

General Features

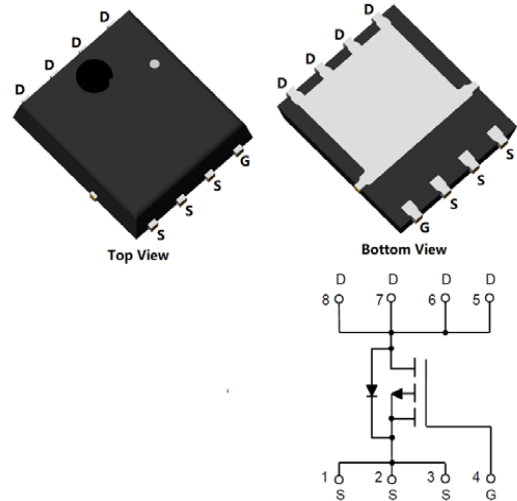
- $V_{DS} = -30V, I_D = -65A$
 $R_{DS(ON)}$ Typ = $7.0m\Omega$ @ $V_{GS} = -4.5V$
 $R_{DS(ON)}$ Typ = $11m\Omega$ @ $V_{GS} = -2.5V$
- High density cell design for ultra low R_{dson}
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

Application

- Load switch
- Battery protection

Description

The LX65P30C uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
65P03	LX65P30C	PDFN3x3-8L		-	-

Absolute Maximum Ratings ($T_C = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	-65	A
Drain Current-Continuous($T_C = 100^\circ C$)	$I_D(100^\circ C)$	-32	A
Pulsed Drain Current	I_{DM}	-220	A
Maximum Power Dissipation	P_D	75	W
Derating factor		0.59	W/ $^\circ C$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ C$

Thermal Characteristic

Thermal Resistance, Junction_to_Case ^(Note 2)	$R_{\theta JC}$	1.6	$^\circ C/W$
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Electrical Characteristics (T_c=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =-250μA	-30	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.5	-3.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-20A	-	7.0	8.0	mΩ
		V _{GS} =-4.5V, I _D =-10A	-	11	13	
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-20A	80	-	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, F=1.0MHz	-	4100	-	PF
Output Capacitance	C _{oss}		-	490	-	PF
Reverse Transfer Capacitance	C _{rss}		-	452	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-10V, R _{GEN} =3Ω V _{GS} =-4.5V, R _L =0.5Ω	-	18	-	nS
Turn-on Rise Time	t _r		-	42	-	nS
Turn-Off Delay Time	t _{d(off)}		-	85	-	nS
Turn-Off Fall Time	t _f		-	23	-	nS
Total Gate Charge	Q _g	V _{DS} =-10V, I _D =-20A, V _{GS} =-4.5V	-	55	-	nC
Gate-Source Charge	Q _{gs}		-	10	-	nC
Gate-Drain Charge	Q _{gd}		-	15	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V, I _S =-20A	-	-	-1.2	V
Diode Forward Current (Note 2)	I _S		-	-	-65	A
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = -10A di/dt = 100A/μs (Note3)	-	47	-	nS
Reverse Recovery Charge	Q _{rr}		-	53	-	nC
Forward Turn-On Time	t _{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Typical Electrical and Thermal Characteristics (Curves)

