LMN2130JZF 20V N-Channel MOSFET

Features

- 20V/5.4A, RDS(ON)=30mΩ@VGS=4.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23 package design

Product Description

LMN2130JZF, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent RDS(ON), low gate charge.

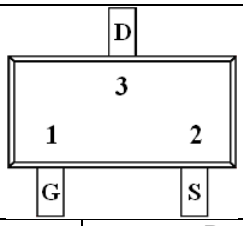
These devices are particularly suited for low voltage power management, such as smart phone and notebook computer and other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

Applications

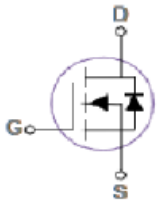
- Portable Equipment
- Battery Powered System
- Net Working System

Pin Configuration

LMN2130JZF(SOT-23)



PIN	Description
1	Gate
2	Source
3	Drain



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Ordering Information

Ordering Information					
Part Number	P/N	PKG code	Pb Free code	Package	Quantity
LMP1073KJZF	LMN2130	JZ	F	SOT-23	3000pcs

Marking Information

Marking Information		
Part Marking	Part Number	LFC code
P2XWM	P2	XWM

Absolute Maximum Ratings

(T_C=25ºC Unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DS}	Drain-Source Voltage		20	V
V_{GS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current	T_A=25℃	5.4	A
		T_A=70℃	4.3	
I_{DM}	Pulsed[1] Drain Current		21	A
P_D	Power Dissipation	T_A=25℃	1.25	W
		T_A=70℃	0.8	
T_J	Operating Junction Temperature		-55 to +150	℃
T_{STG}	Storage Temperature Range		-55 to +150	℃
$R_{\theta JA}$	Thermal Resistance-Junction to Case		100	℃/W

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Electrical Characteristics

(T_C=25ºC Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	20			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	0.4		1	
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±12V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20V, V_{GS}=0V			1	uA
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=4.5V, I_D=4A		21	30	mΩ
		V_{GS}=2.5V, I_D=3A		28	35	
		V_{GS}=1.8V, I_D=2A		40	55	
g_{FS}	Forward Transconductance	V_{DS}=10V, I_D=3A			10	S
Dynamic						
Q_g	Total Gate Charge[1,2]	V_{DS}=10V, V_{GS}=4.5V, ID≡5A		6.7		nC
Q_{gs}	Gate-Source Charge[1,2]			0.8		
Q_{gd}	Gate-Drain Charge[1,2]			3.0		
C_{iss}	Input Capacitance	V_{DS}=10V, V_{GS}=0V, f=1MHz		532		pF
C_{oss}	Output Capacitance			144		
C_{rss}	Reverse Transfer Capacitance			117		
V_{SD}	Diode Forward Voltage	I_S=1A, V_{GS}=0V			1	V

Note:

1. The data tested by pulsed, pulse width ≦ 300us, duty cycle ≦ 2%.
2. Essentially independent of operating temperature.

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Typical Performance Characteristics

