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.

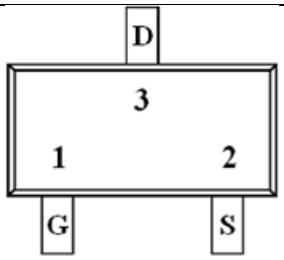
These devices are particularly suited for low voltage power management, such as smart phone and notebook computer, and low in-line power loss are needed in commercial industrial surface mount applications.

Applications

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

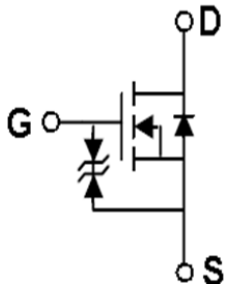
Pin Configuration

LMN3660 EX7F (SOT-523)



Transparent top view

Pin	Description
1	Gate
2	Source
3	Drain



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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
0WM	0	WM

Absolute Maximum Ratings

(T_C=25ºC 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℃[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	℃
T_{STG}	Storage Temperature Range		-55 to +150	℃
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient[1]		450	℃/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%.

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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	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		

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Typical Performance Characteristics

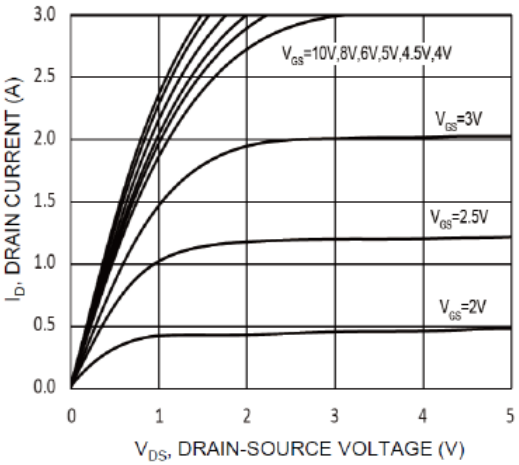

Fig. 1 Typical Output Characteristics

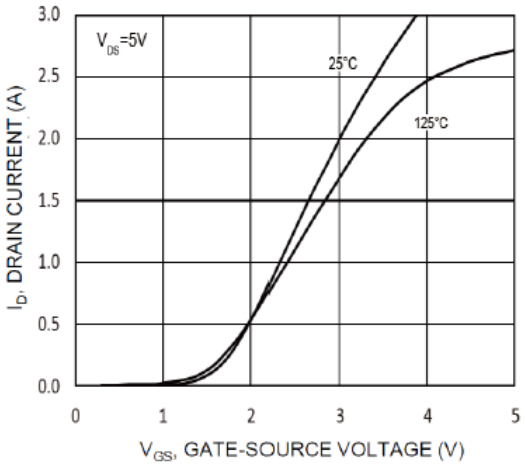

Fig. 2 Typical Transfer Characteristics

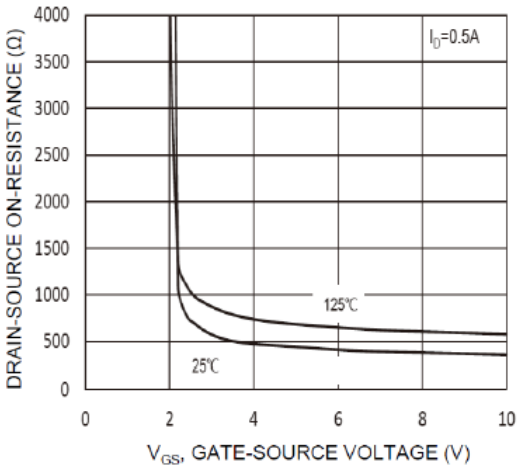

Fig. 3 Typical On-Resistance vs. V_{GS}

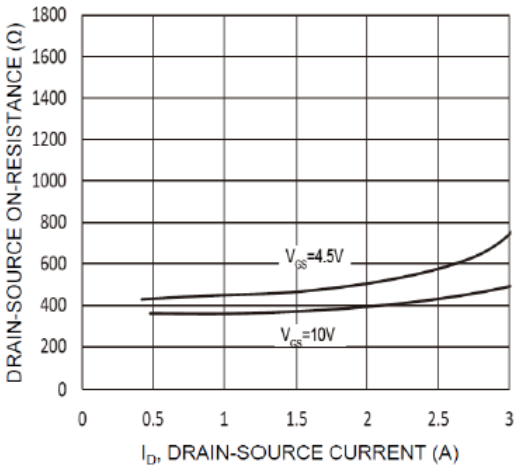

Fig. 4 Typical On-Resistance vs. I_D

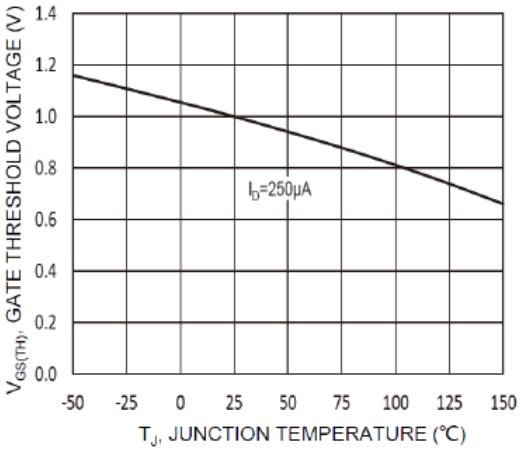

Fig. 5 Normalized Threshold Voltage

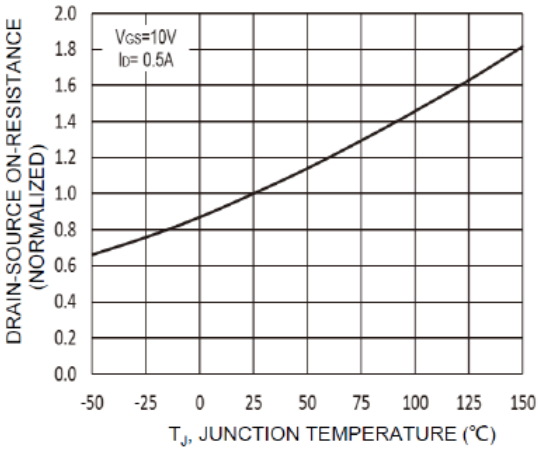

Fig 6. On-Resistance Variation with T_J

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Typical Performance Characteristics(continue)