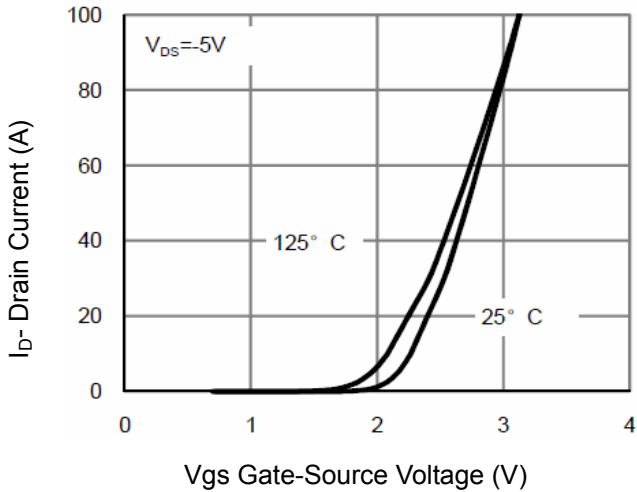


Figure 7 Transfer Characteristics

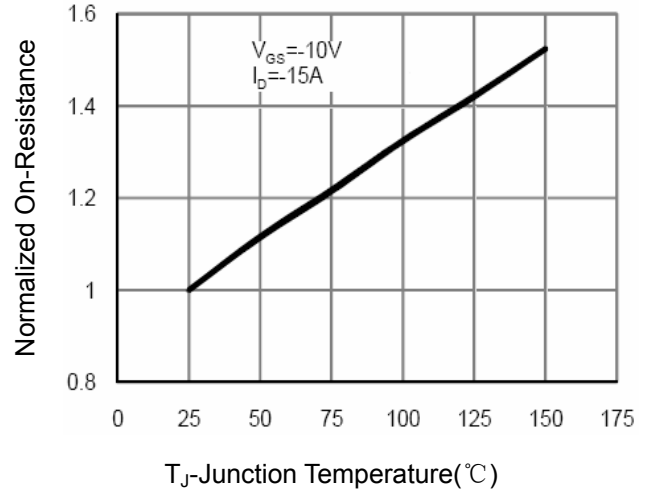


Figure 8 Drain-Source On-Resistance

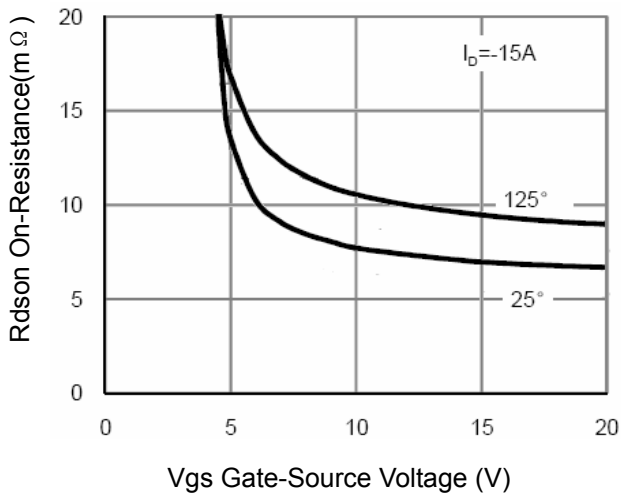


Figure 9 Rdson vs Vgs

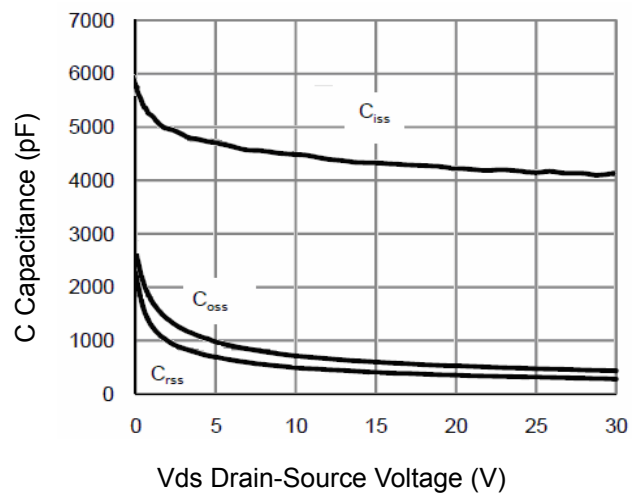


Figure 10 Capacitance vs Vds

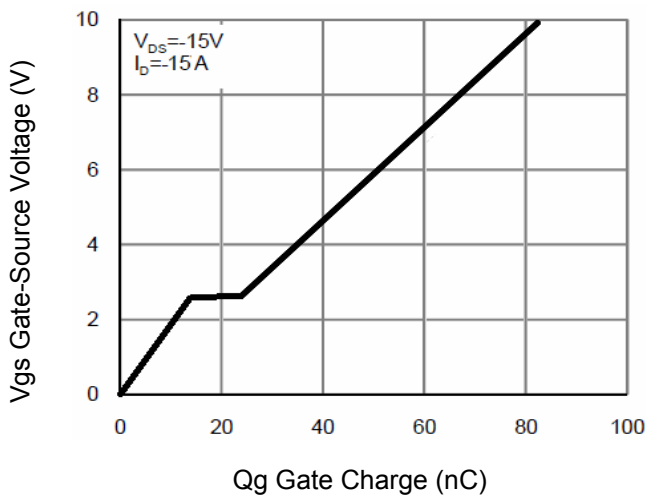


Figure 11 Gate Charge

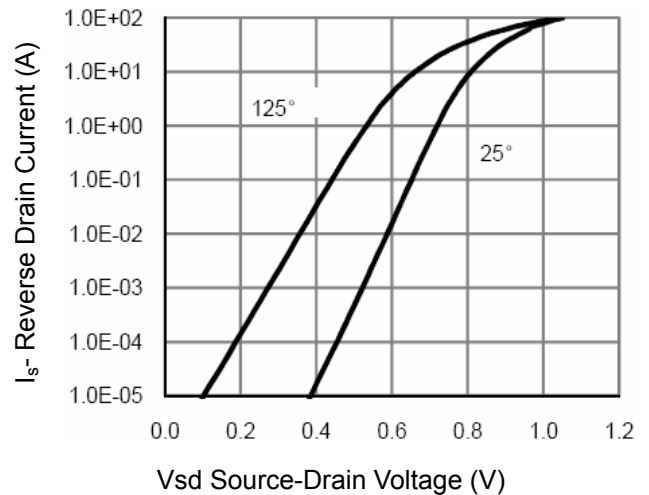


Figure 12 Source- Drain Diode Forward

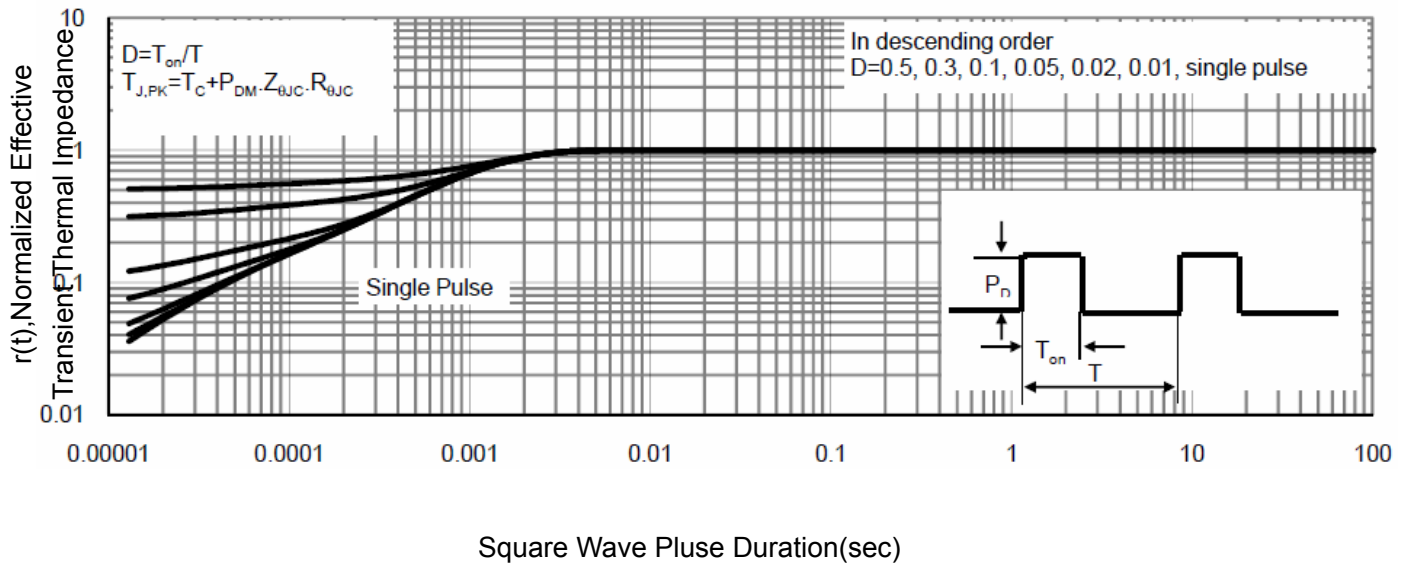
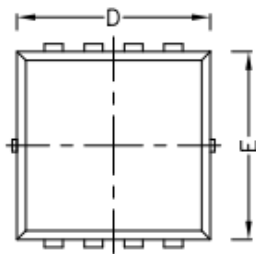
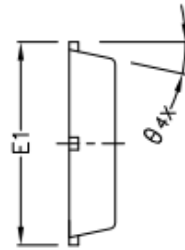