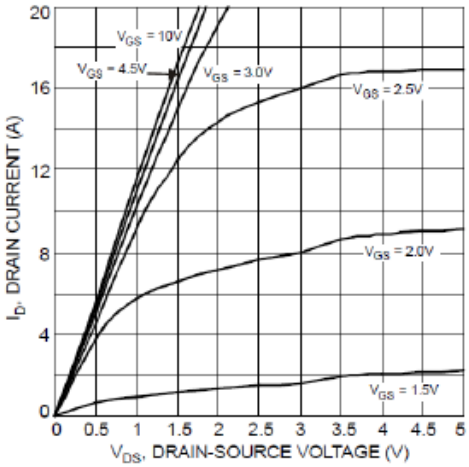

Fig. 1 Typical Output Characteristics

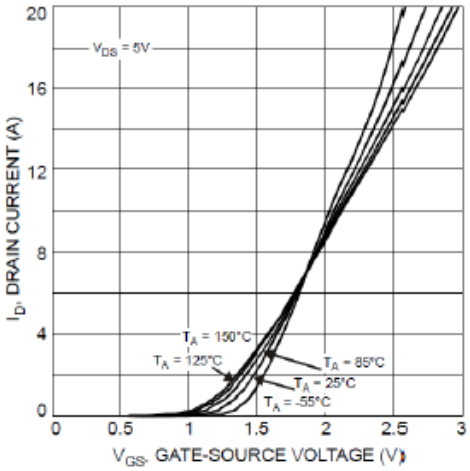

Fig. 2 Typical Transfer Characteristics

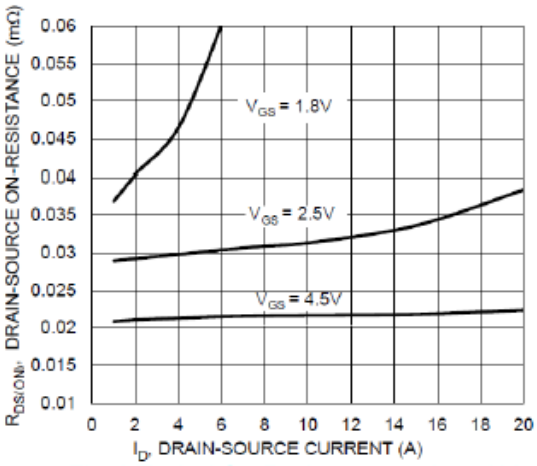

Fig. 3 Typical On-Resistance vs. I_D and V_{GS}

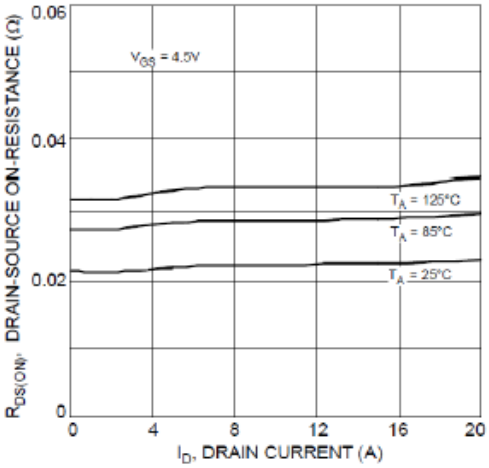

Fig. 4 Typical Drain-Source On Resistance vs. I_D and T_A

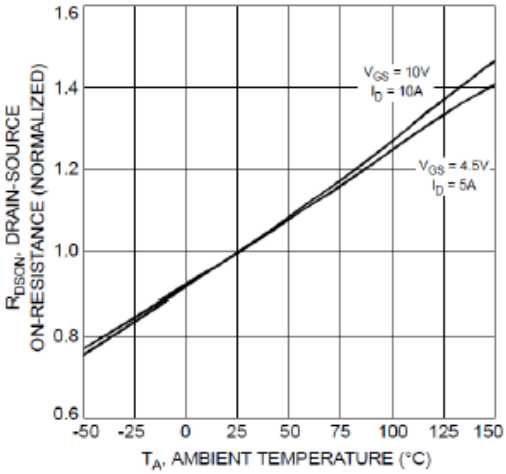

Fig. 5 On-Resistance Variation with T_A

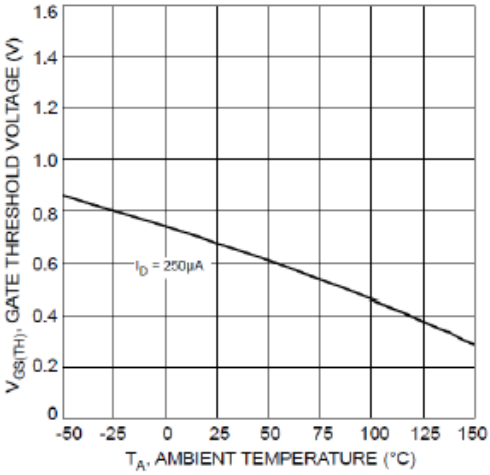

Fig. 6 Gate Threshold Variation with T_A

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Typical Performance Characteristics(continue)

