

LMN3660EX5F 30V N-Channel Enhancement Mode MOSFET

Features

- Low Gate Charge
- ESD Protected
- SOT-523 package design

Product Description

LMN3660E, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

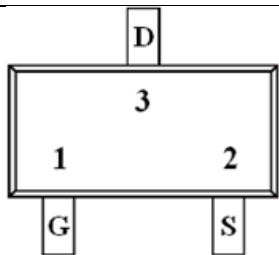
These devices are particularly suited for low

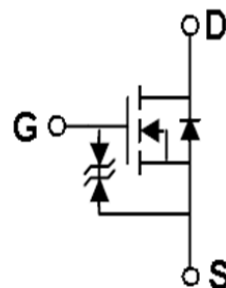
voltage power management, such as smart phone and notebook computer, and low in-line power loss are needed in commercial industrial surface mount applications.

Applications

- Power Management in Note book
- Portable Equipment
- Load Switch

Pin Configuration

LMN3660 EX7F (SOT-523)	
 <p>Transparent top view</p>	
Pin	Description
1	Gate
2	Source
3	Drain



Ordering Information

Ordering Information					
Part Number	P/N	PKG code	Pb Free code	Package	Quantity
LMN3660EX7F	LMN3660E	X7	F	SOT-523	3000 PCS

Marking Information

Marking Information		
Part Marking	Part Number	LFC code
OWM	0	WM

Absolute Maximum Ratings

(T_C=25°C Unless otherwise noted)

Symbol	Parameter	Typical	Unit
V _{DSS}	Drain-Source Voltage	30	V
V _{GSS}	Gate-Source Voltage	±12	V
I _D	Continuous Drain Current T _A =25°C ¹	0.51	A
I _{DM}	Pulsed Drain Current ²	2	A
P _D	Power Dissipation	0.3	W
T _J	Operating Junction Temperature	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C
R _{θJA}	Thermal Resistance-Junction to Ambient ¹	450	°C/W

Notes:

1. Surface mounted on a 1 inch² FR-4 board with 2oz copper.

2. Pulse width limited by maximum junction temperature, Pulse Width≤300μs, Duty Cycle≤1%.

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	30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250Ua	0.5		1.5	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±12V			10	uA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =24V, V _{GS} =0V			100	nA
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =0.5A		355	600	mΩ
		V _{GS} =4.5V, I _D =0.4A		435	650	
		V _{GS} =2.5V, I _D =0.3A		665	1200	
g _{FS}	Forward Transconductance	V _{DS} =10V, I _D =0.5A		1.1		S
V _{SD}	Diode Forward Voltage	I _S =0.5A, V _{GS} =0V			1.35	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _D =0.5A		1.5		nC
Q _{gs}	Gate-Source Charge			0.2		
Q _{gd}	Gate-Drain Charge			0.2		
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz		39		pF
C _{oss}	Output Capacitance			9		
C _{rss}	Reverse Transfer Capacitance			6		
t _{d(on)}	Turn-On Time	V _{DD} =15V, I _D =0.5A, V _{GS} =10V, R _G =2.5Ω		5.3		ns
t _r				16		
t _{d(off)}	Turn-Off Time			20		
t _f				18		

