

LMNBSS139TFF 60V N-Channel MOSFET

Features

- 60V, 0.2A, $R_{DS(ON)}=2.5\Omega@V_{GS}=4.5V$
- Improved dv/dt capability
- Fast switching
- 100% EAS Guaranteed
- Green Device Available
- ESD Protected: 1500V

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

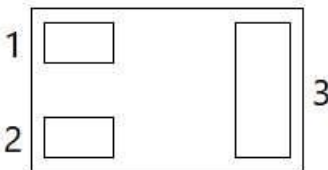
Product Description

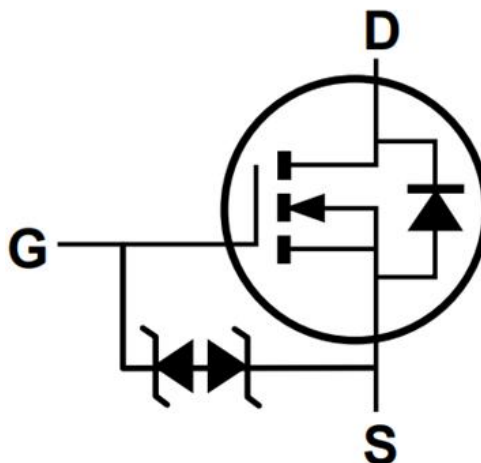
These N-Channel enhancement mode power field effect transistors is using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode.

Applications

- Notebook
- Load Switch
- LED applications

Pin Configuration

LMNBSS139TFF (DFN1006-3L)	
 Transparent Top View	
Pin	Description
1	Gate
2	Source
3	Drain



Ordering Information

Part Number	P/N	PKG Code	Pb Free Code	Package	Quantity Reel
LMNBSS139TFF	LMNBSS139	TF	F	DFN1006-3L	10000 pcs

Marking Information

Part Marking	Part Number	LFC code
J2 WM	J2	WM

Absolute Maximum Ratings

(T_A=25°C Unless otherwise noted)

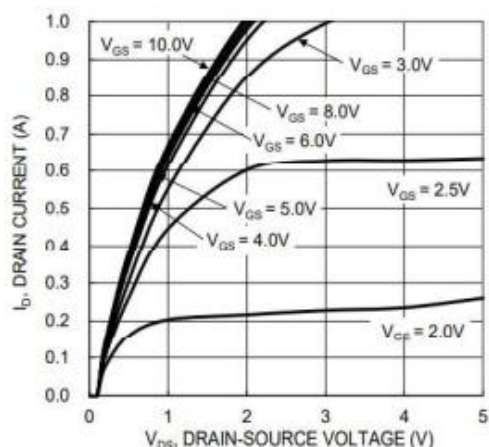
Symbol	Parameter	Limits	Unit
V _{DS}	Drain-Source Voltage	60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current(T _A =25°C)	0.33	A
I _{DM}	Pulsed Drain Current	0.8	A
P _D	Power Dissipation(T _A =25°C)	0.36	W
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient	350	°C/W

Electrical Characteristics

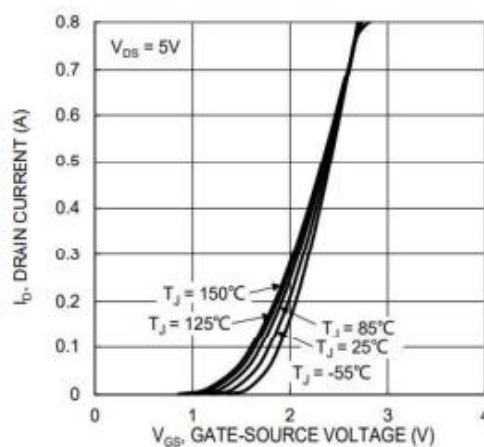
(T_A=25°C Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	60			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	0.8		1.5	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±10	uA
I _{DSS}	Drain-Source Leakage Current	V _{DS} =25V, V _{GS} =0V			0.1	uA
		V _{DS} =50V, V _{GS} =0V			0.5	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =0.5A			1.5	Ω
		V _{GS} =4.5V, I _D =0.2A			2.5	
		V _{GS} =2.5V, I _D =0.1A			4.1	
g _{FS}	Forward Transconductance	V _{DS} =25V, I _D =0.2A	0.1			S
Dynamic						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz		22.8		pF
C _{oss}	Output Capacitance			3.5		
C _{rss}	Reverse Transfer Capacitance			2.9		
t _{d(on)}	Turn-On Delay Time	V _{DD} =30V, I _D =0.5A, V _{GS} =10V, R _G =25Ω		3.8		ns
t _{d(off)}	Turn-Off Delay Time			19		

