LMNBSS123 100V N-Channel Enhancement Mode MOSFET

Features

- 100V, 0.17A, $R_{DS(ON)}$ =6.0Ω@V_{GS} = 10V
- SOT-23 package design
- Lead(Pb)-Free

Product Description

The LMNBSS123 is the N-Channel enhancement mode field effect transistors are produced using high cell density DMOS technology.

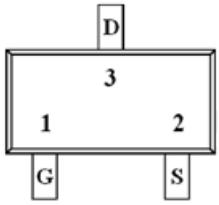
These products have been designed to minimize on-state resistance while provide rugged, reliable, and fast switching performance.

Applications

- DC to DC Converter
- Cellular & PCMCIA Card
- Cordless Telephone
- Power Management in Portable and Battery etc.

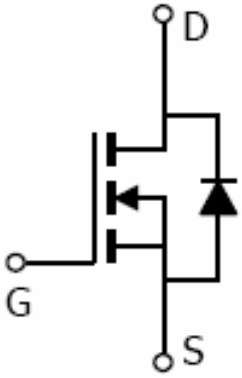
Pin Configuration

LMNBSS123JZF (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
LMNBSS123JZF	LMNBSS123	JZ	F	SOT-23	3000 pcs

Marking Information

Part Marking	Part Number	LFC code
SAT	SA	T

Absolute Maximum Ratings

(T_A=25ºC Unless otherwise noted)

Symbol	Parameter	Typical	Unit
V_{DSS}	Drain-Source Voltage	100	V
V_{GSS}	Gate-Source Voltage- Continuous	±20	V
V_{GSM}	Gate-Source Voltage- Non Repetitive(tp≦50us)	±40	V
I_D	Continuous Drain Current(T_A=25ºC)	0.17	A
I_{DM}	Pulsed Drain Current[1]	0.68	A
P_D	Power Dissipation(T_A=25ºC)[2]	0.225	W
	Power Dissipation (Derate above 25ºC)	1.8	W/ºC
T_J	Operating Junction Temperature Range	-55 to +150	ºC
T_{STG}	Storage Temperature Range	-55 to +150	ºC
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	556	ºC/W

Note:

1. Pulse Test : PW≦ 300us, Duty Cycle≦ 2%
2. RF-5=1.0x0.75x0.062 in.

Electrical Characteristics

(T_A=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	100			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=1.0mA	0.8		2.8	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±20V			50	nA
I_{DSS}	Drain-Source Leakage Current	V_{DS}=100V, V_{GS}=0V			15	uA
		V_{DS}=100V, V_{GS}=0V, T_J=125ºC			60	
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}=10V, I_D=0.1A		5.0	6.0	Ω
g_{FS}	Forward Transconductance	V_{DS}=25V, I_D=0.1A	8.0			ms
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_S=0.34A			1.3	V
Dynamic						
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz		20		pF
C_{oss}	Output Capacitance			9		
C_{rss}	Reverse Transfer Capacitance			4		
$t_{d(on)}$	Turn-On Time	V_{DD}=30V, I_D=0.28A, V_{GS}=10V, R_G=50Ω		20		ns
$t_{d(off)}$	Turn-Off Time			40		

