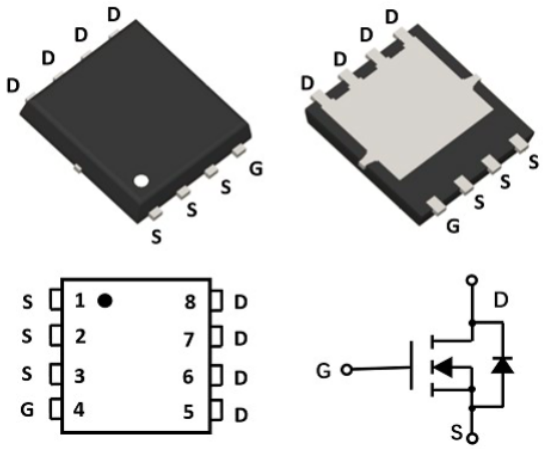
Leading Circuit Protection
Products and Solutions

LX5060D80N60
N-Channel Enhancement Mode Field Effect Transistor

Product Summary

- V_{DS} 60V
- I_D 80A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜7.5 mohm
- $R_{DS(ON)}$(at V_{GS}=4.5V) ＜9.5 mohm
- 100% UIS Tested
- 100% ▽V_{DS} Tested

PDFN5060-8L



General Description

- Split Gate Trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Applications

- DC-DC Converters
- Power management functions
- Industrial and Motor Drive application

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	60	V
Gate-source Voltage		V_{GS}	±20	V
Drain Current (Silicon limited)	Tc=25℃	I_D	80	A
	Tc=100℃		44	
Pulsed Drain Current A		I_{DM}	210	A
Avalanche energy B		E_{AS}	162	mJ
Total Power Dissipation C	Tc=25℃	P_D	70	W
	Tc=100℃		28	
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	℃

Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient D	t≤10S	$R_{\theta JA}$	14	17	℃/W
Thermal Resistance Junction-to-Ambient D	Steady-State		40	55	
Thermal Resistance Junction-to-Case	Steady-State	$R_{\theta JC}$	1.3	1.8	

Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
LX5060D80N60	F1	80N06AG	5000	10000	50000	13“ reel

Electrical Characteristics (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=250μA	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V, T_J=25℃			1	μA
		V_{DS}=60V,V_{GS}=0V, T_J=55℃			5	
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±20V, V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250μA	1.0	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 10V, I_D=20A		5.3	7.5	mΩ
		V_{GS}= 4.5V, I_D=10A		6.9	9.5	
Diode Forward Voltage	V_{SD}	I_S=20A,V_{GS}=0V		0.85	1.3	V
Maximum Body-Diode Continuous Current	I_S				70	A
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=35V,V_{GS}=0V,f=1MHZ		2000		pF
Output Capacitance	C_{oss}			390		
Reverse Transfer Capacitance	C_{rss}			13		
Gate Resistance	R_g	f=1MHZ, Open drain		1.6		Ω
Switching Parameters						
Total Gate Charge	Q_g(10V)	V_{DS}=30V,I_D=20A		34		nC
Total Gate Charge	Q_g(4.5V)			15.8		
Gate-Source Charge	Q_{gs}			7.8		
Gate-Drain Charge	Q_{gd}			5.2		
Reverse Recovery Charge	Q_{rr}	I_F=20A, di/dt=200A/us		36		
Reverse Recovery Time	t_{rr}			27		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=10V,V_{DD}=30V,I_D=12A R_{GEN}=3Ω		10		
Turn-on Rise Time	t_r			36		
Turn-off Delay Time	$t_{D(off)}$			30		
Turn-off fall Time	t_f			57		

A. Repetitive rating; pulse width limited by max. junction temperature.
B. V_{DD}=50V, R_G=25Ω, L=1mH, I_{AS}=18A,.
C. Pd is based on max. junction temperature, using junction-case thermal resistance.
D. The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The Power dissipation P_{DSM} is based on $R_{\theta JA}$ t≤ 10s and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.