Typical Performance Characteristics



Typical Output Characteristic



Typical Transfer Characteristic

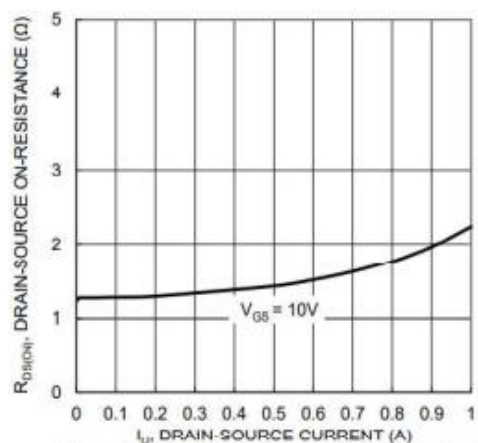


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage
Typical On-Resistance vs. Drain Current and Gate Voltage

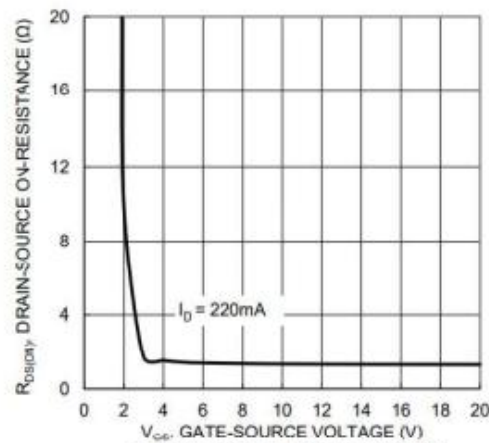
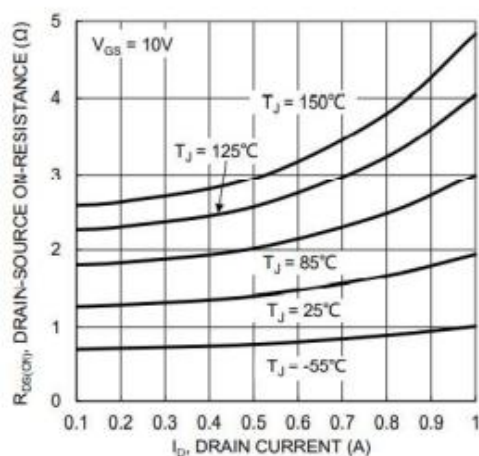
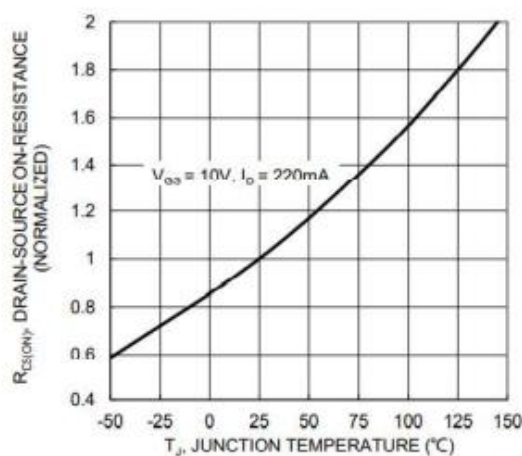


