

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	30mΩ@10V	9A
	35mΩ@4.5V	



合肥矽普半导体

Siliup Semiconductor Technology Co., Ltd

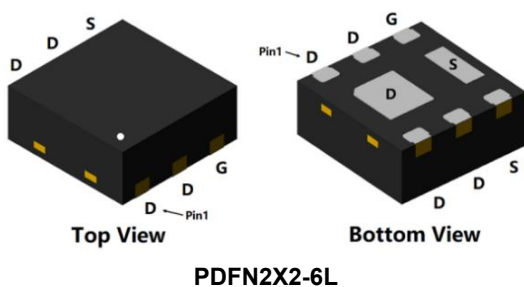
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Feature

- Low On-Resistance
- Low Input Capacitance

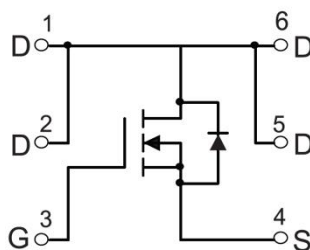
Package



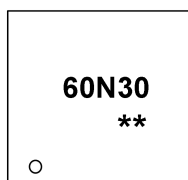
Application

- Power Management Functions
- DC-DC Converters

Circuit diagram



Marking



60N30
**

:Device Code
:Week Code

Order Information

Device	Package	Unit/Tape
SP60N30NQ	PDFN2X2-6L	3000

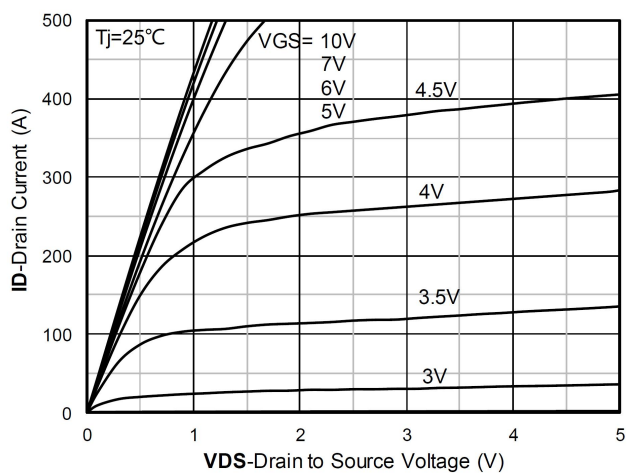
Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	9	A
Pulsed Drain Current	I_{DM}	36	A
Power Dissipation	P_D	2.1	W
Thermal Resistance from Junction-to-Ambient	$R_{\theta JA}$	59.5	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature Range	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$
Storage Temperature Range	T_J	-55 ~ +150	$^{\circ}\text{C}$

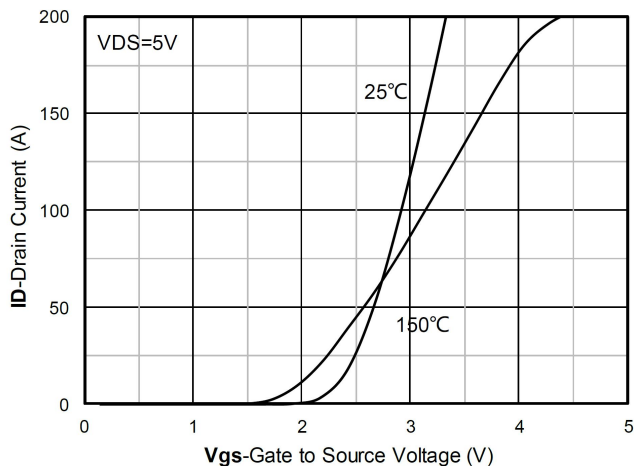
Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250uA	60	-	-	V
Drain-Source Leakage Current	IDSS	VDS=48V , VGS=0V , TJ=25℃	-	-	1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VGS=VDS , ID =250uA	1.0	1.6	2.5	V
Static Drain-Source On-Resistance	RDS(ON)	VGS =10V, ID =8A	-	30	40	mΩ
		VGS =4.5V, ID =4A	-	35	45	
Dynamic characteristics						
Input Capacitance	Ciss	VDS=15V , VGS=0V , f=1MHz	-	1180	-	pF
Output Capacitance	Coss		-	60	-	
Reverse Transfer Capacitance	Crss		-	45	-	
Total Gate Charge	Qg	VDS=30V , VGS=10V , ID=8A	-	14	-	nC
Gate-Source Charge	Qgs		-	2.9	-	
Gate-Drain Charge	Qgd		-	5.2	-	
Switching Characteristics						
Turn-On Delay Time	Td(on)	VDD=30V, VGS=10V , RG=3Ω, ID=2A	-	5	-	nS
Rise Time	Tr		-	15	-	
Turn-Off Delay Time	Td(off)		-	24	-	
Fall Time	Tf		-	2.3	-	
Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V

