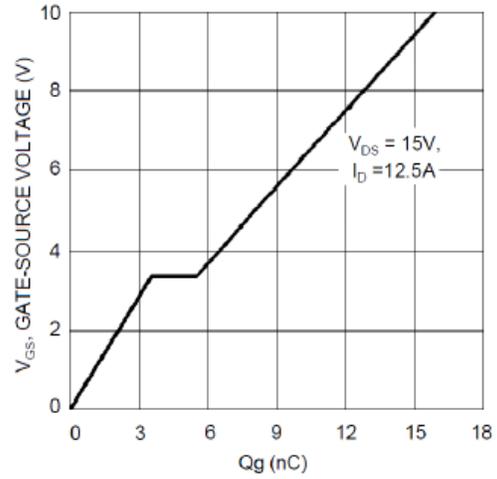
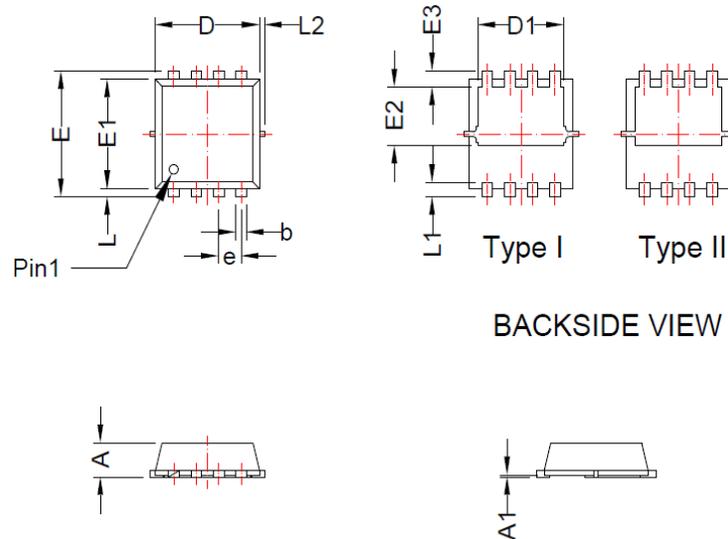


Fig. 8 Gate Charge

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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