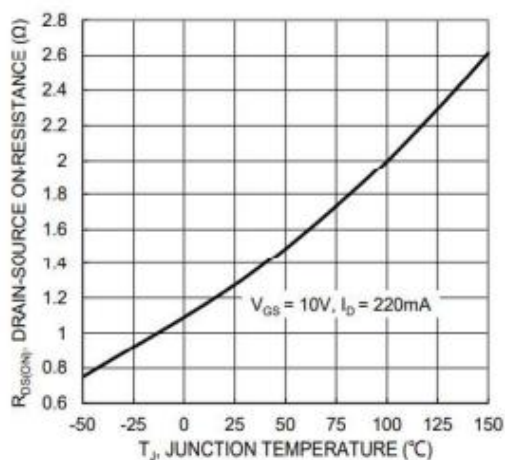
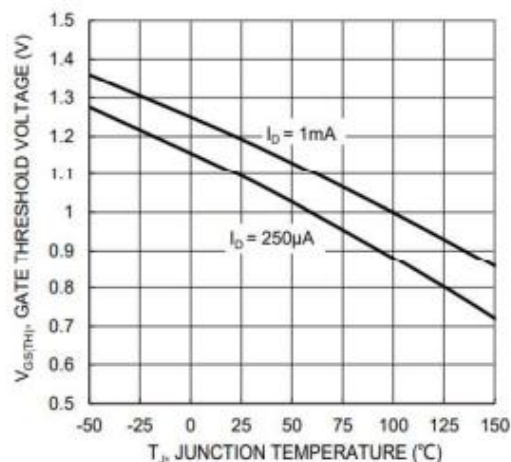
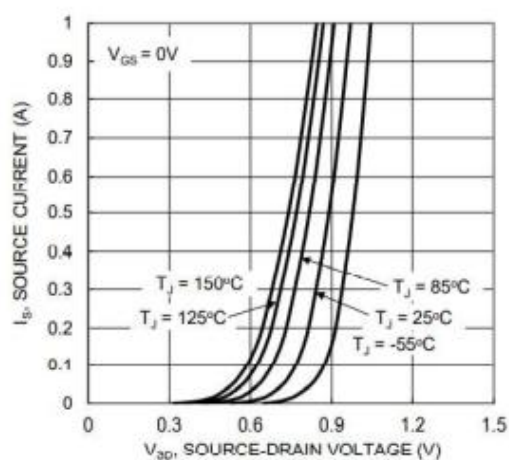
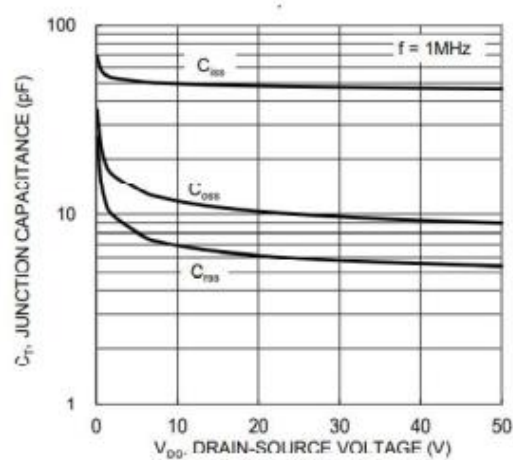
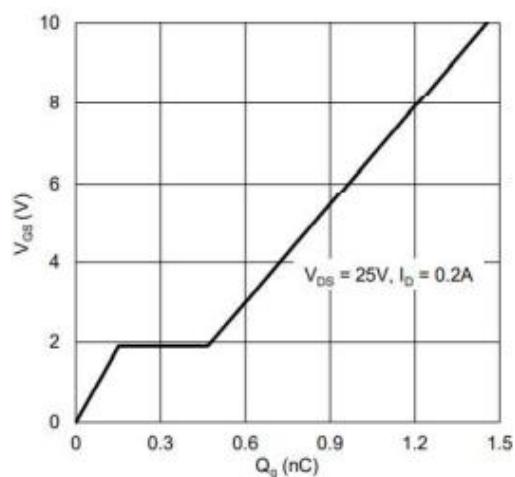
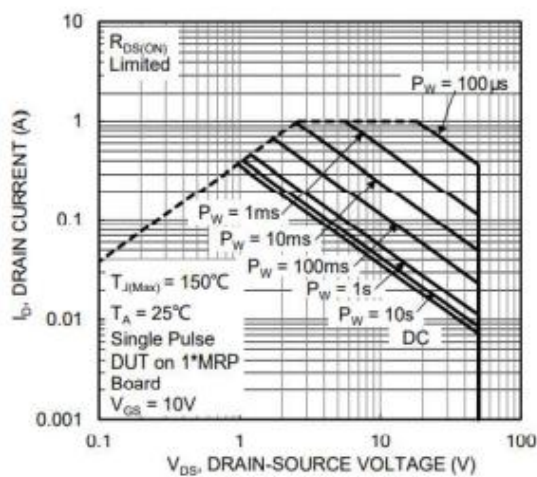
Figure 4. Typical Transfer Characteristic
Typical Transfer Characteristic

