

## 20V Dual N-Channel MOSFETs

### Features

- 20V, 700mA,  $R_{DS(ON)}=400m\Omega@V_{GS}=4.5V$
- Fast switching
- Suit for 1.5V Gate Drive Applications
- Green Device Available
- SOT-563 package design

withstand high energy pulse in the avalanche and commutation mode.

LMN2730 is well suited for high efficiency fast switching applications.

### Product Description

LMN2730, Dual N-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and

### Applications

- Notebook
- Load Switch
- Networking
- Hand-Held Instruments

### Pin Configuration

LMN2730EX7F (SOT-563)	
PIN	Description
1	Source1
2	Gate1
3	Drain2
4	Source2
5	Gate2
6	Drain1

**Ordering Information**

<u>LMN2730E</u>	<u>X7</u>	<u>E</u>
LFC P/N	PKG code	Pb Free code

**Marking Information**

<u>0</u>	XW
Part Number	LFC code

Part Number	Package	Part Marking	Quantity
LMN2730EX7F	SOT-563	<u>0</u> XW	3000pcs

**Absolute Maximum Ratings**

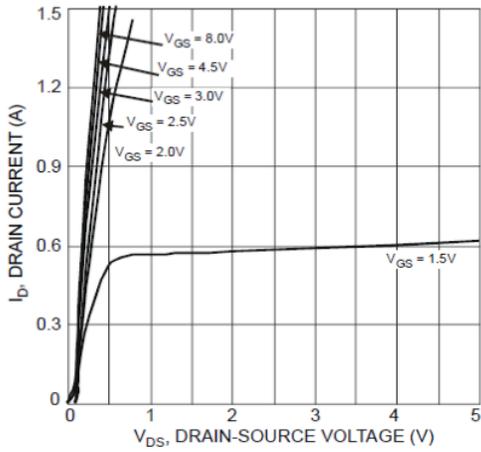
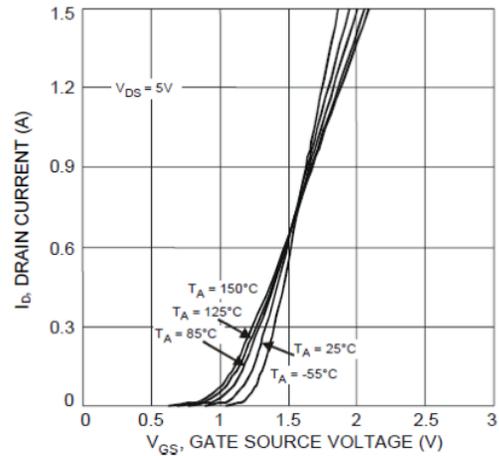
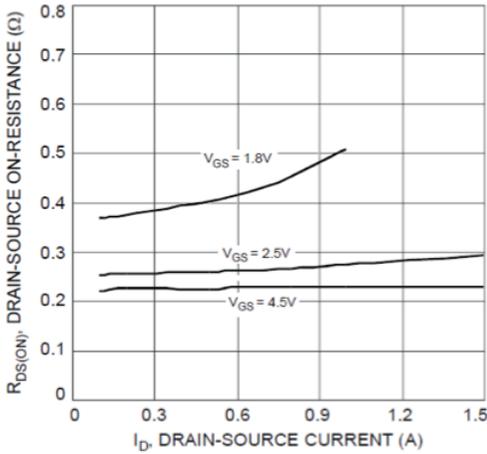
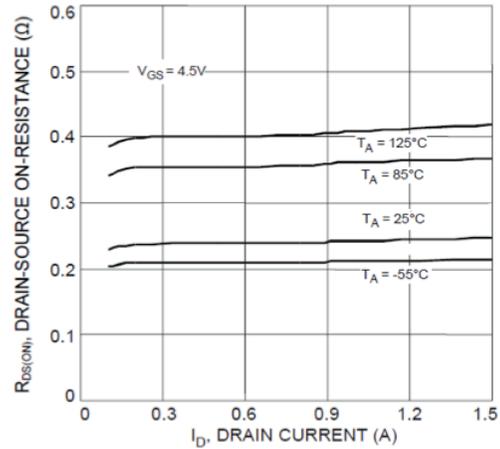
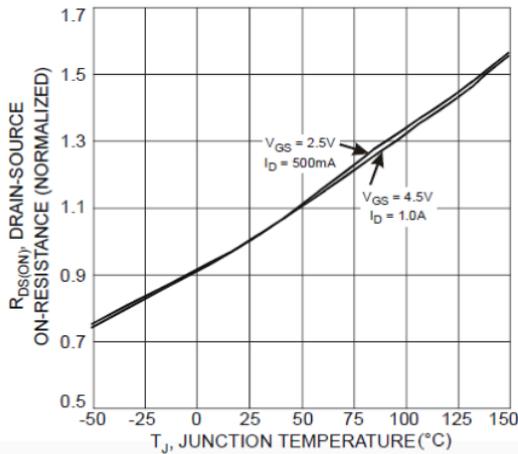
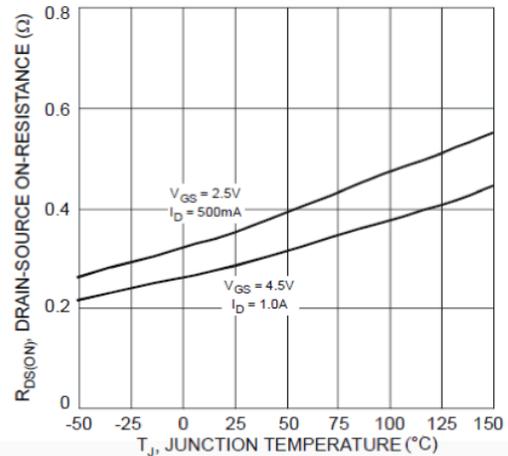
 (T<sub>C</sub>=25°C Unless otherwise noted)

