

LMN2130JZF 20V N-Channel MOSFET

Features

- 20V/5.4A, $R_{DS(ON)}=30m\Omega@V_{GS}=4.5V$
- 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

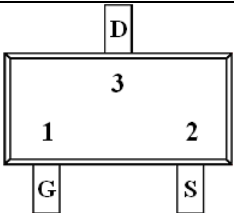
LMN2130JZF, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

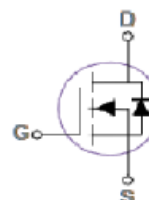
These devices are particularly suited for low voltage power management, such as smart phone and notebook computer and other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

Applications

- Portable Equipment
- Battery Powered System
- Net Working System

Pin Configuration

LMN2130JZF(SOT-23)	
	
PIN	Description
1	Gate
2	Source
3	Drain



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=25°C 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°C	A
		T _A =70°C	
I _{DM}	Pulsed ¹ Drain Current	21	A
P _D	Power Dissipation	T _A =25°C	W
		T _A =70°C	
T _J	Operating Junction Temperature	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
R _{θJA}	Thermal Resistance-Junction to Case	100	°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	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, I _D ≡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.

Typical Performance Characteristics

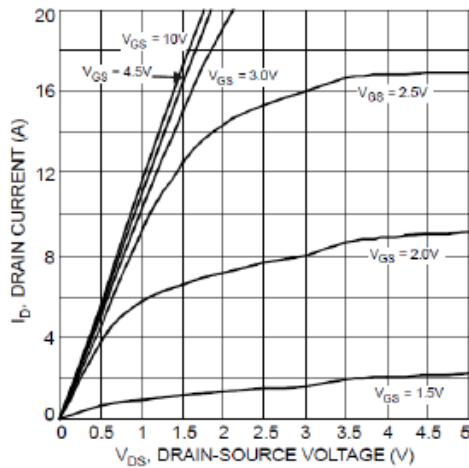


Fig. 1 Typical Output Characteristics

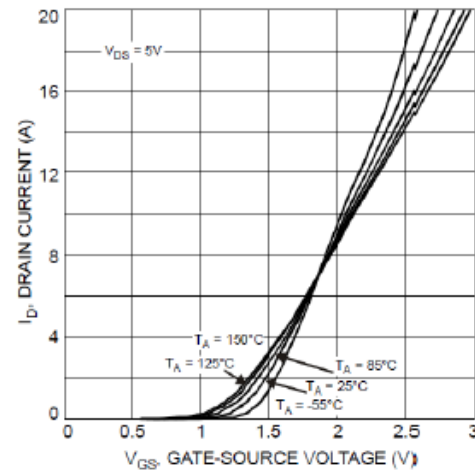


Fig. 2 Typical Transfer Characteristics

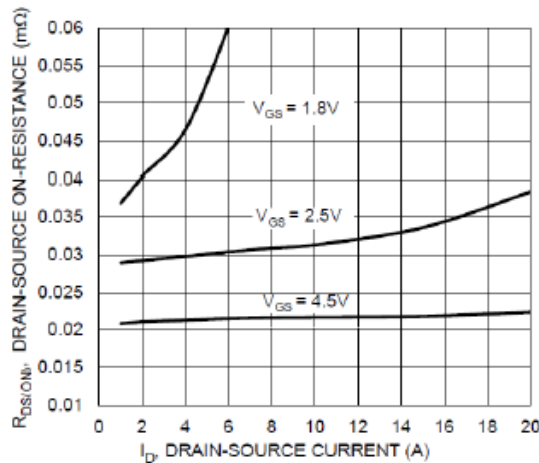


Fig. 3 Typical On-Resistance vs. I_D and V_{GS}

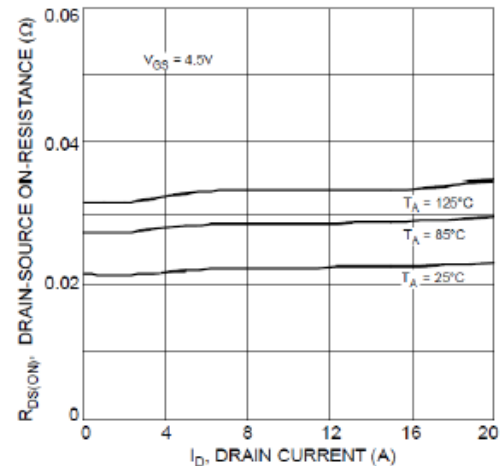


Fig. 4 Typical Drain-Source On Resistance vs. I_D and T_A

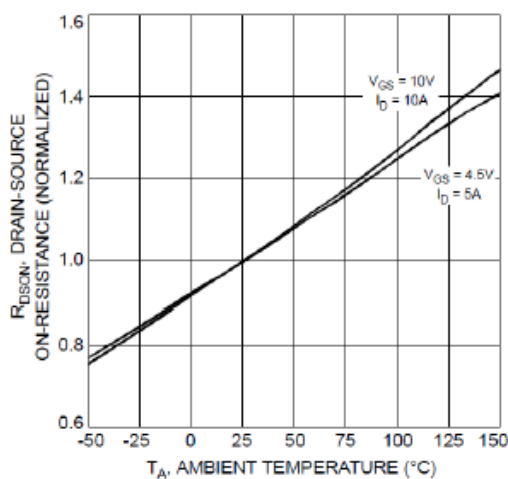


Fig. 5 On-Resistance Variation with T_A

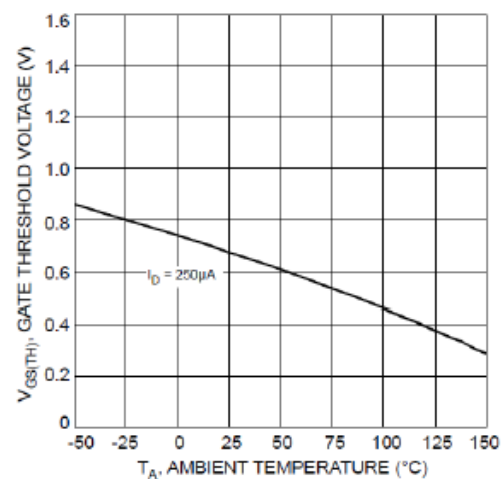
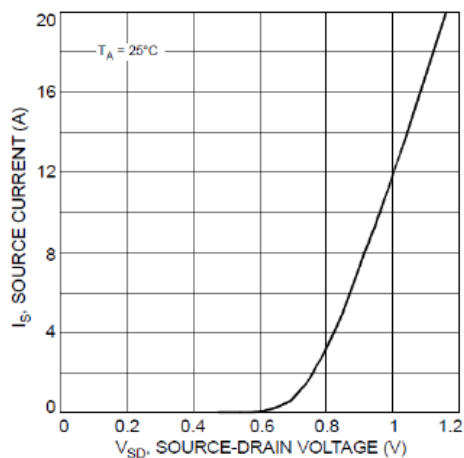
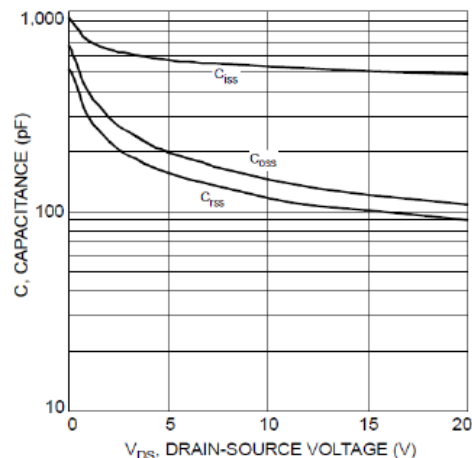
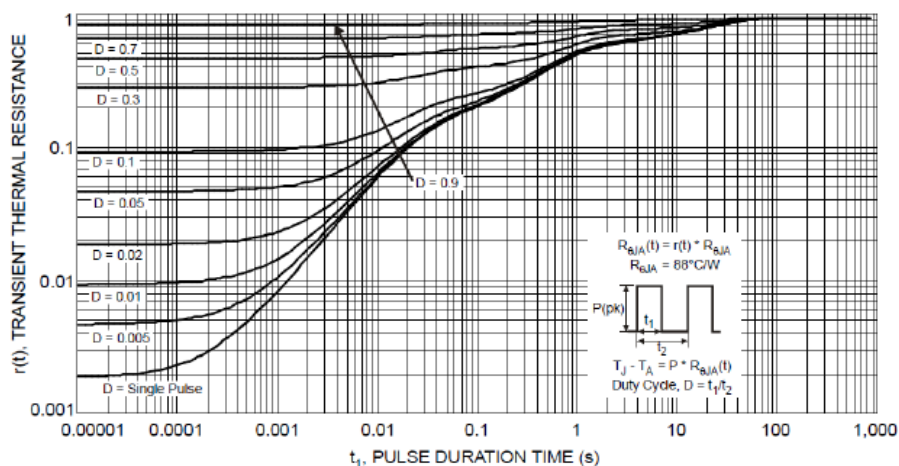


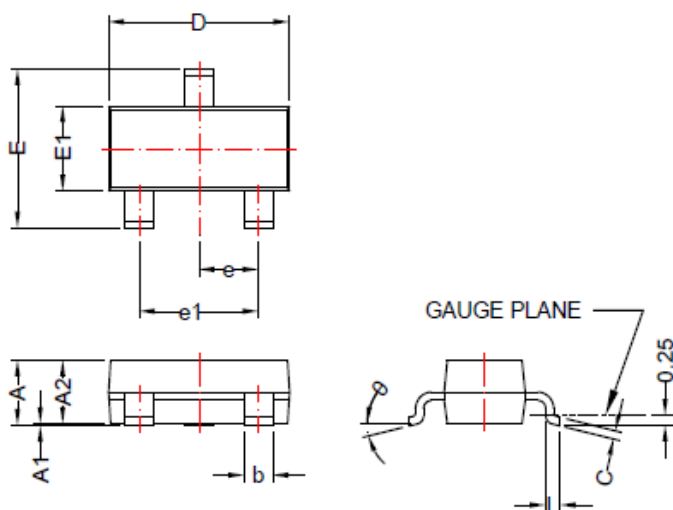
Fig. 6 Gate Threshold Variation with T_A

Typical Performance Characteristics(continue)

Fig. 7 Diode Forward Voltage vs. Current

Fig.8 Typical Capacitance

Fig.9 Transient Thermal Response

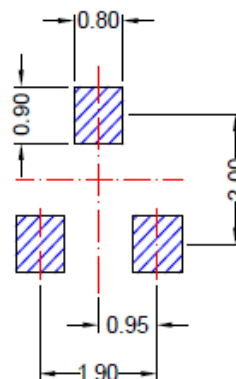
Package Dimension:

SOT-23

Package Dimension



Recommended Land Pattern



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 NOT EXCEED 0.25mm

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