Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
120V	7mΩ@10V	80A

合肥矽普半导体
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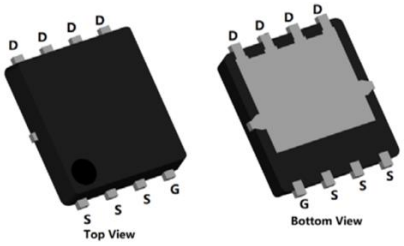
Feature

- Fast Switching
- Low Gate Charge and Rdson
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Applications

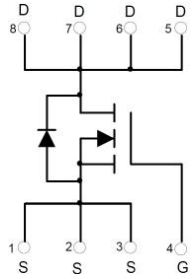
- Power switching application
- Battery management
- Uninterruptible power supply

Package

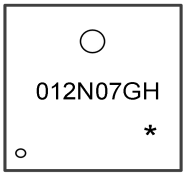


PDFN5X6-8L

Circuit diagram



Marking



012N07GH : Product code
*** : Month code**

Order Information

Device	Package	Unit/Tape
SP012N07GHNK	PDFN5X6-8L	5000

Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	120	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Tc=25℃)	I_D	80	A
Continuous Drain Current (Tc=100℃)	I_D	55	A
Pulsed Drain Current	I_{DM}	320	A
Single Pulse Avalanche Energy[1]	E_{AS}	400	mJ
Power Dissipation (Tc=25℃)	P_D	105	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.19	℃/W
Storage Temperature Range	T_{STG}	55 to 150	℃
Operating Junction Temperature Range	T_J	55 to 150	℃

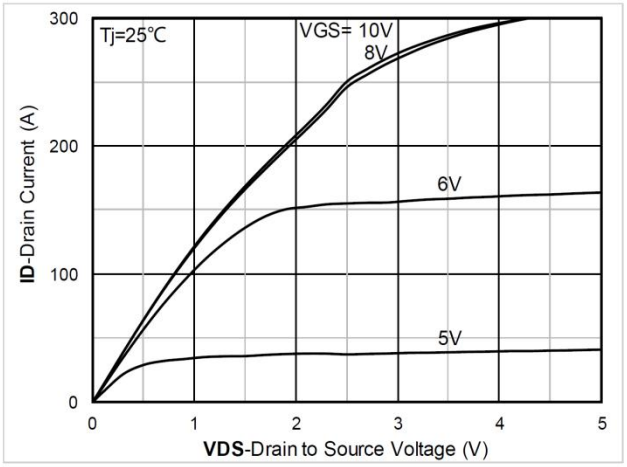
Electrical characteristics (Ta=25℃, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0 V, ID=250 μA	120	-	-	V
Drain Cut-Off Current	I_{DSS}	VDS=120 V, VGS=0 V	-	-	1	uA
Gate Leakage Current	I_{GSS}	VGS=±20 V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VDS=VGS, ID=250 μA	2	3	4	V
Drain-Source ON Resistance	$R_{DS(ON)}$	VGS=10 V, ID=30 A	-	7	9	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} =60V, V_{GS} = 0V, f = 1.0MHz	-	4356	-	pF
Output Capacitance	C_{oss}		-	268	-	
Reverse Transfer Capacitance	C_{rss}		-	18	-	
Total Gate Charge	Q_g	V_{DS}=60V , VGS=10V , ID=30A	-	83	-	nC
Gate-Source Charge	Q_{gs}		-	26	-	
Gate-Drain Charge	Q_{gd}		-	6.1	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{GS} = 20V, V_{DS} =60V, ID=30A R_G = 4.7Ω	-	18	-	nS
Rise Time	t_r		-	46	-	
Turn-Off Delay Time	$t_{d(off)}$		-	52	-	
Fall Time	t_f		-	27	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_S=1A , T_J=25℃	-	-	1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	80	A
Reverse Recovery Time	Trr	I_S=50A, di/dt=100A/us, T_J=25℃	-	89	-	nS
Reverse Recovery Charge	Qrr		-	208	-	nC

