

LMN0910P 100V N-Channel MOSFET

Features

- 100V, 2A, $R_{DS(ON)} = 200m\Omega @ V_{GS} = 10V$
- Improved dv/dt capability
- Fast switching
- 100% EAS guaranteed
- Green Device Available

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

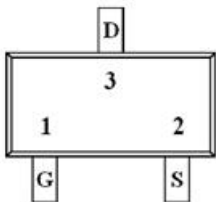
Product Description

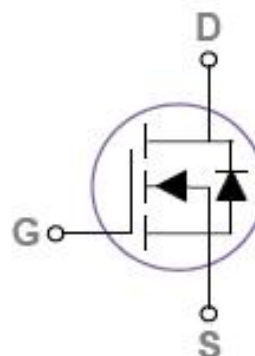
These N-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode.

Applications

- Notebook
- Load Switch
- LED applications

Pin Configuration

LMN0910PJZF (SOT-23)	
 Top Views	
Pin	Description
1	Gate
2	Source
3	Drain



Ordering Information

Part Number	P/N	PKG Code	Pb Free Code	Package	Quantity Reel
LMN0910PJZF	LMN0910P	JZ	F	SOT-23	3000 pcs

Marking Information

Part Marking	Part Number	LFC code
d XWMM	d	XWMM

Absolute Maximum Ratings

(T_C=25°C Unless otherwise noted)

Symbol	Parameter		Typical	Unit
V _{DS}	Drain-Source Voltage		100	V
V _{GS}	Gate-Source Voltage		±20	V
I _D	Continuous Drain Current	T _C =25°C	2	A
		T _C =100°C	1.3	
I _{DM}	Pulsed Drain Current ¹		8	A
P _D	Power Dissipation (T _C =25°C)		1.56	W
	Power Dissipation (Derate above 25°C)		0.012	W/°C
T _J	Operating Junction Temperature Range		-50 to +150	°C
T _{STG}	Storage Temperature Range		-50 to +150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient		80	°C/W

