

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	$0.75m\Omega@10V$	415A



合肥矽普半导体

Siliup Semiconductor Technology Co., Ltd

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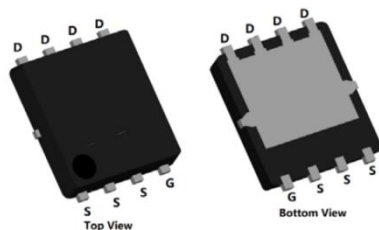
Feature

- Fast Switching
- Low Gate Charge and $R_{DS(on)}$
- Cu-Clip Process
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Applications

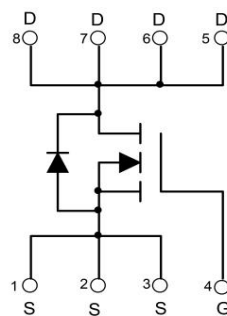
- PWM Application
- Hard switched and high frequency circuits
- Power Management

Package



PDFN5X6-8L

Circuit diagram



Marking



SP30N01AGHNP :Device Code
** :Week Code

Order Information

Device	Package	Unit/Tape
SP30N01AGHNP	PDFN5X6-8L	5000

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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current (Tc=25°C)	I_D	415	A
Continuous Drain Current (Tc=100°C)	I_D	263	A
Pulsed Drain Current	I_{DM}	1660	A
Single Pulse Avalanche Energy ¹	E_{AS}	1800	mJ
Power Dissipation (Tc=25°C)	P_D	200	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	0.63	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

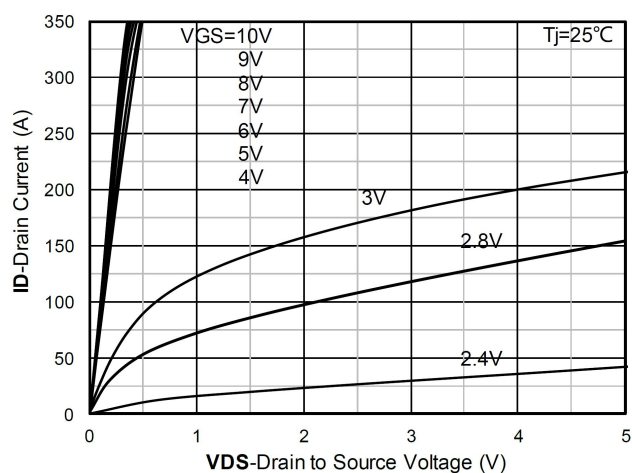
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250uA	30	-	-	V
Drain-Source Leakage Current	IDSS	VDS=24V , 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	2	3	4	V
Static Drain-Source On-Resistance	RDS(ON)	VGS=10V , ID=50A	-	0.75	0.93	mΩ
Dynamic characteristics						
Input Capacitance	Ciss	VDS=15V , VGS=0V , f=1MHz	-	6200	-	pF
Output Capacitance	Coss		-	3600	-	
Reverse Transfer Capacitance	Crss		-	160	-	
Total Gate Charge	Qg	VDS=15V , VGS=10V , ID=20A	-	98	-	nC
Gate-Source Charge	Qgs		-	18	-	
Gate-Drain Charge	Qgd		-	15	-	
Switching Characteristics						
Turn-On Delay Time	Td(on)	VDD=15V , VGS=10V , RG=1.6Ω , ID=20A	-	16	-	nS
Rise Time	Tr		-	38	-	
Turn-Off Delay Time	Td(off)		-	88	-	
Fall Time	Tf		-	23	-	
Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V
Maximum Body-Diode Continuous Current	IS		-	-	415	A
Reverse Recovery Time	Trr	IS=100A, di/dt=200A/us, TJ=25℃	-	55	-	nS
Reverse Recovery Charge	Qrr		-	125	-	nC