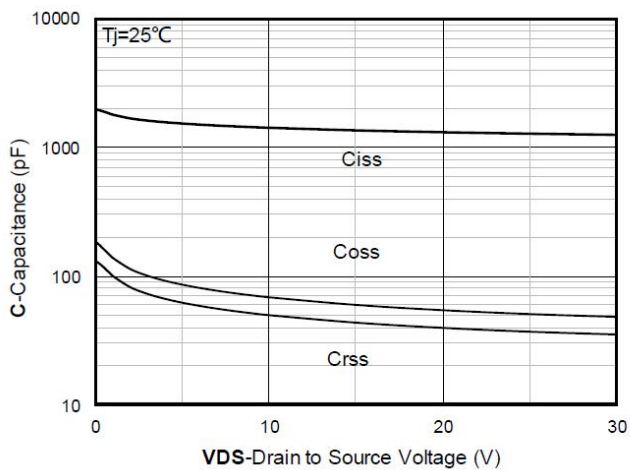
Typical Characteristics



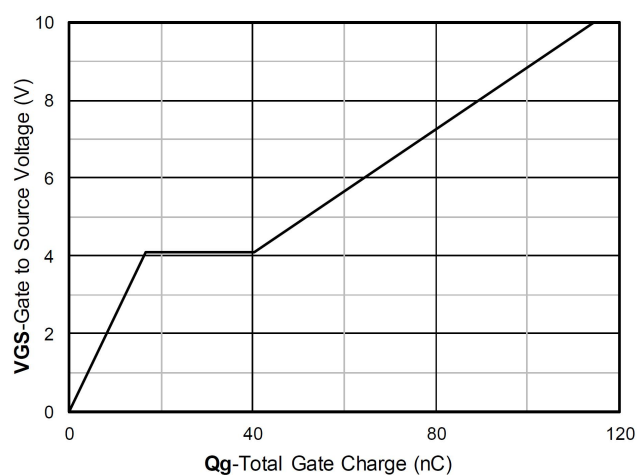
Output Characteristics



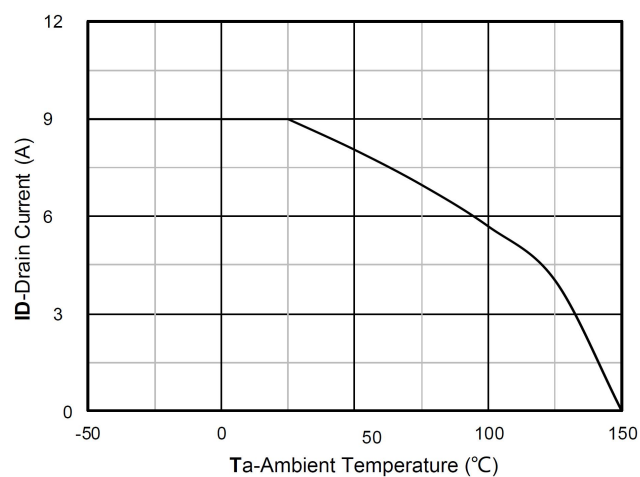
Transfer Characteristics



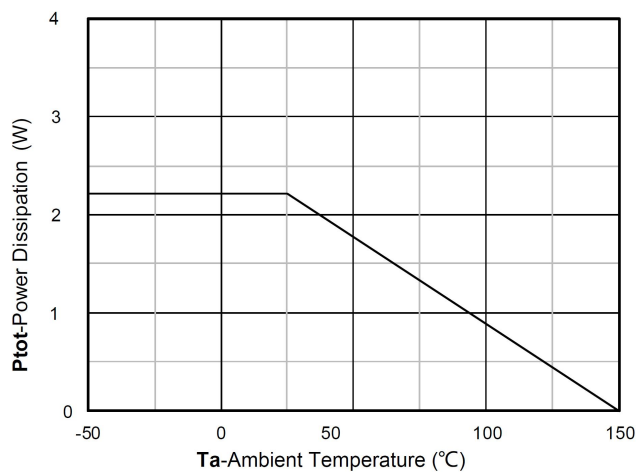
Capacitance Characteristics



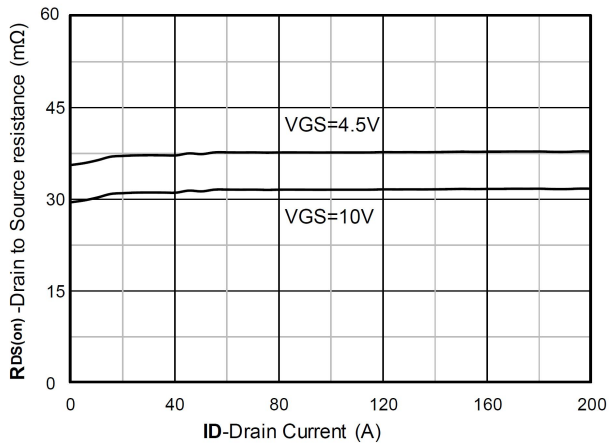