Typical Performance Characteristics

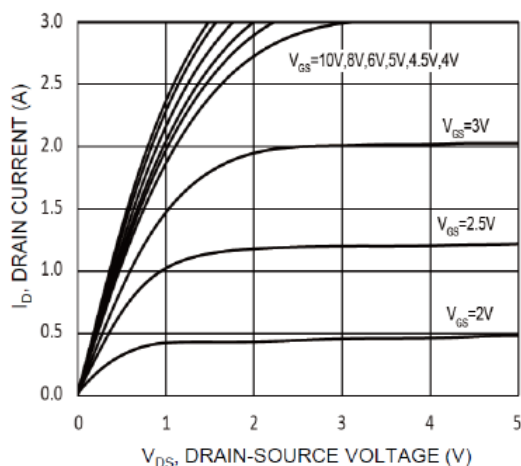


Fig. 1 Typical Output Characteristics

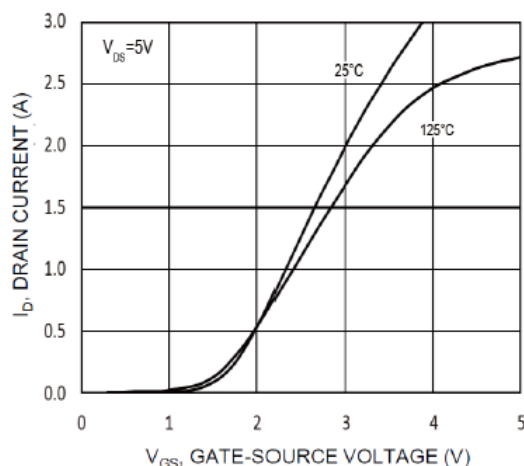


Fig. 2 Typical Transfer Characteristics

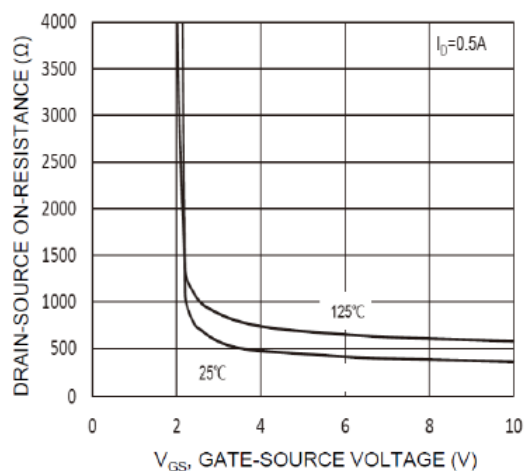


Fig. 3 Typical On-Resistance vs. V_{GS}

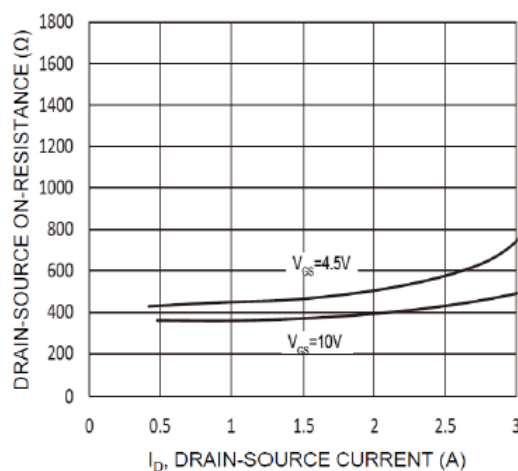


Fig. 4 Typical On-Resistance vs. I_D

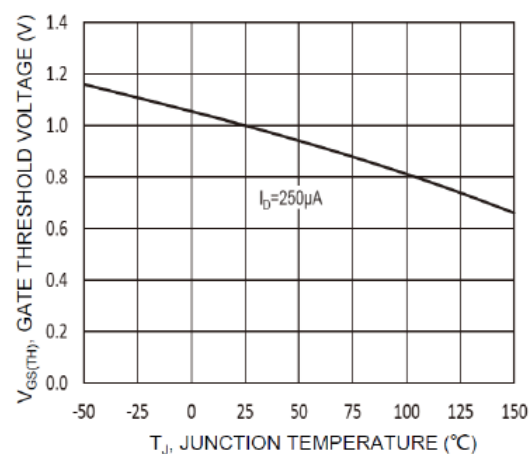


Fig. 5 Normalized Threshold Voltage

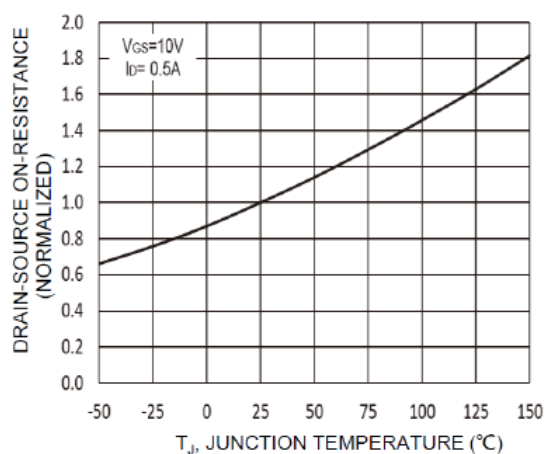
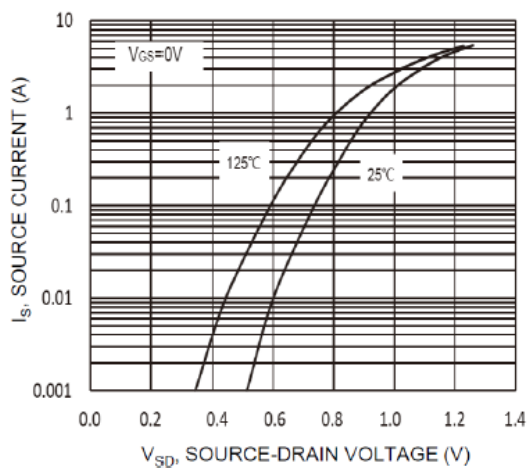
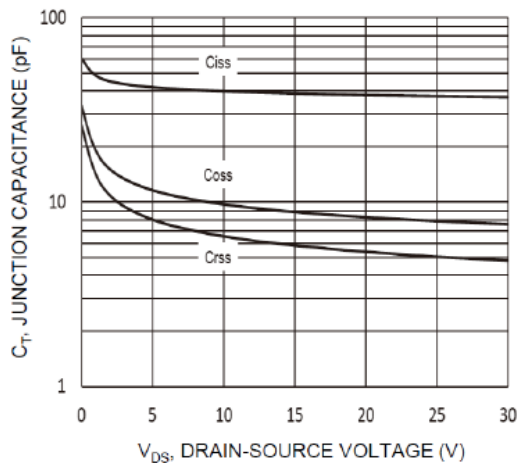
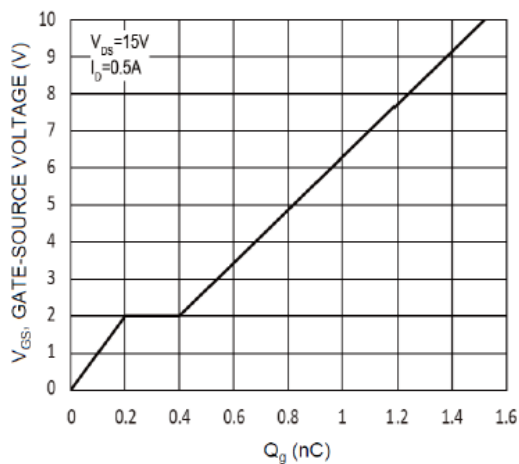
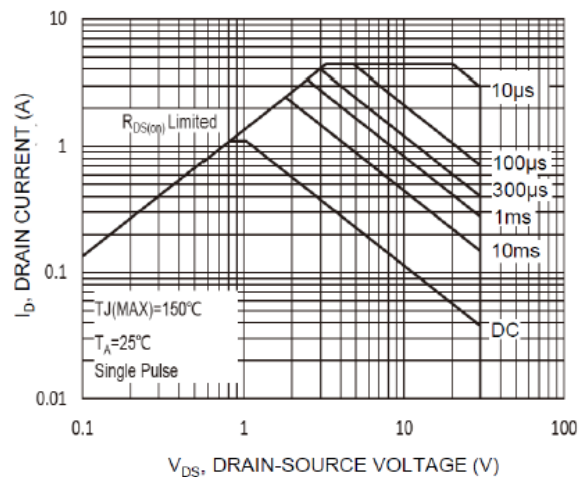
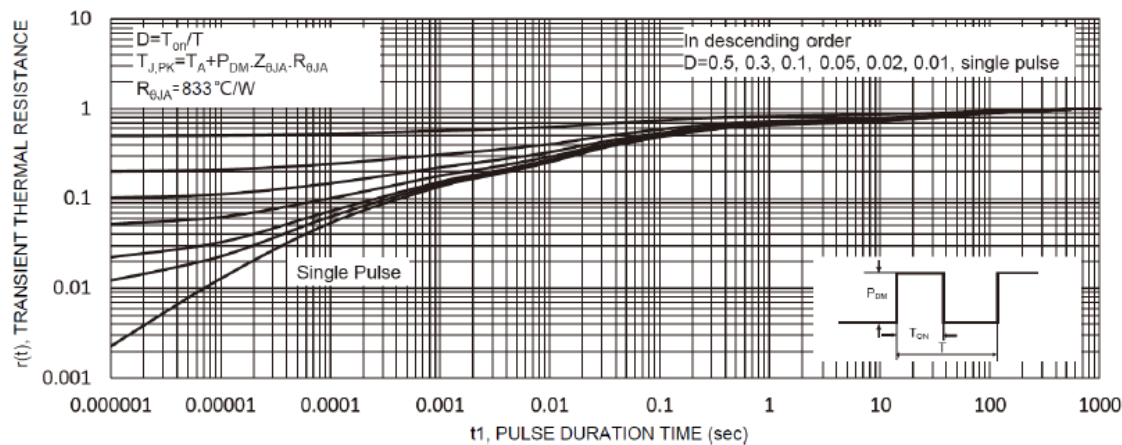