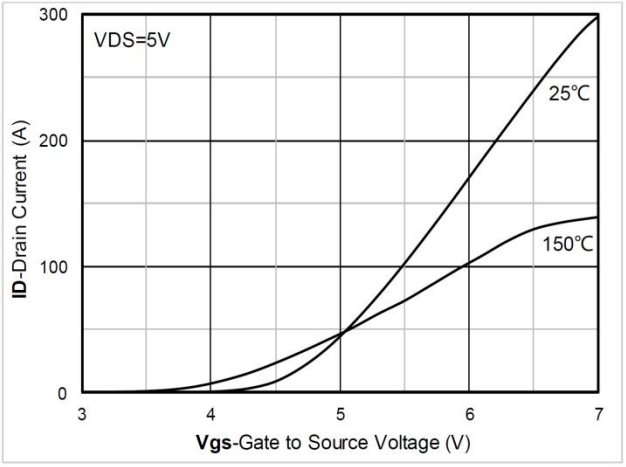
Note：

1. The EAS test condition is VDD=50V,VGS=10V,L=0.5mH,RG=25Ω

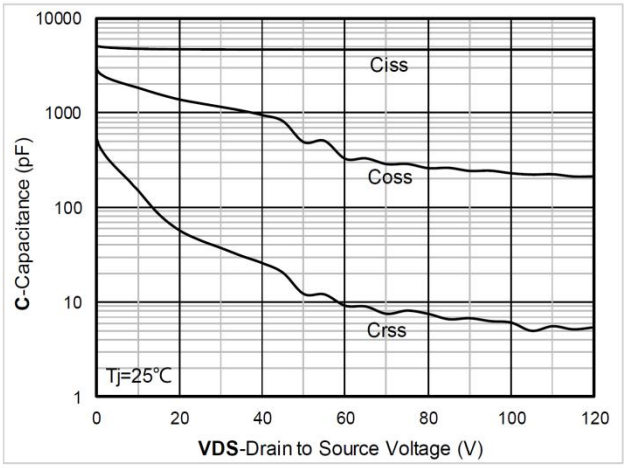
Typical Characteristics



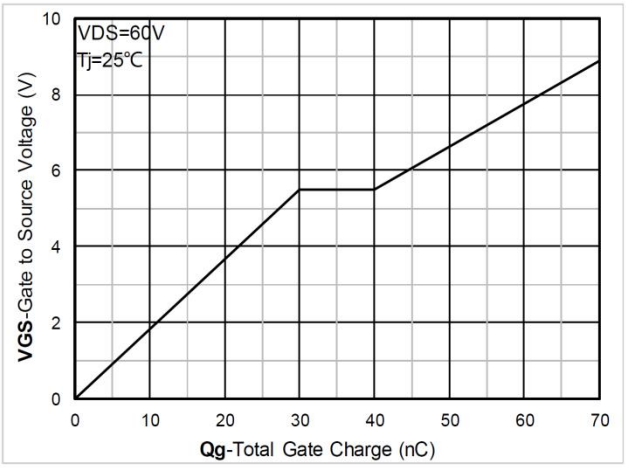
Output Characteristics



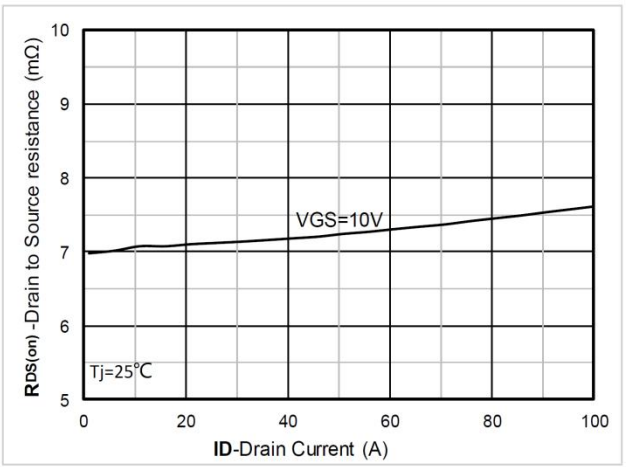
