

LMNN7002KY Dual N-Channel Enhancement Mode MOSFET

Features

- 60V/0.5A, $R_{DS(ON)}=3.0\Omega@V_{GS}=10V$
- 60V/0.2A, $R_{DS(ON)}=4.0\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-563 package design

Product Description

The LMNN7002KY is the Dual N-Channel enhancement mode field effect transistors are produced using high cell density DMOS technology.

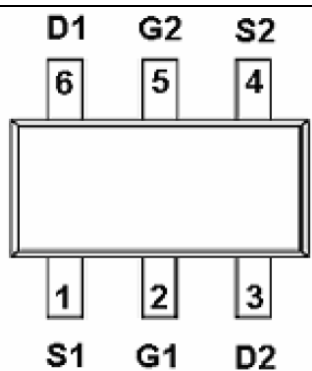
These products have been designed to minimize on-state resistance while provide rugged, reliable, and fast switching performance.

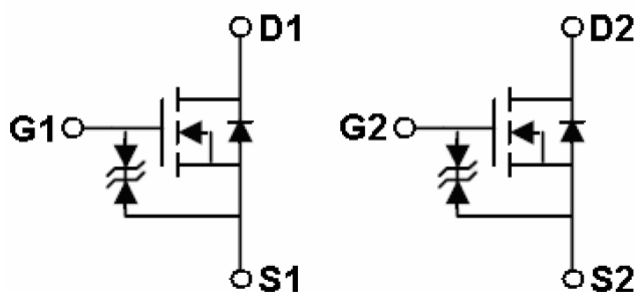
They can be used in most applications requiring up to 640mA DC and can deliver pulsed currents up to 950mA. These products are particularly suited for low voltage, low current applications such as small servo motor control, power MOSFET gate drivers, and other switching applications.

Applications

- Drivers: Relays, Solenoids, Lamps, Hammers, Display, Memories, Transistors, etc.
- High saturation current capability. Direct Logic-Level Interface: TTL/CMOS
- Battery Operated Systems
- Solid-State Relays

Pin Configuration

LMNN7002KYX7F (SOT-563)		
		
PIN	Description	
1	Source 1	
2	Gate 1	
3	Drain 2	
4	Source 2	
5	Gate 2	
6	Drain 1	



Ordering Information

Ordering Information					
Part Number	P/N	PKG code	Pb Free code	Package	Quantity
LMNN7002KYX7F	LMNN7002KY	X7	F	SOT-563	4000pcs

Marking Information

Marking Information	
Part Number	LFC code
<u>e2</u>	<u>XW</u>

Absolute Maximum Ratings

(T_C=25°C Unless otherwise noted)

Symbol	Parameter	Typical	Unit
V _{DS}	Drain-Source Voltage	60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current	T _A =25°C	A
		T _A =70°C	
I _{DM}	Pulsed Drain Current ¹	0.95	A
P _D	Power Dissipation	T _A =25°C	W
		T _A =70°C	
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	357	°C/W

1) Pulse width limited by safe operating area.