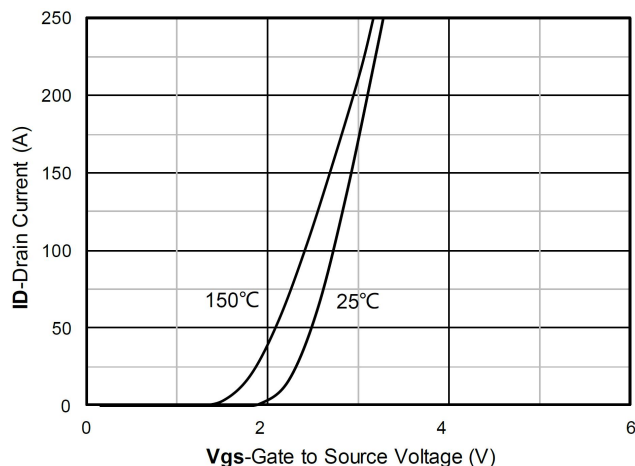
Note :

1. The test condition is $V_{DD}=15V, V_{GS}=10V, L=0.5mH, R_G=25\Omega$

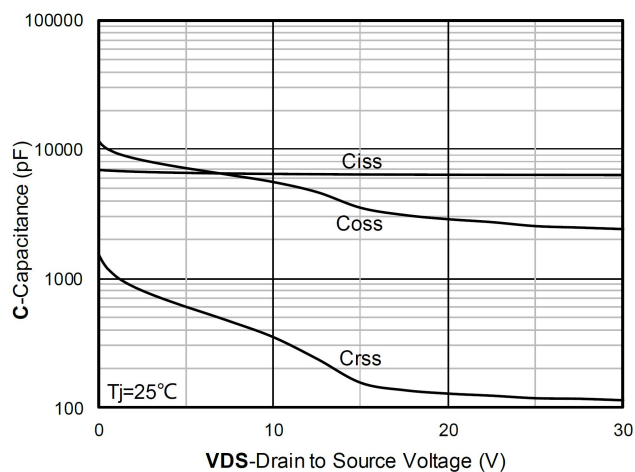
Typical Characteristics



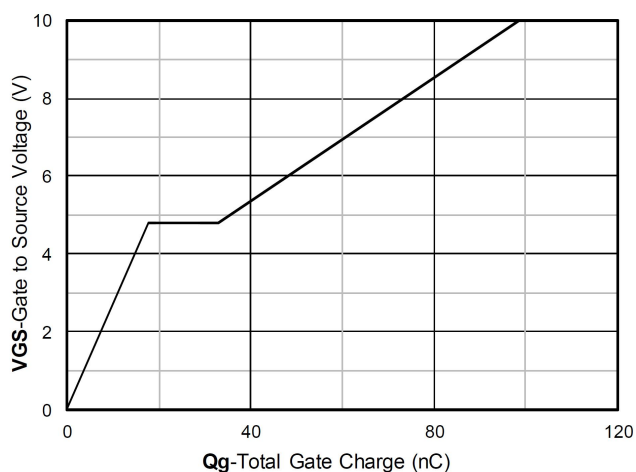
Output Characteristics



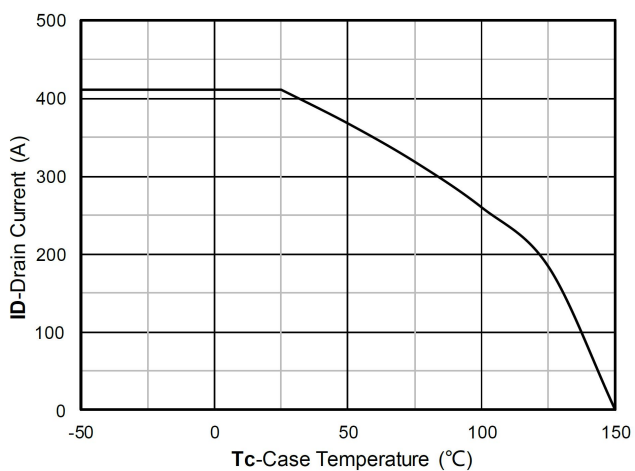
Transfer Characteristics



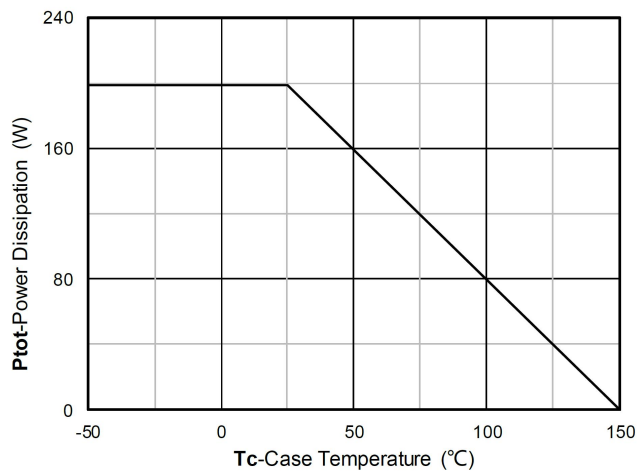