Figure 13 Normalized Maximum Transient Thermal Impedance

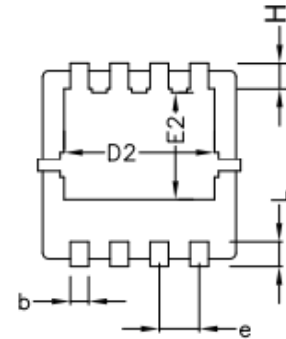
PDFN3x3-8L-S Package information



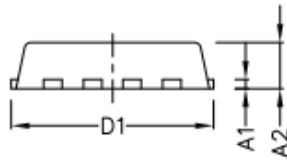
TOP VIEW



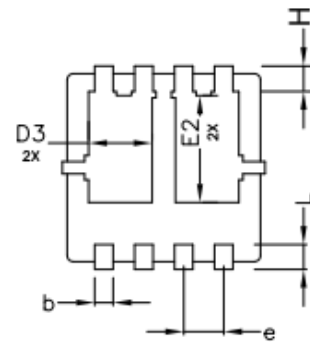
SIDE VIEW



BOTTOM VIEW
OPTION 1



SIDE VIEW



BOTTOM VIEW
OPTION 2

COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A1	0.152 BSC		
A2	0.700	0.800	0.900
b	0.250	-	0.400
D	3.050	3.150	3.250
D1	3.200	3.300	3.400
D2	2.350	2.450	2.550
D3	0.935	1.035	1.135
E1	3.200	3.300	3.400
E	2.900	3.000	3.100
E2	1.635	1.735	1.835
e	0.650 REF		
L	0.300	0.400	0.500
H	0.250	-	0.630
θ	12° TYPE		