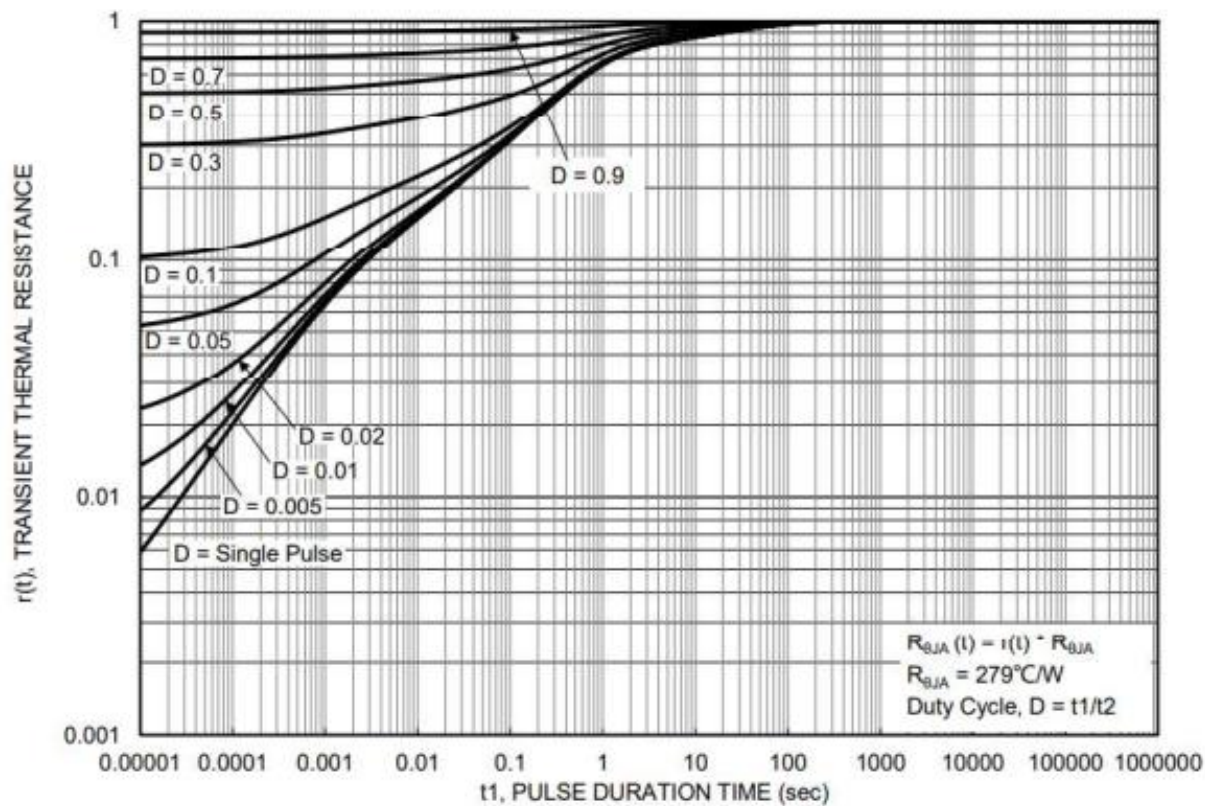


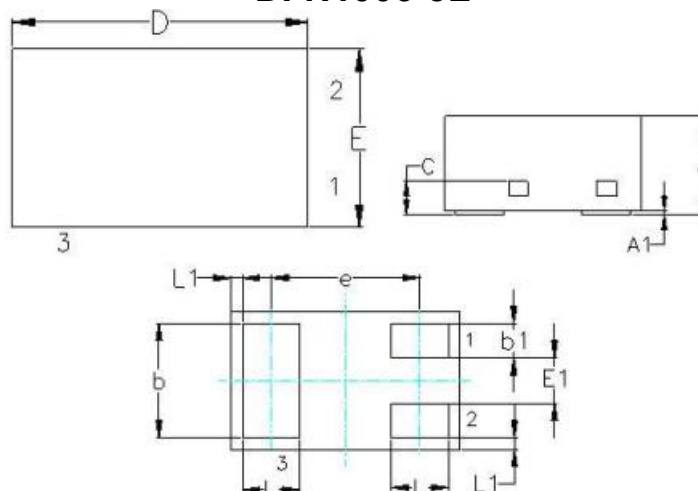
Typical On-Resistance vs. Drain and Junction Temperature



On-Resistance Variation with Junction Temperature

Typical Performance Characteristics (continue.)

On-Resistance Variation with Junction Temperature

Gate Threshold Variation vs. Junction Temperature

Diode Forward Voltage vs. Current

Typical Junction Capacitance

Gate Charge

Safe Operation Area

Typical Performance Characteristics (continue.)

Figure13 Transient Thermal Resistance

Package Dimension
DFN1006-3L


Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.450	0.550	0.018	0.022
A1	0.000	0.050	0.000	0.002
b	0.450	0.550	0.018	0.022
b1	0.100	0.200	0.004	0.008
C	0.120	0.180	0.005	0.007
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
E1	0.150	0.250	0.006	0.010
e	0.650 BSC		0.026 BSC	
L	0.200	0.300	0.008	0.012
L1	0.050 REF		0.002 REF	