Transfer Characteristics



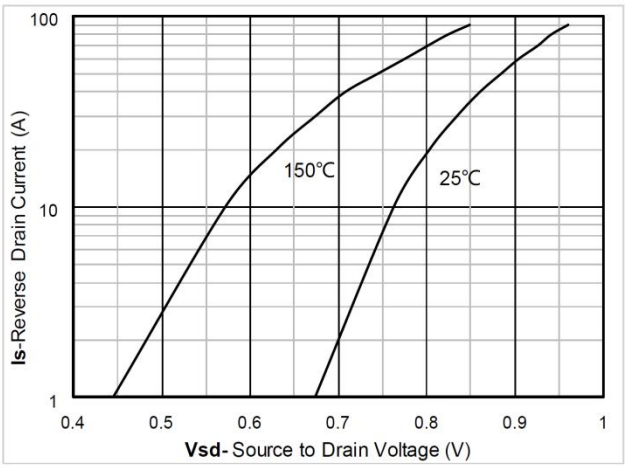
Capacitance Characteristics



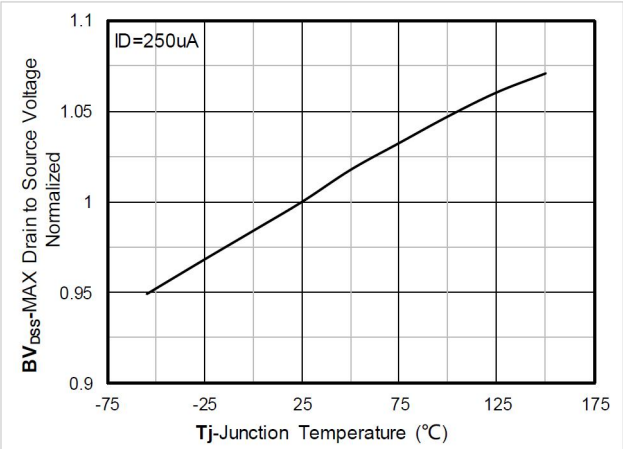
Gate Charge



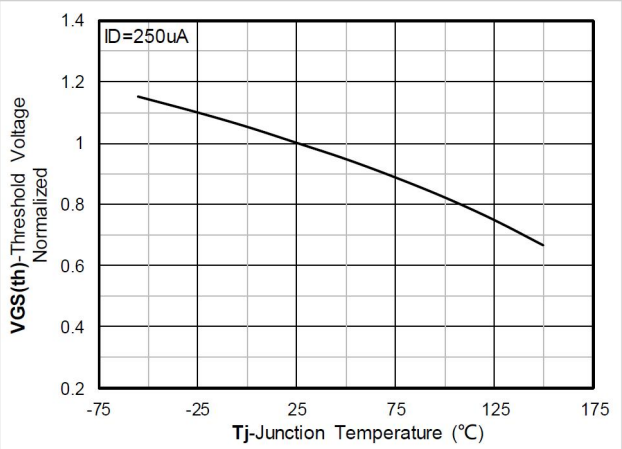
RDS(on) VS Drain Current



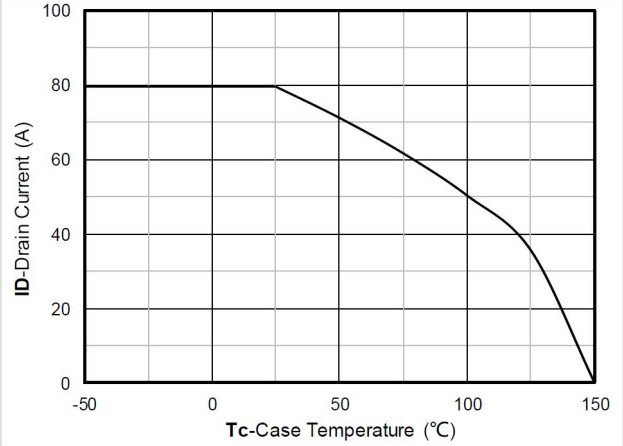
Forward characteristics of reverse diode