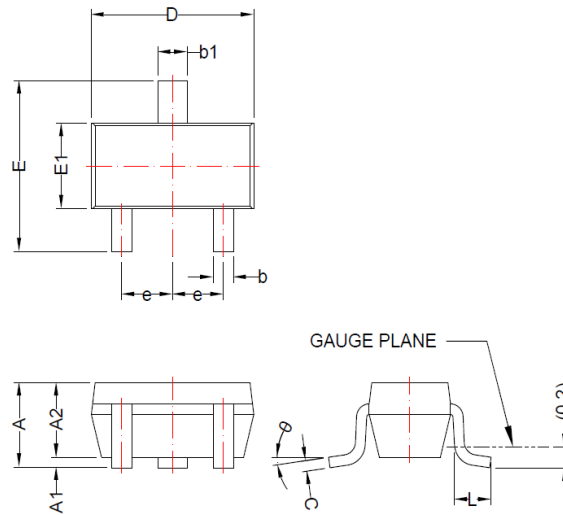


Fig. 6. On-Resistance Variation with T_J

Typical Performance Characteristics(continue)

Fig. 7 Diode Forward Voltage vs. Current

Fig. 8 Typical Capacitance

Fig. 9 Gate Charge

Fig. 10 Safe Operation Area

Fig. 11 Transient Thermal Response

Package Dimension:
SOT-523


Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.60	0.95	0.024	0.037
A1	0.00	0.10	0.000	0.004
A2	0.60	0.85	0.024	0.033
b	0.15	0.30	0.006	0.012
b1	0.25	0.40	0.010	0.016
c	0.08	0.25	0.003	0.010
D	1.40	1.80	0.055	0.071
E	1.40	1.80	0.055	0.071
E1	0.70	0.90	0.028	0.035
e	0.50 BSC		0.020 BSC	
L	0.26	0.45	0.010	0.018
θ	0°	8°	0°	8°

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