Electrical Characteristics

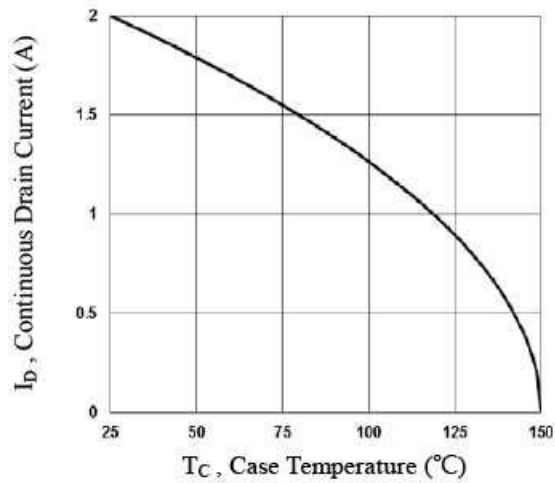
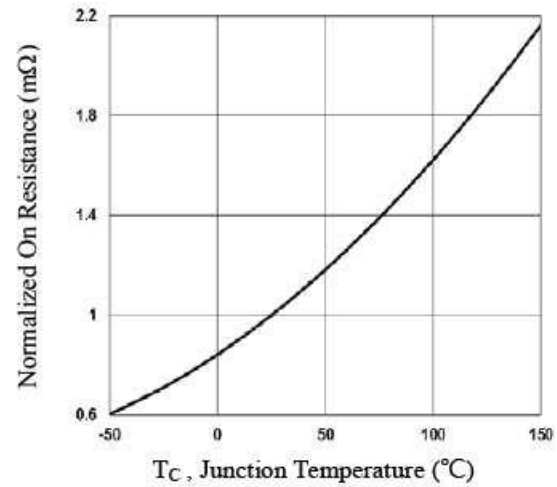
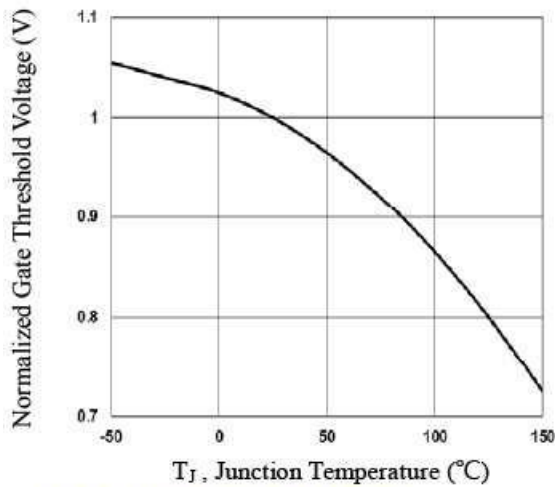
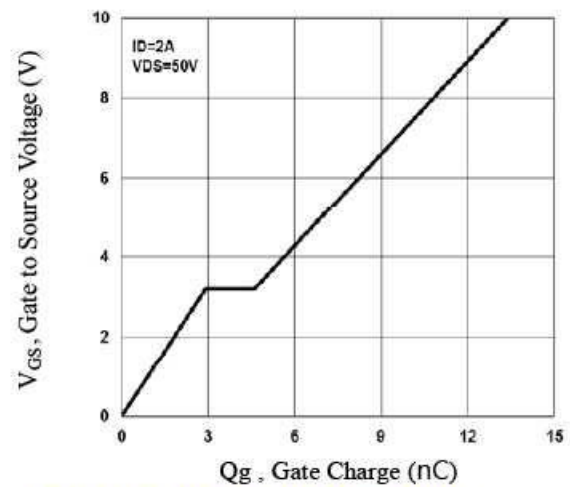
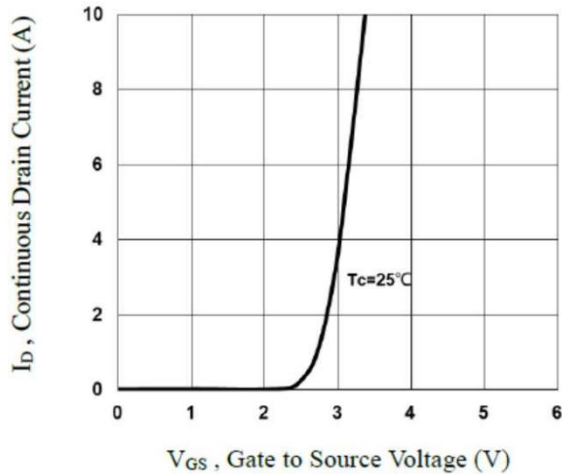
(T_J=25°C Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	100			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.2	1.8	2.5	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Drain-Source Leakage Current	V _{DS} =100V, V _{GS} =0V			1	uA
		V _{DS} =80V, V _{GS} =0V, T _J =125°C			10	
I _S	Continuous Source Current	V _G =V _D =0V, Force Current			2	A
I _{SM}	Pulsed Source Current				8	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =2A		161	200	mΩ
		V _{GS} =4.5V, I _D =1A		169	210	
g _{FS}	Forward Transconductance	V _{DS} =10V, I _D =1A		5		S
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A			1	V
Dynamic						
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz		820	1190	pF
C _{oss}	Output Capacitance			35	55	
C _{rss}	Reverse Transfer Capacitance			20	30	
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz		1.3	2.6	Ω
Q _g	Total Gate Charge ^{2,3}	V _{DS} =50V, V _{GS} =10V, I _D =2A		13.4	21	nC
Q _{gs}	Gate-Source Charge ^{2,3}			2.9	6	
Q _{gd}	Gate-Drain Charge ^{2,3}			1.7	4	
t _{d(on)}	Turn-On Time ^{2,3}	V _{DD} =30V, I _D =1A, V _{GS} =10V, R _G =3.3Ω		1.6	3	ns
T _r				6.6	13	
t _{d(off)}	Turn-Off Time ^{2,3}			11.5	22	
T _f				3.6	7	

