LMN2122JZF-20V N-Channel Enhancement Mode MOSFET

Features

- 20V/6.3A, $R_{DS(ON)}$=22mΩ@V_{GS}=4.5V
- Super high design cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23 package design

Product Description

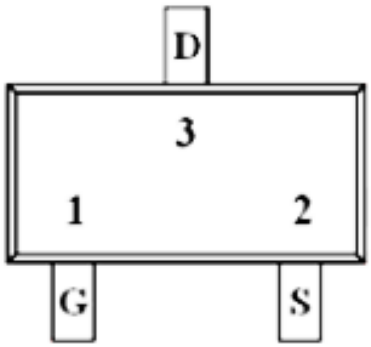
LMN2122JZF, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent RDS(ON), low gate charge. These devices are particularly suited for low voltage power management, such as smart phone and notebook computer and other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

Applications

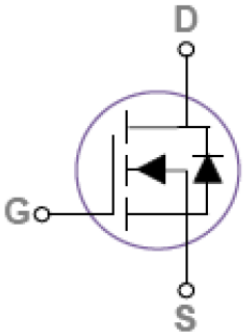
- Portable Equipment
- Battery Powered System
- Net Working System

Pin Configuration

LMN2122JZF (SOT-23)



PIN	Description
1	Gate
2	Source
3	Drain



Ordering Information

LMN2122	JZ	F
LFC P/N	PKG code	Pb Free code

Marking Information

Part Number	Package	Part Marking	Quantity
LMN2122JZF	SOT-23	22XWM	3000pcs

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	TC=25℃	6.3	A
		TC=70℃	5	
I_{DM}	Pulsed Drain Current[1]		24	A
P_D	Power Dissipation	TC=25℃	1.25	W
		TC=70℃	0.8	W/℃
T_J	Operating Junction Temperature		-50/150	℃
T_{STG}	Storage Temperature Range		-50/150	℃
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		100	℃/W

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	V
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		16	22	mΩ
		V_{GS}=2.5V, I_D=3A		22	29	
		V_{DS}=1.8V, I_D=2A		33	45	
g_{FS}	Forward Transconductance	V_{DS}=10V, I_D=3A		3.7		S
		Dynamic				
Q_g	Total Gate Charge[1,2]	V_{DS}=10V, V_{GS}=4.5V, I_D=6A		8.5		nC
Q_{gs}	Gate-Source Charge[1,2]			1.5		
Q_{gd}	Gate-Drain Charge[1,2]			3.5		
C_{iss}	Input Capacitance	V_{DS}=10V, V_{GS}=0V, f=1MHz		560		pF
C_{oss}	Output Capacitance			166		
C_{rss}	Reverse Transfer Capacitance			150		
$t_{d(on)}$	Turn-On Time[2,3]	V_{DD}=10V, I_D=1A, V_{GS}=4.5V, R_G=6Ω		12		ns
t_r				15		
$t_{d(off)}$	Turn-Off Time[2,3]			30		
t_f				15		
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. Independent of operating temperature.