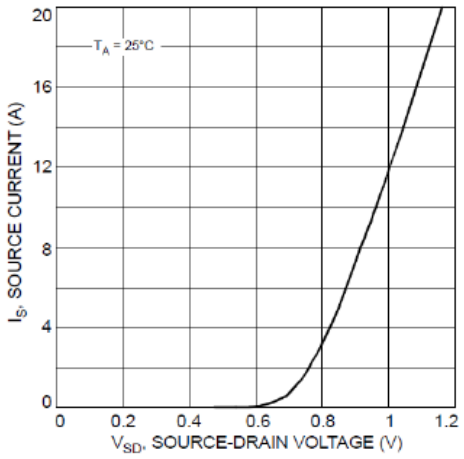

Fig. 7 Diode Forward Voltage vs. Current

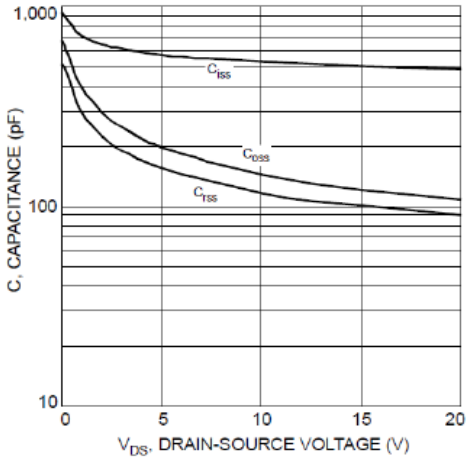

Fig.8 Typical Capacitance

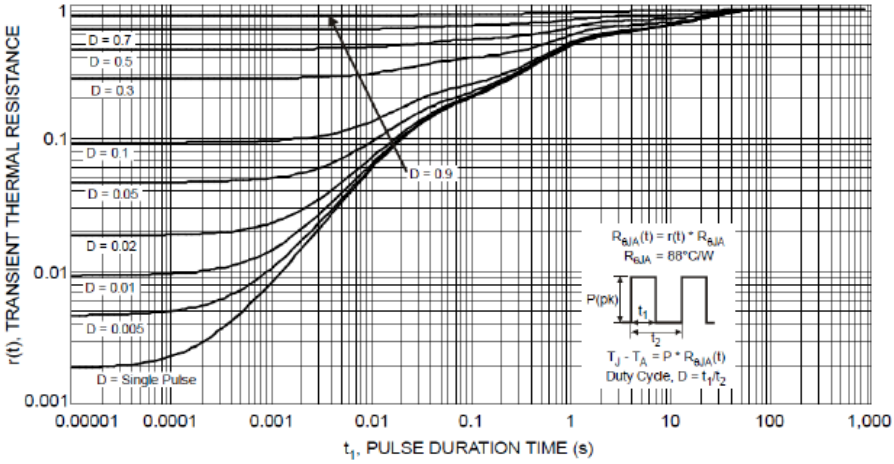

Fig.9 Transient Thermal Response

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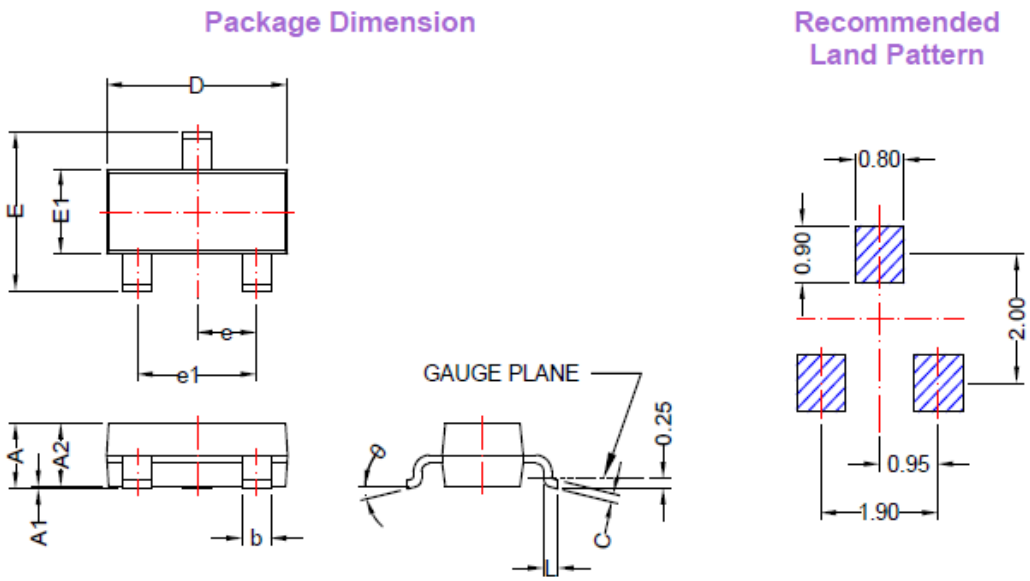
Package Dimension:

SOT-23



Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.75	1.17	0.030	0.046
A1	0.01	0.15	0.000	0.006
A2	0.70	1.02	0.028	0.040
b	0.30	0.50	0.012	0.020
c	0.08	0.20	0.003	0.008
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E1	1.20	1.40	0.047	0.055
e	0.95BSC		0.037BSC	
e1	1.90BSC		0.075BSC	
L	0.3	0.6	0.012	0.024
θ	0°	8°	0°	8°

NOTE:
DIMENSION D DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL HOT EXCEED 0.25mm

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