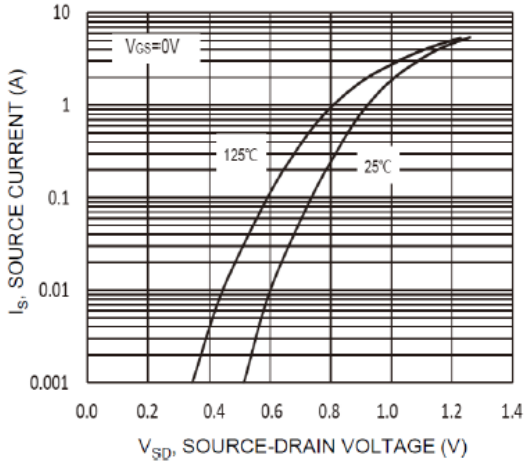

Fig. 7 Diode Forward Voltage vs. Current

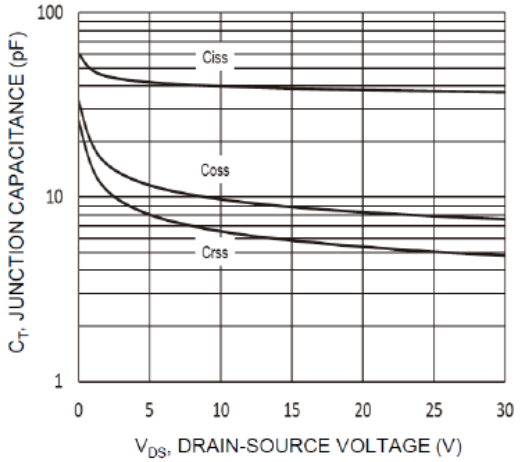

Fig. 8 Typical Capacitance

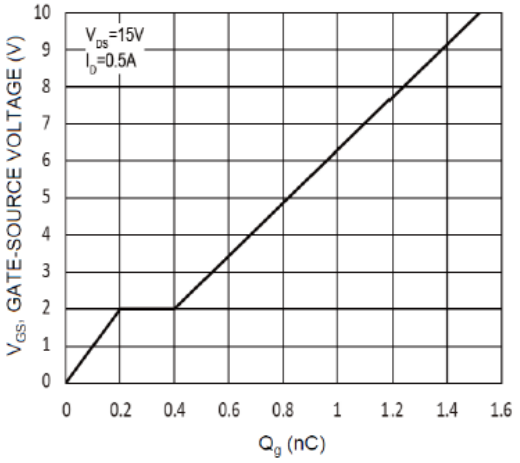

Fig. 9 Gate Charge

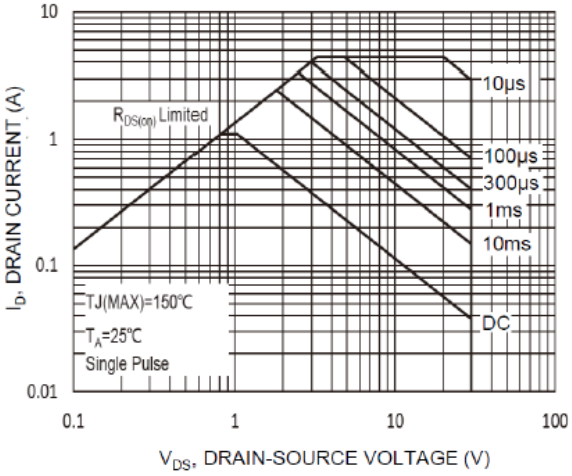

Fig. 10 Safe Operation Area

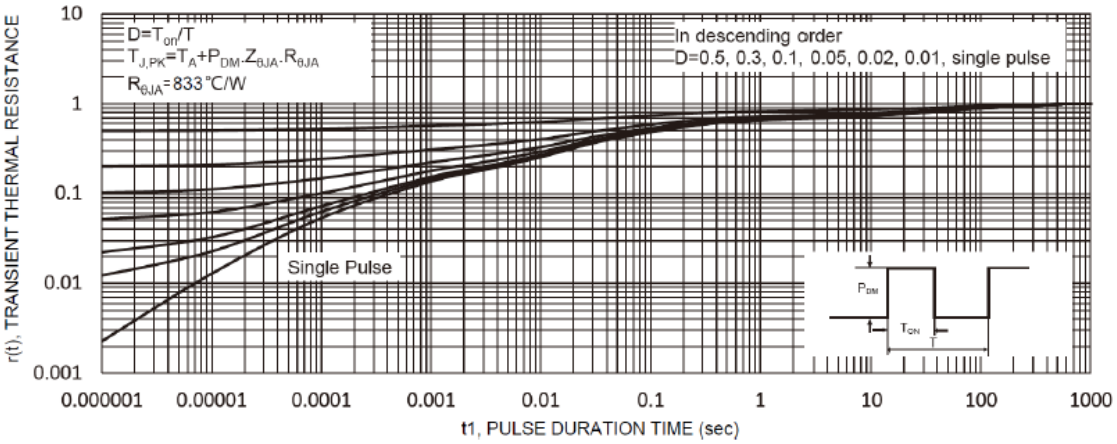

Fig. 11 Transient Thermal Response

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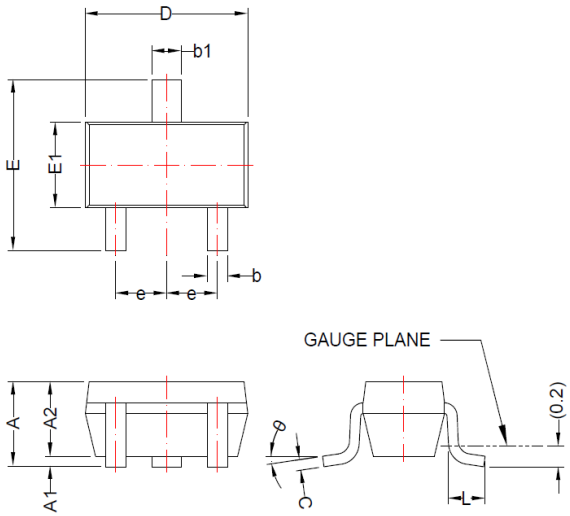
Package Dimension:

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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