Electrical Characteristics

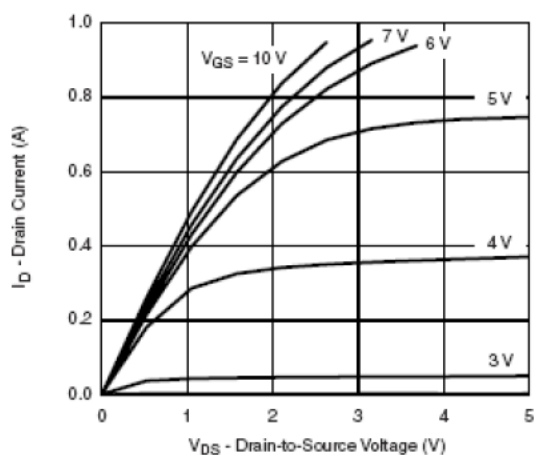
(T_C=25°C Unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static characteristics						
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	1		2.5	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±10	uA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V, T _J =25°C			1	uA
		V _{DS} =60V, V _{GS} =0V, T _J =85°C			30	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =500mA			3	Ω
		V _{GS} =4.5V, I _D =200mA			4	
Dynamic characteristics						
Q _g	Total Gate Charge	V _{DD} =10V, V _{GS} =4.5V, I _D =0.25A		1000		pC
Q _{gs}	Gate-Source Charge			100		
Q _{gd}	Gate-Drain Charge			150		
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1.0MHz		32		pF
C _{oss}	Output Capacitance			8		
C _{rss}	Reverse Transfer Capacitance			6		
t _{d(on)}	Turn-On Time	V _{DD} =30V, V _{GEN} =4.5V, R _G =10Ω, I _D =0.2A, R _L =150Ω		10	20	ns
t _r				35	50	
t _{d(off)}	Turn-Off Time			20	30	
t _f				40	60	
V _{SD}	Diode Forward Voltage	I _S =0.2A, V _{GS} =0V		0.7	1.3	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =0.2A		0.2		S
I _S	Continuous Source Current	V _G = V _D =0V, Force Current			450	mA