Gate Charge



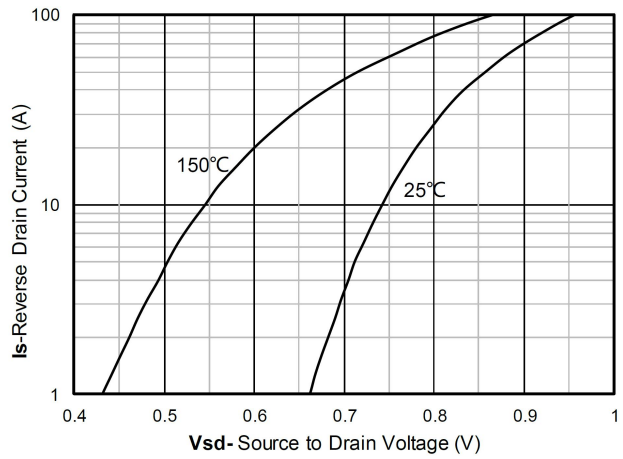
Current dissipation



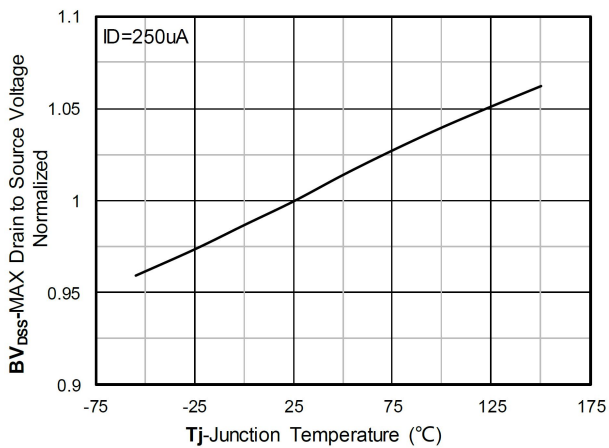
Power dissipation



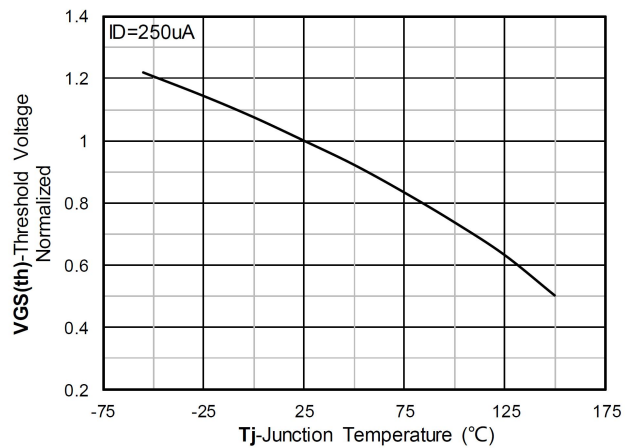
$R_{DS(on)}$ VS Drain Current



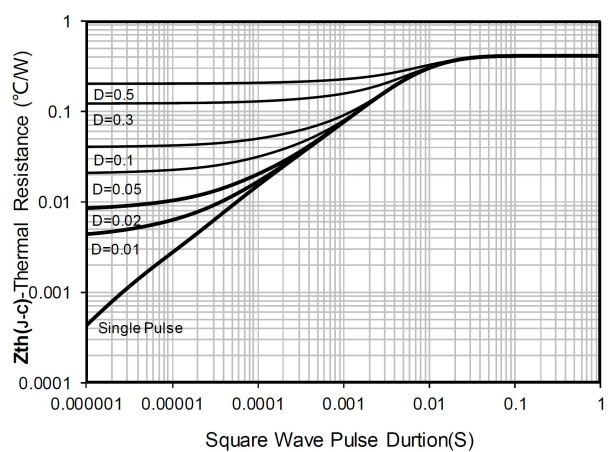
Forward characteristics of reverse diode