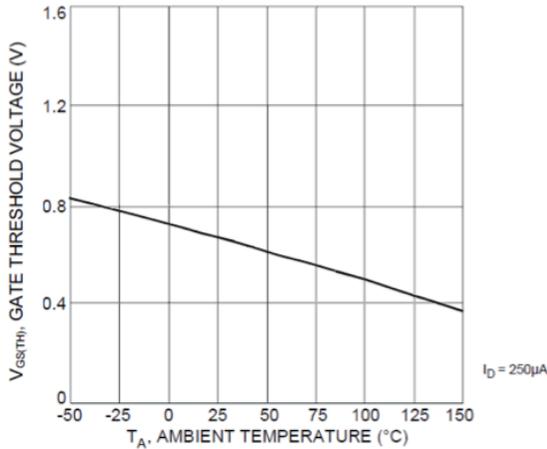
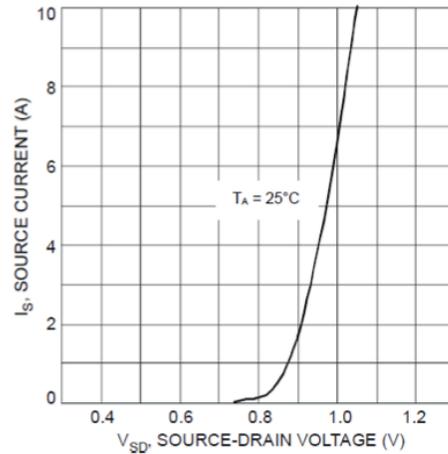
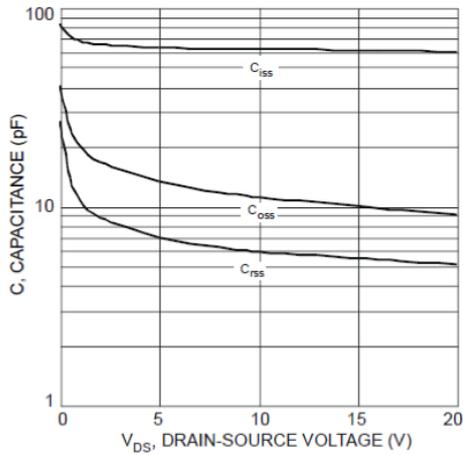
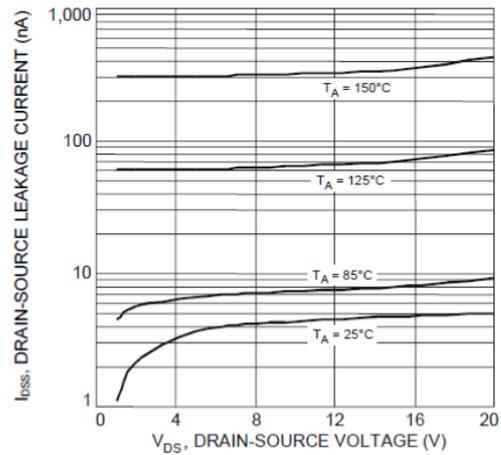
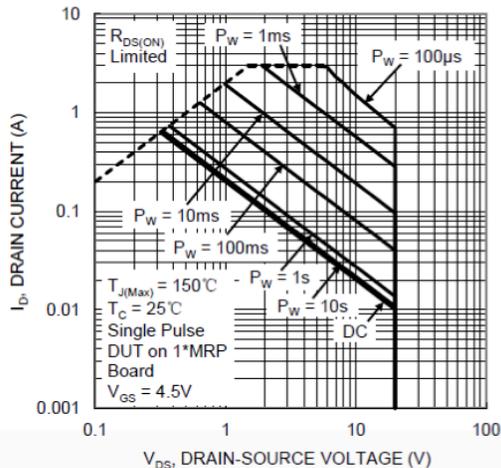
Symbol	Parameter	Typical	Unit	
V <sub>DS</sub>	Drain-Source Voltage	20	V	
V <sub>GS</sub>	Gate-Source Voltage	±10	V	
I <sub>D</sub>	Continuous Drain Current (T <sub>J</sub> =150°C)	T <sub>A</sub> =25°C	0.7	A
		T <sub>A</sub> =100°C	0.45	
I <sub>DM</sub>	Pulsed Drain Current	3	A	
P <sub>D</sub>	Power Dissipation	T <sub>A</sub> =25°C	0.32	W
T <sub>J</sub>	Operating Junction Temperature Range	-55 to +150	°C	
T <sub>J</sub>	Storage Temperature Range	-55 to +150	°C	
T <sub>STG</sub>	Thermal Resistance-Junction to Ambient	400	°C/W	