Typical Performance Characteristics

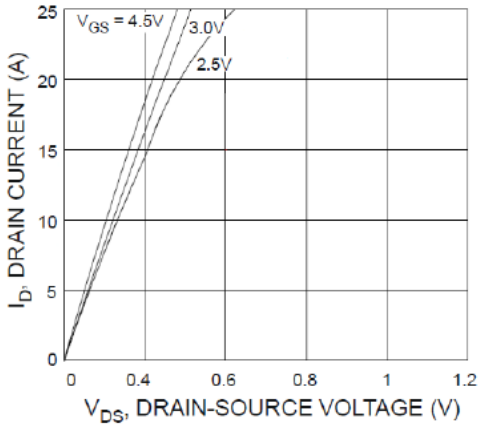


Fig.1 Typical Output Characteristics

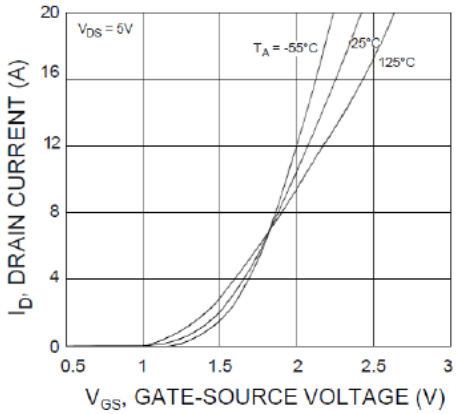


Fig.2 Typical Transfer Characteristic

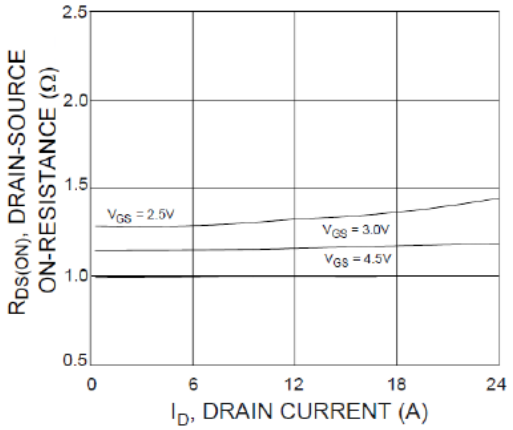


Figure.3 Typical On-Resistance vs. Drain Current and Gate Voltage

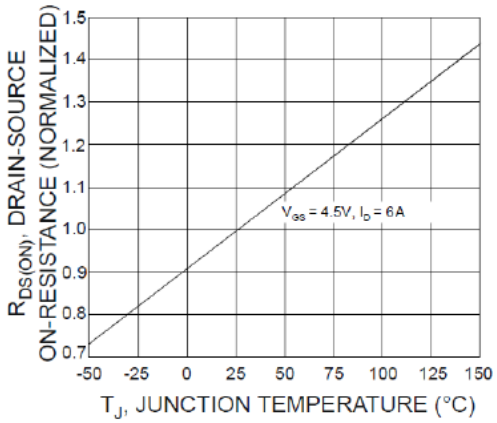


Figure.4 On-Resistance Variation with T_J

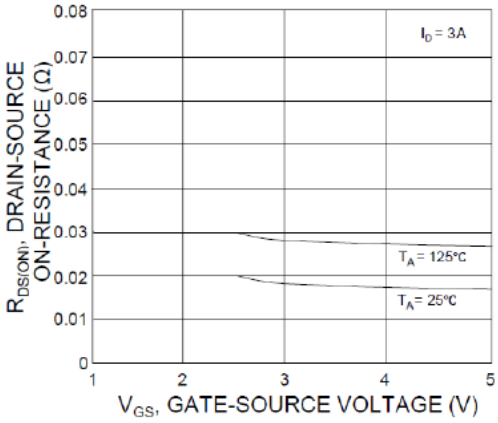


Fig.5 On-Resistance Variation with Drain Current and Gate Voltage

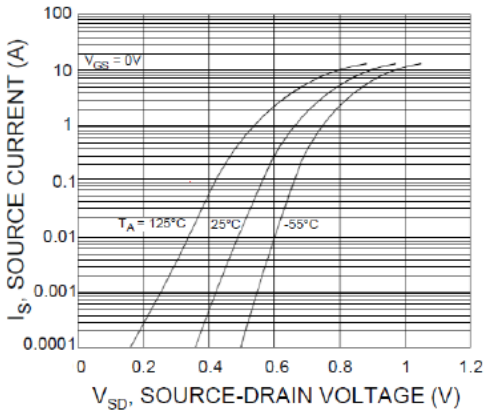


Fig.6 Diode Forward Voltage vs. Current

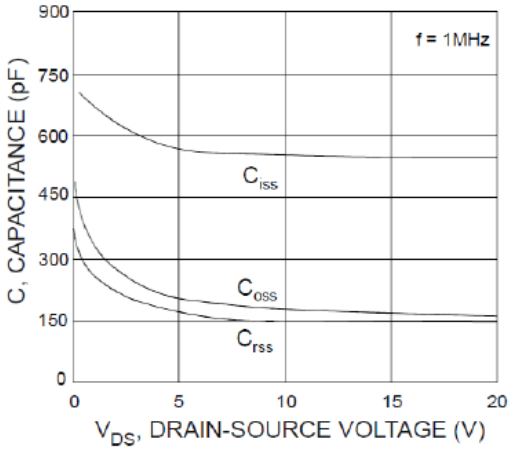