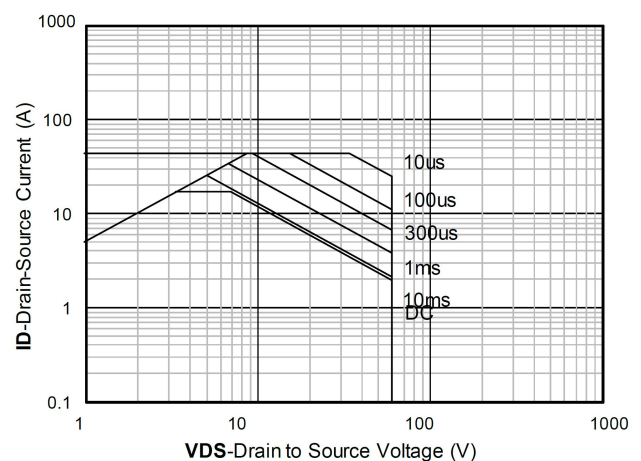
Normalized breakdown voltage



Normalized Threshold voltage

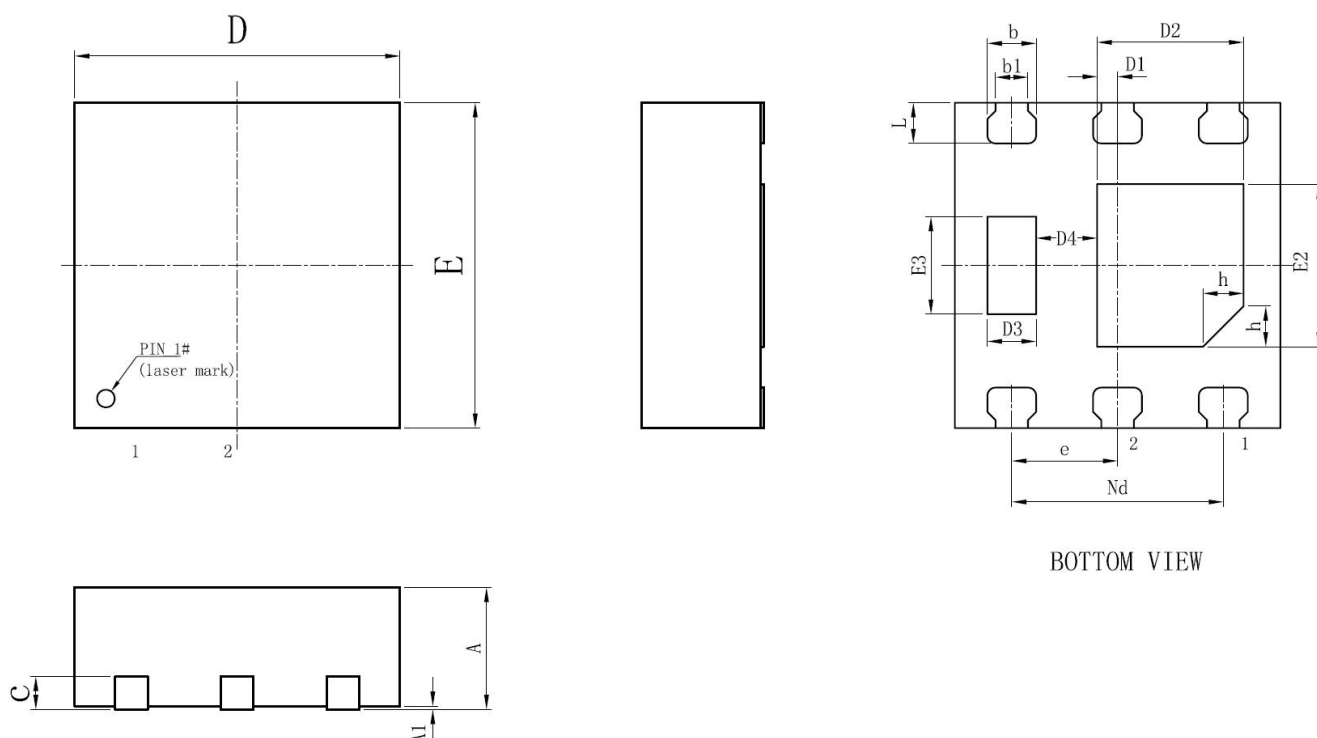


Maximum Transient Thermal Impedance



Safe Operation Area

PDFN2X2-6L Package Information



Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.70	0.75	0.80
A1		0.02	0.05
b	0.25	0.30	0.35
b1	0.20REF		
c	0.203REF		
D	1.90	2.00	2.10
D1	0.08	0.125	0.18
D2	0.85	0.90	0.95
D3	0.25	0.30	0.35
D4	0.33	0.375	0.43
e	0.65BSC		
Nd	1.30BSC		
E	1.90	2.00	2.10
E2	0.95	1.00	1.05
E3	0.55	0.60	0.65
L	0.20	0.25	0.30
h	0.25REF		