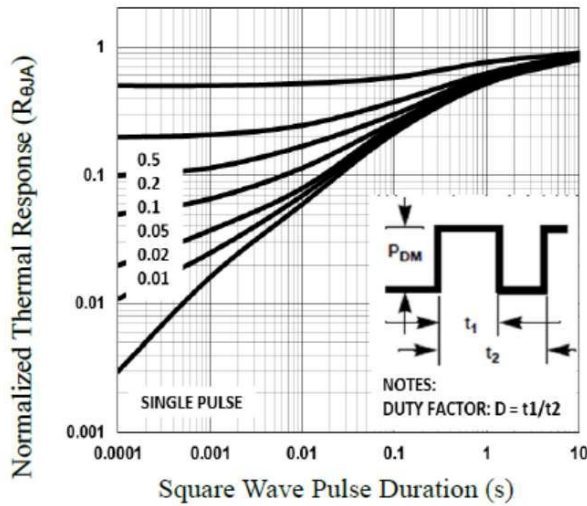
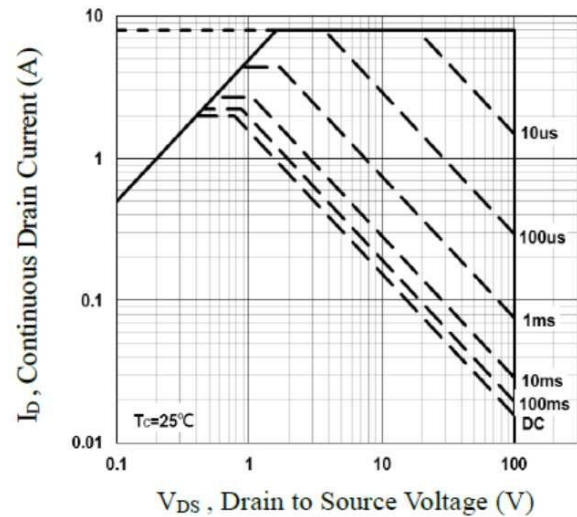
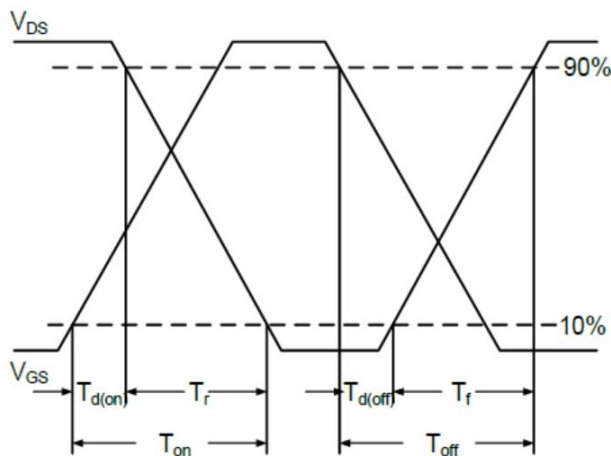
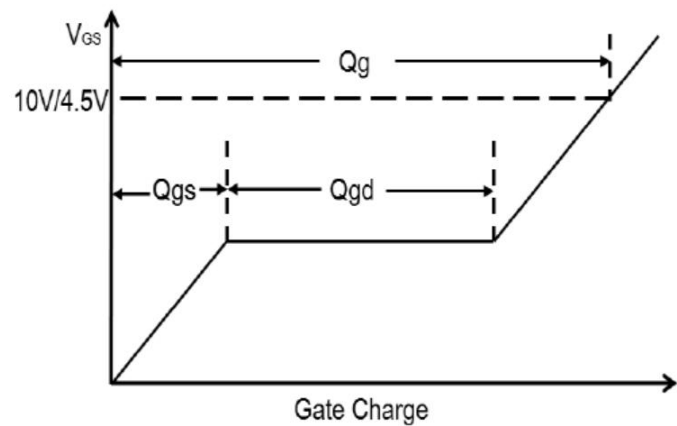
Note:

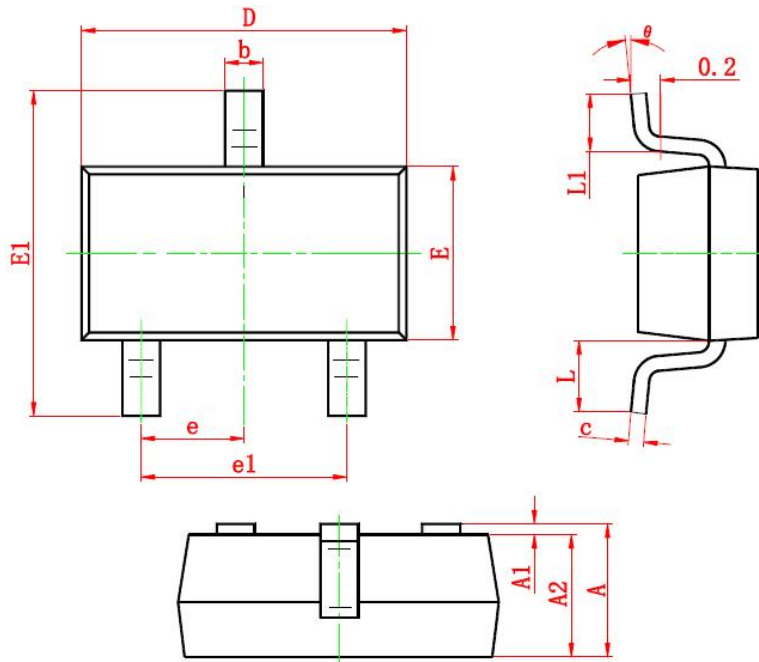
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
3. Essentially independent of operating temperature.

Typical Performance Characteristics


Fig.1 Continuous Drain Current vs. T_C

Fig.2 Continuous Drain Current vs. T_C

Fig.3 Normalized V_{th} vs. T_J

Fig.4 Gate Charge Waveform

Fig.5 Transfer Characteristics

Typical Performance Characteristics (continue.)


Fig.6 Normalized Transient Impedance

Fig.7 Maximum Safe Operation Area

Fig.8 Switching Time Waveform

Fig.9 Gate Charge Waveform

Package Dimension
SOT-23


Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.900	1.200	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.100	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°