Typical Performance Characteristics

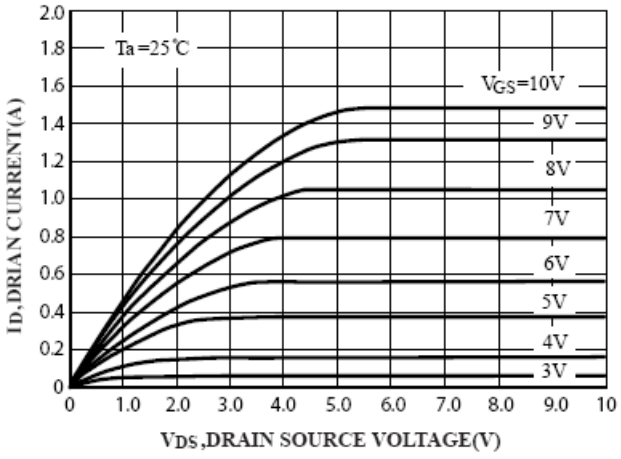


FIG.1 Ohmic Region

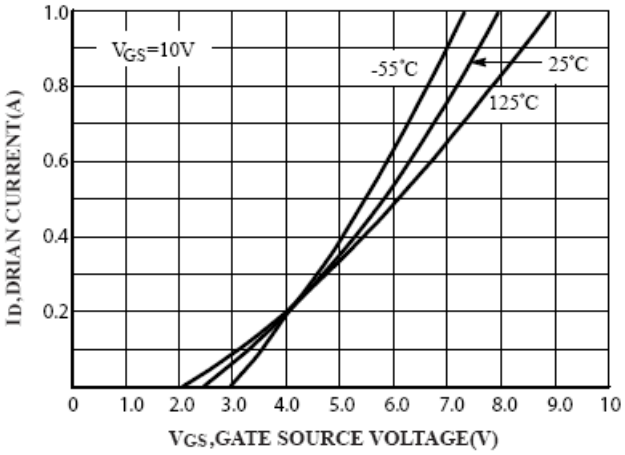


FIG.2 Transfer Characteristics

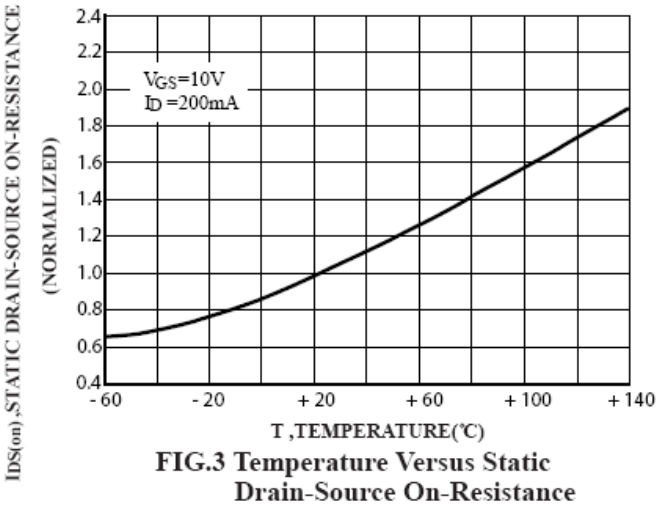


FIG.3 Temperature Versus Static Drain-Source On-Resistance

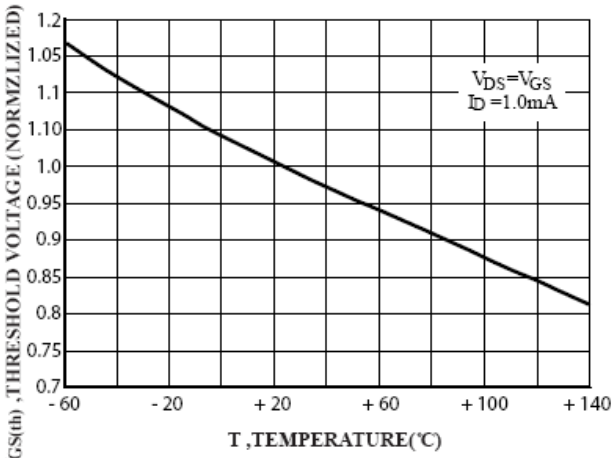
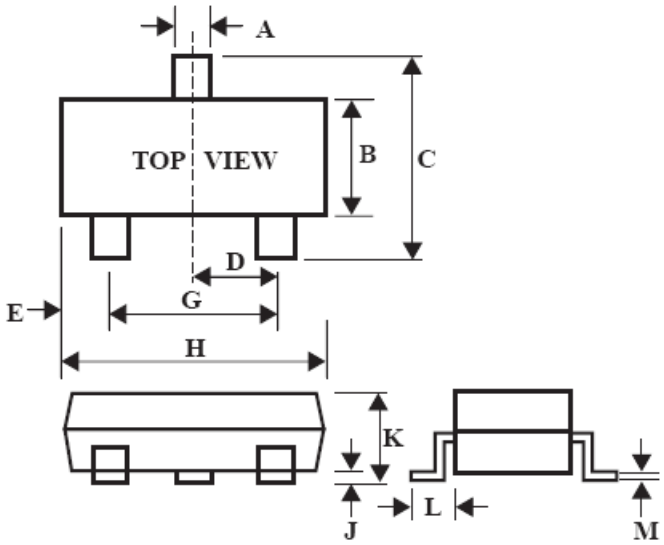


FIG.4 Temperature Versus Gate Threshold Voltage

Package Dimension

SOT-23



Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.350	0.510	0.014	0.020
B	1.190	1.400	0.046	0.055
C	2.100	3.000	0.082	0.118
D	0.850	1.050	0.033	0.041
E	0.460	1.000	0.018	0.039
G	1.700	2.100	0.066	0.082
H	2.700	3.100	0.106	0.122
J	0.010	0.130	0.000	0.005
K	0.890	1.100	0.035	0.043
L	0.300	0.610	0.011	0.024
M	0.076	0.250	0.003	0.010