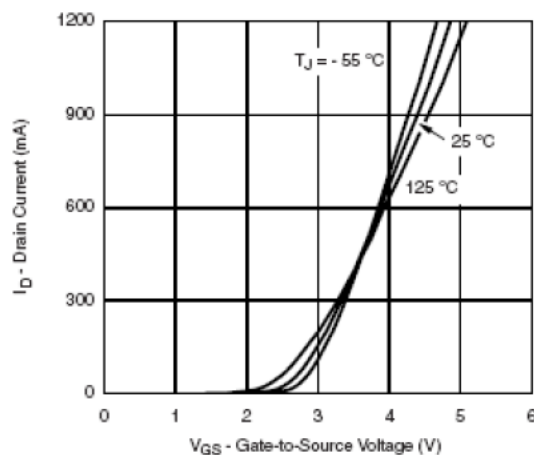
Note

1. The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.
2. Essentially independent of operating temperature.

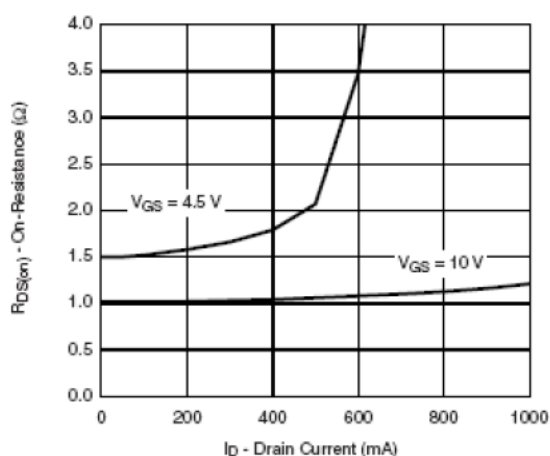
Typical Performance Characteristics



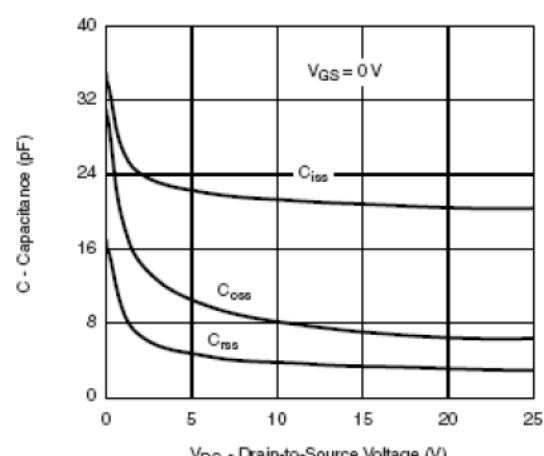
Output Characteristics



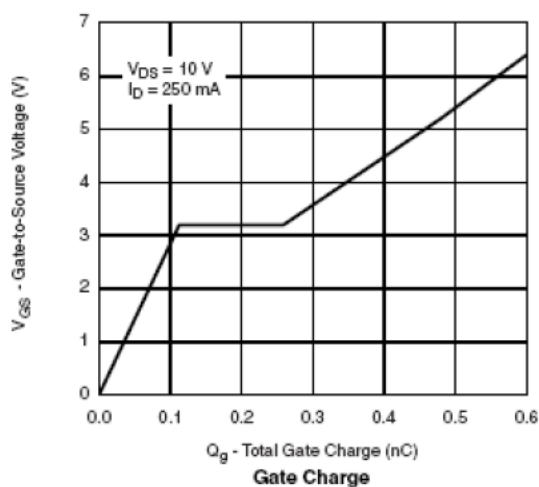
Transfer Characteristics



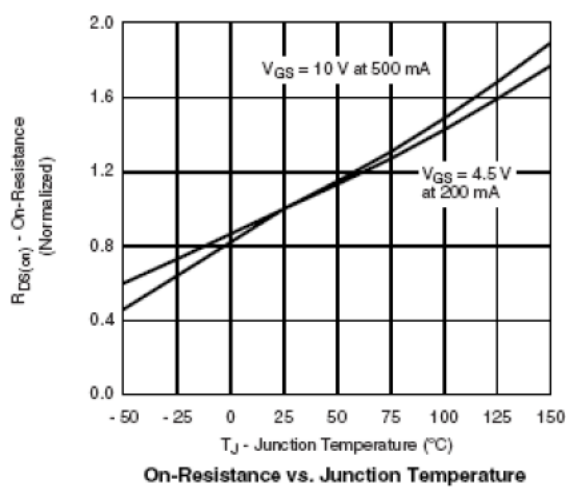
On-Resistance vs. Drain Current



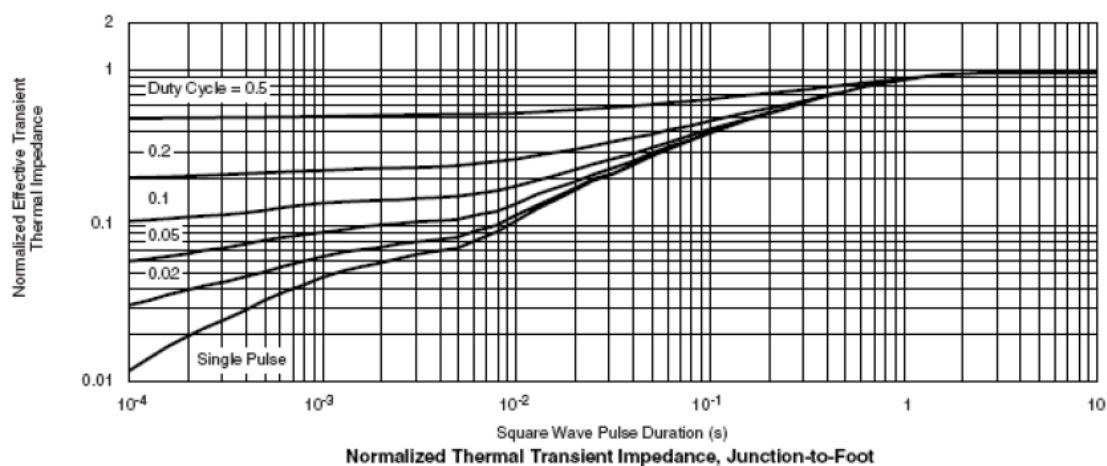
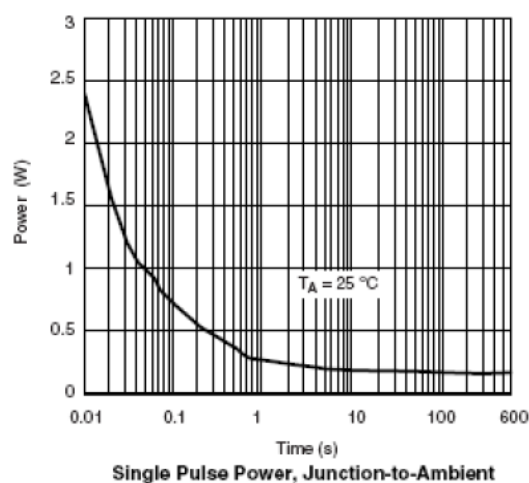
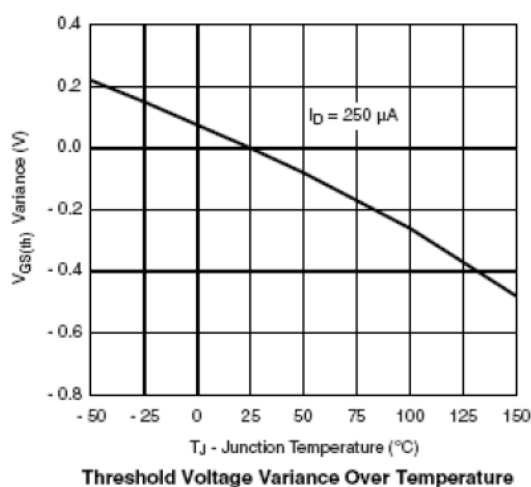