Capacitance Characteristics



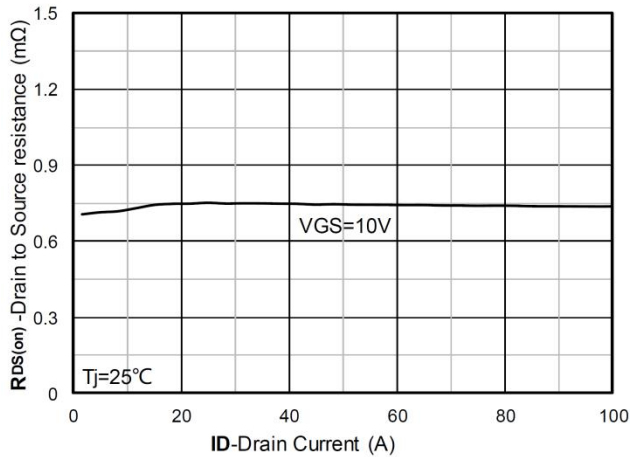
Gate Charge



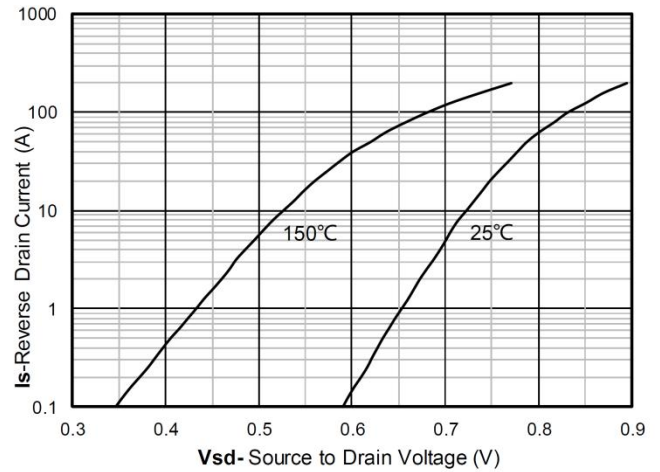
Current dissipation



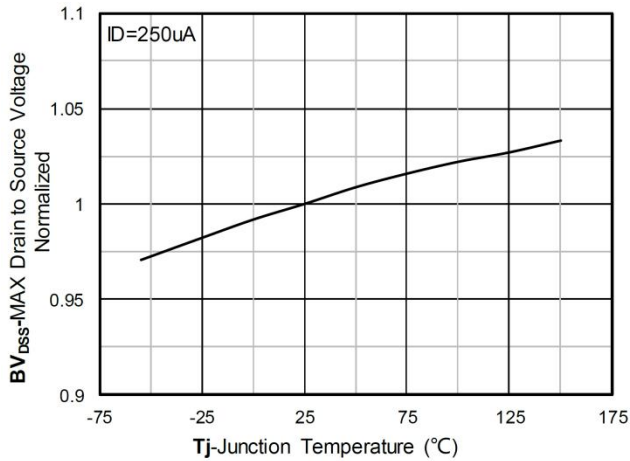
Power dissipation



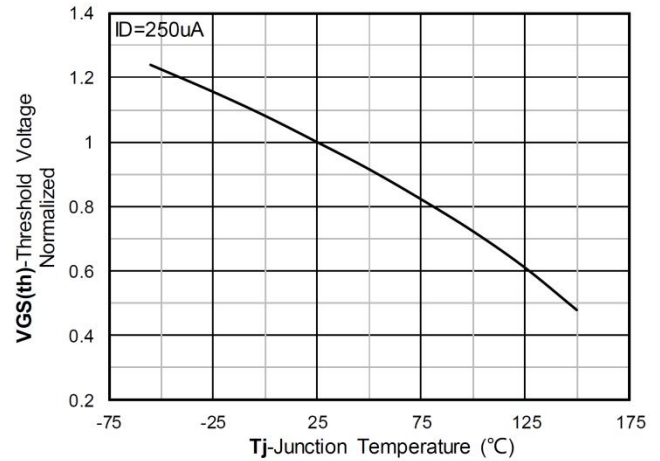
RDS(on) VS Drain Current



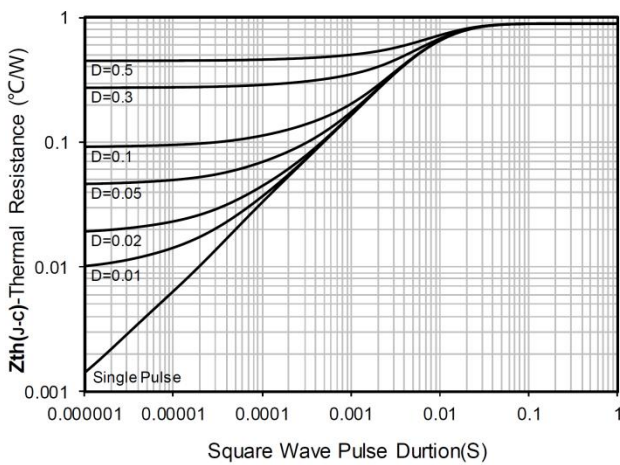
Forward characteristics of reverse diode