Typical Performance Characteristics

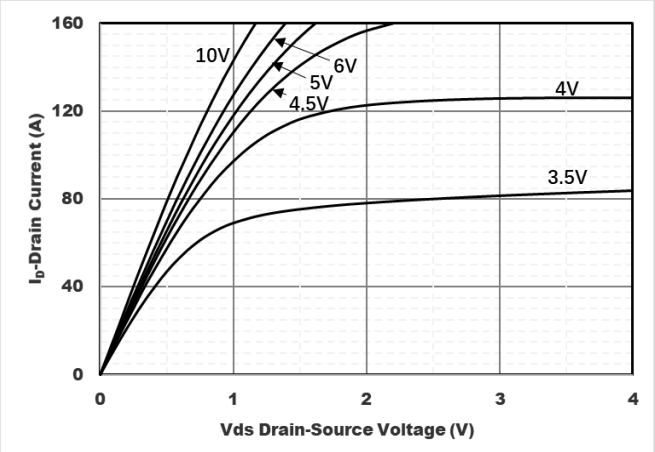


Figure1. Output Characteristics

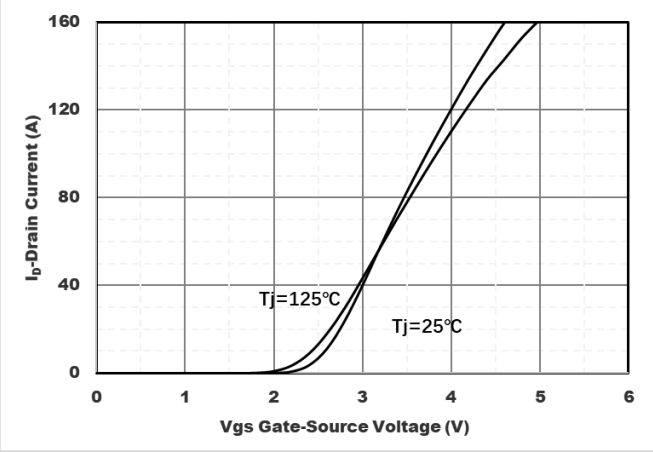


Figure2. Transfer Characteristics

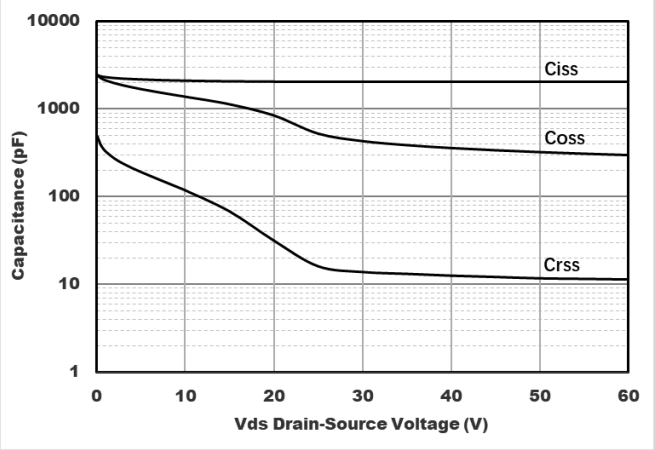


Figure3. Capacitance Characteristics

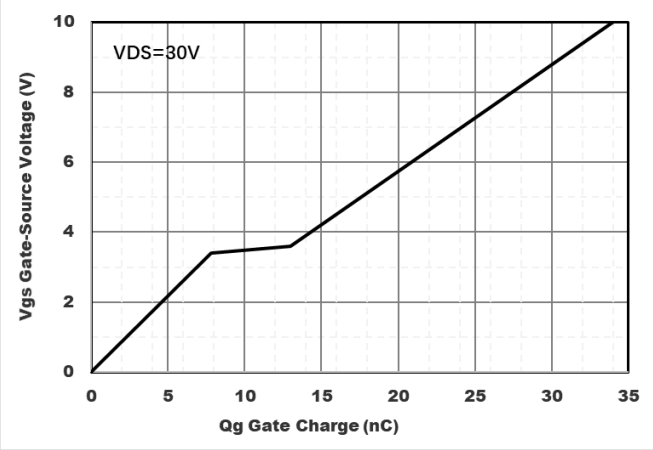


Figure4. Gate Charge

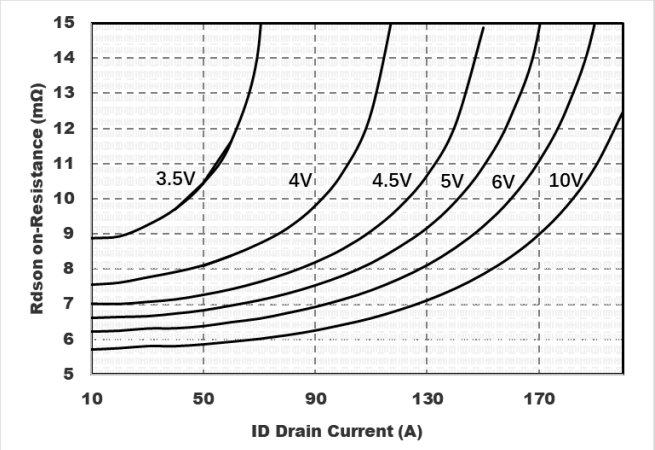


Figure5. Drain-Source on Resistance

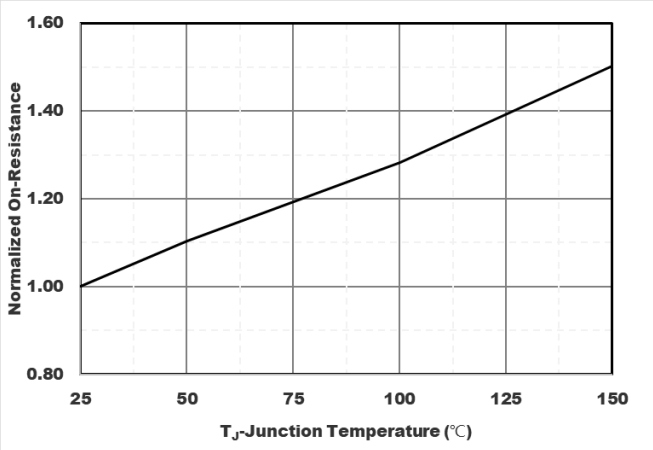