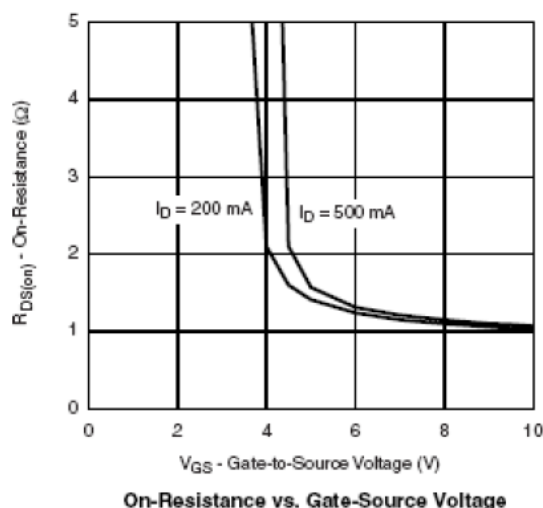
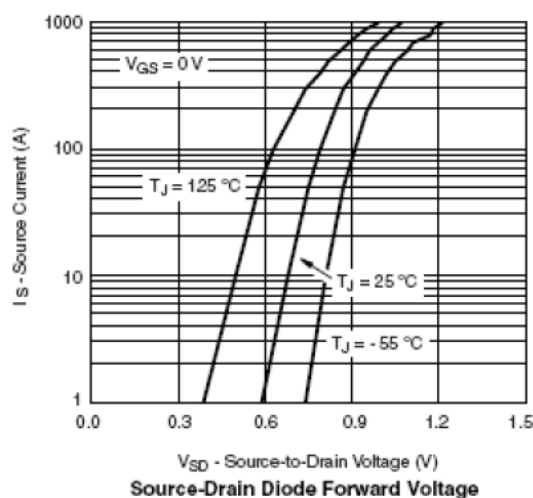
Capacitance

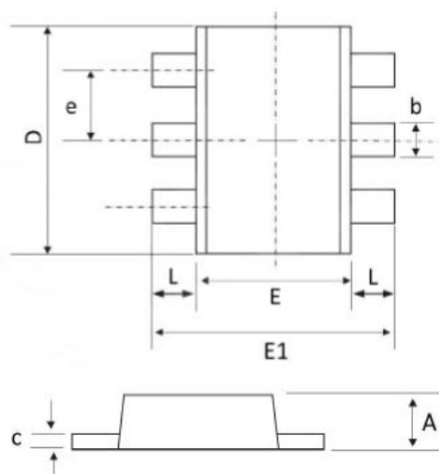


Gate Charge



On-Resistance vs. Junction Temperature

Typical Performance Characteristics(continue)


Package Dimension:
SOT-563


Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.500	0.600	0.020	0.024
b	0.150	0.300	0.006	0.012
c	0.100	0.180	0.004	0.007
D	1.500	1.700	0.059	0.067
E	1.100	1.250	0.043	0.049
E1	1.550	1.700	0.061	0.067
e	0.5 BSC		0.02 BSC	
L	0.100	0.300	0.004	0.012

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