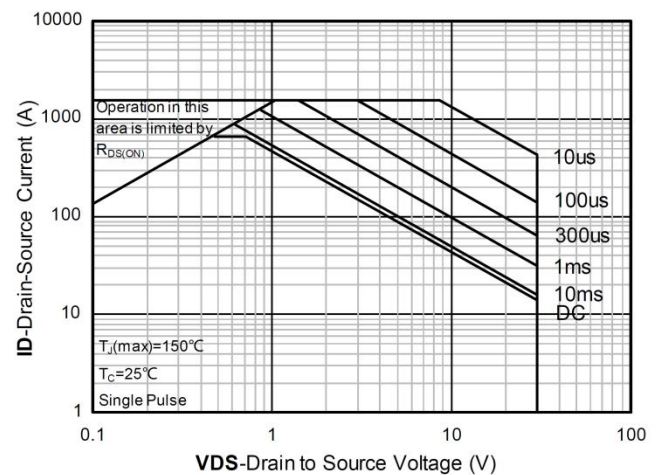
Normalized breakdown voltage



Normalized Threshold voltage

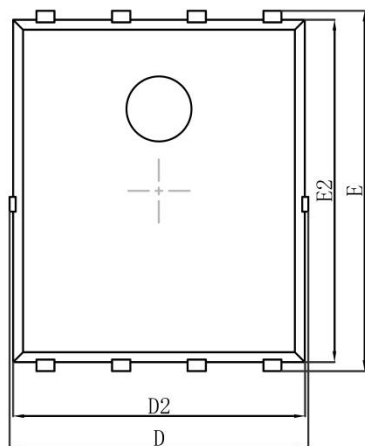


Maximum Transient Thermal Impedance

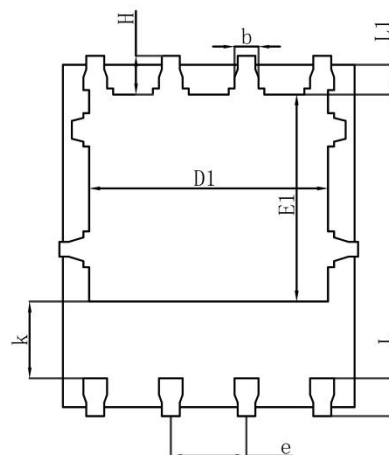


Safe Operation Area

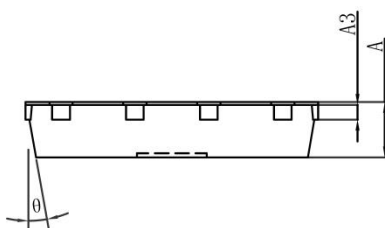
PDFN5X6-8L Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°