Fig.7 Capacitance Characteristics

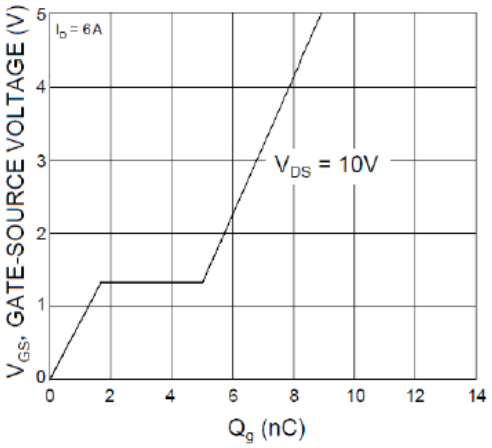


Fig.8 Gate Charge Characteristics

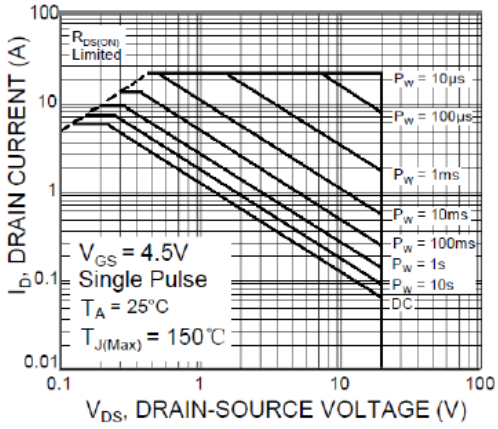


Fig.9 Maximum Safe Operation Area

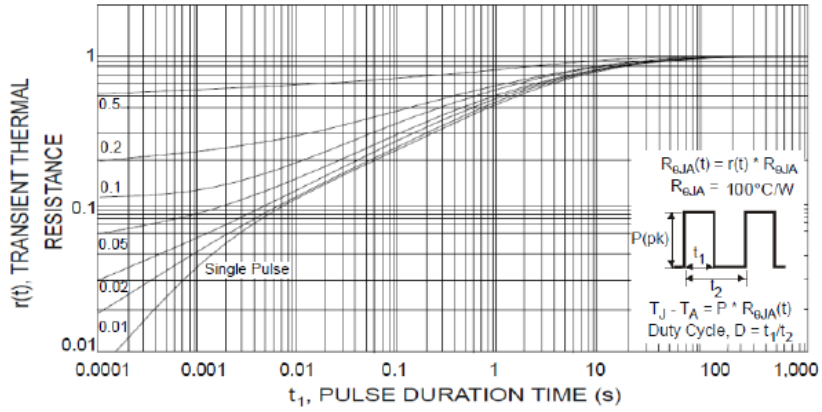
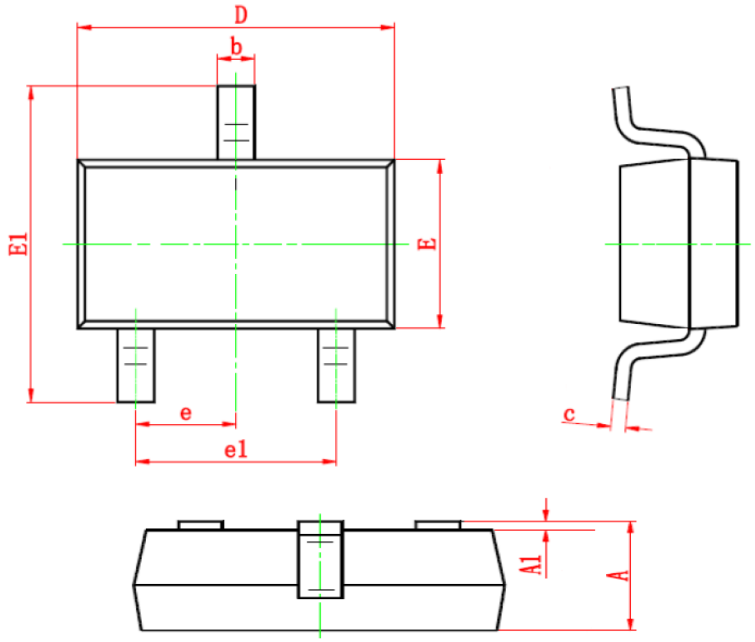


Fig.10 Normalized Transient Impedance

Package



Dimension:

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.900	1.140	0.035	0.045
A1	0.000	0.140	0.000	0.006
b	0.300	0.510	0.012	0.020
c	0.070	0.180	0.003	0.007
D	2.800	3.040	0.110	0.120
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.780	2.050	0.070	0.081

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