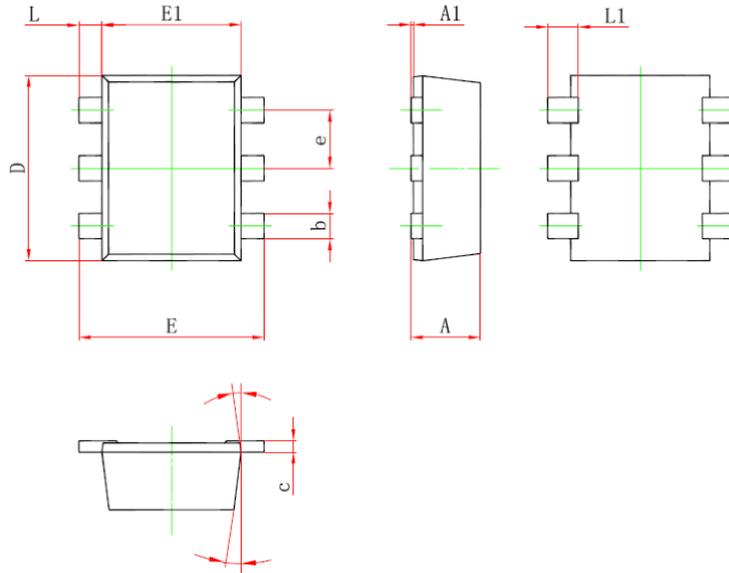
**Electrical Characteristics**

 (T<sub>A</sub>=25°C Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	20			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	0.3		1.0	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V			±10	uA
I <sub>DSS</sub>	Drain Current Leakage Current	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V			1	uA
I <sub>D(ON)</sub>	On-State Drain Current	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current			0.7	A
I <sub>SM</sub>	Pulsed Source Current				1.4	
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.5A		220	300	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =0.4A		280	450	
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =0.2A		390	800	
		V <sub>GS</sub> =1.5V, I <sub>D</sub> =0.1A		540	1200	
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =0.5A, V <sub>GS</sub> =0V		0.85	1	V
<b>Dynamic</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.25A		0.73		nC
Q <sub>gs</sub>	Gate-Source Charge			0.93		
Q <sub>gd</sub>	Gate-Drain Charge			0.12		
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =16V, V <sub>GS</sub> =0V, f=1MHz		60.7		pF
C <sub>oss</sub>	Output Capacitance			9.7		
C <sub>rss</sub>	Reverse Transfer Capacitance			5.4		
t <sub>d(on)</sub>	Turn-On Time	V <sub>DD</sub> =10V, I <sub>D</sub> =0.2A, V <sub>GS</sub> =4.5V, R <sub>G</sub> =10Ω		5.1		ns
t <sub>r</sub>				7.4		
t <sub>d(off)</sub>	Turn-Off Time			26.7		
t <sub>f</sub>				12.3		

**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  $T_J$** 

**Fig. 5 On-Resistance Variation with  $T_J$** 

**Fig. 6 On-Resistance Variation with  $T_J$**

**Typical Performance Characteristics (Cont.)**

**Fig. 7 Gate Threshold Variation vs.  $T_A$** 

**Fig. 8 Diode Forward Voltage vs. Current**

**Fig. 9 Typical Capacitance**

**Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage**

**Fig. 11 Safe Operation Area**

**Package Dimension**
**SOT-563**


Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.525	0.600	0.021	0.035
A1	0.000	0.050	0.000	0.002
e	0.500 (BSC)		0.020 (BSC)	
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E	1.500	1.700	0.059	0.067
E1	1.100	1.300	0.043	0.051
L	0.100	0.300	0.004	0.012
L1	0.200	0.400	0.008	0.016