Figure6. Normalized On-Resistance

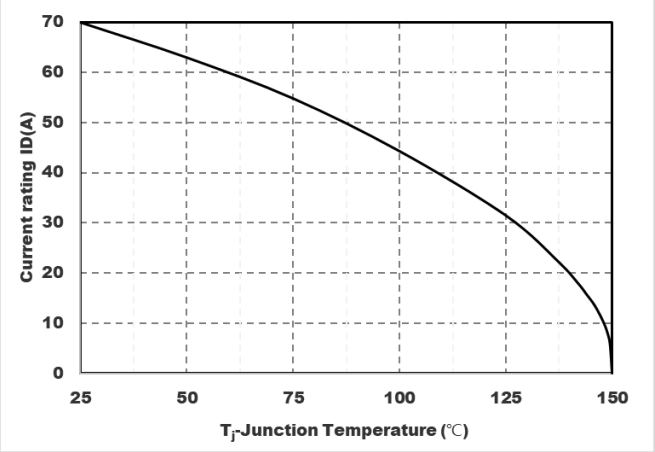


Figure7. Drain current

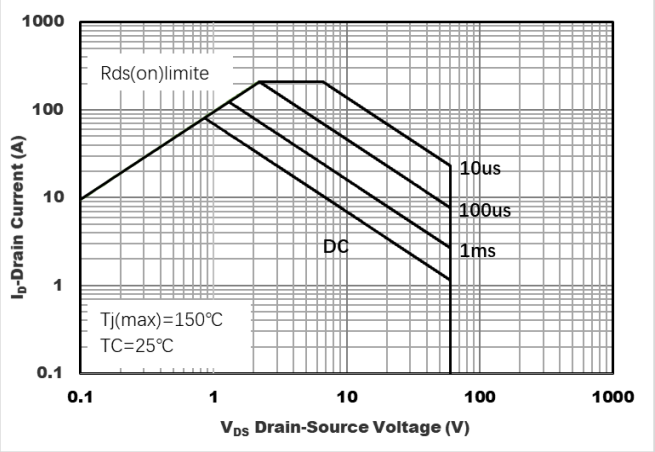


Figure8. Safe Operation Area

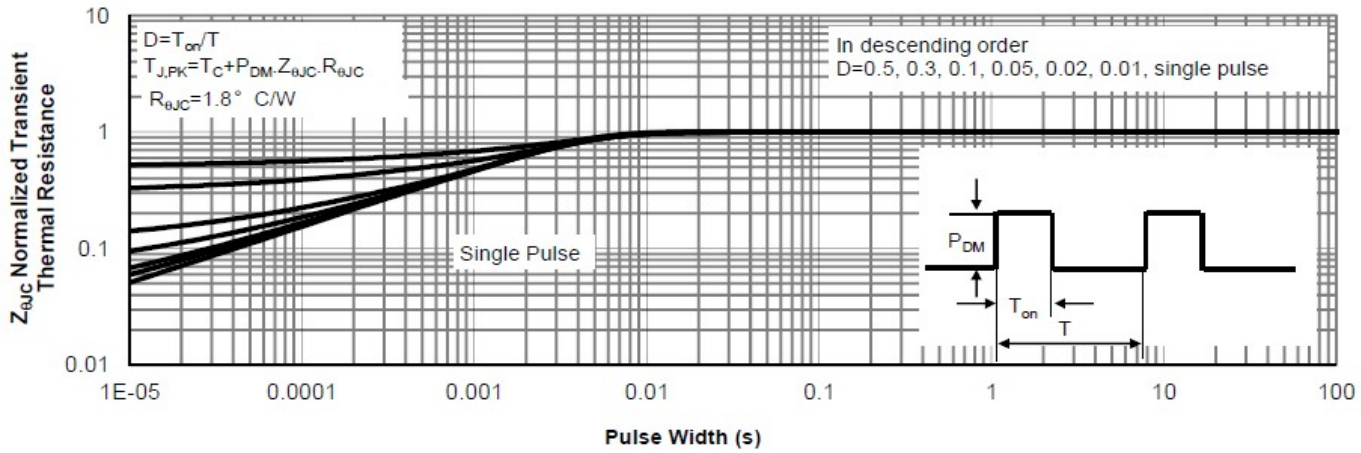
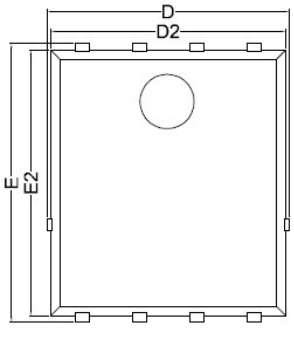
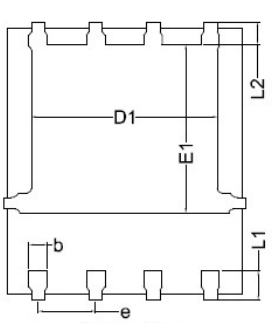


Figure8. Normalized Maximum Transient Thermal Impedance

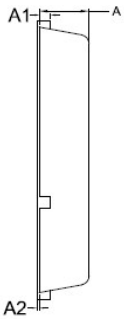
PDFN5060-8L Package information



Top View
正面视图

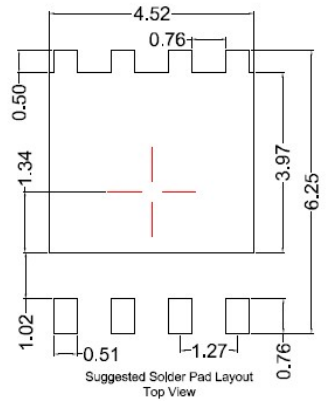


Bottom View
背面视图



Side View
侧面视图

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	5.15	5.35	5.55
E	5.95	6.15	6.35
A	1.00	1.10	1.20
A1		0.254 BSC	
A2			0.10
D1	3.92	4.12	4.32
E1	3.52	3.72	3.92
D2	5.00	5.20	5.40
E2	5.66	5.86	6.06
L1	0.56	0.66	0.76
L2		0.50 BSC	
b	0.31	0.41	0.51
e		1.27 BSC	



Suggested Solder Pad Layout
Top View

Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.10mm.
3.The pad layout is for reference purposes only.