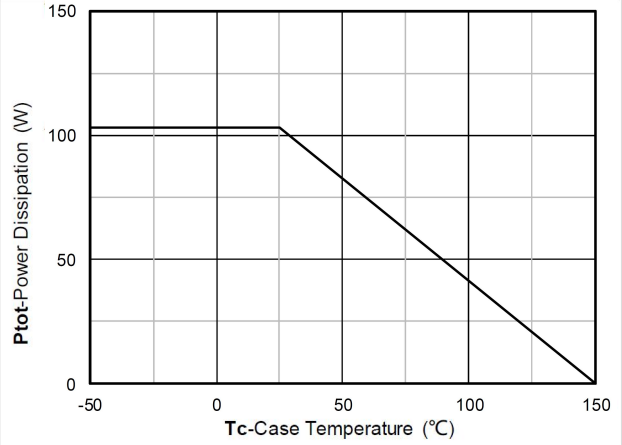
Normalized breakdown voltage



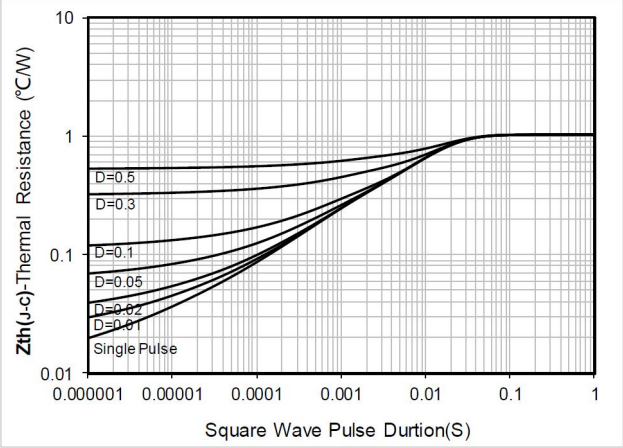
Normalized Threshold voltage



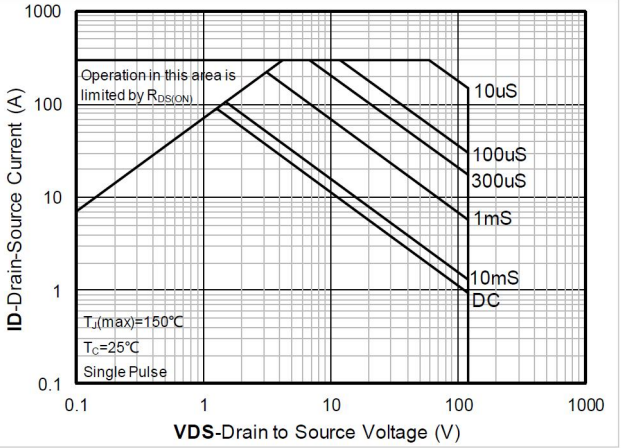
Current dissipation



Power dissipation

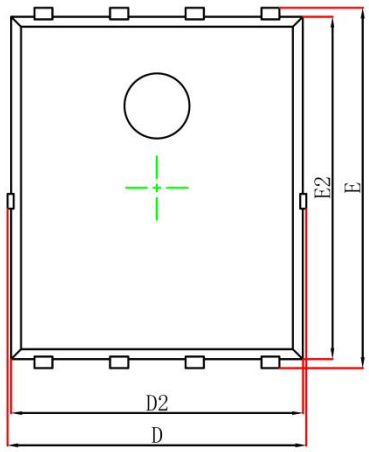


Maximum Transient Thermal Impedance

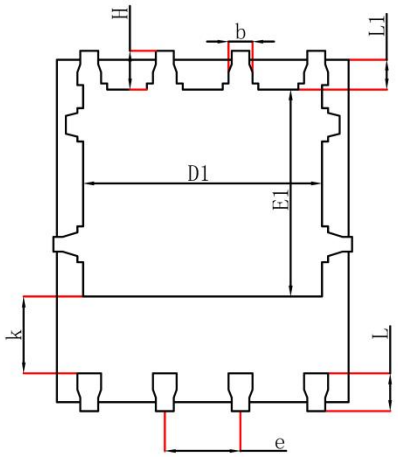


Safe Operation Area

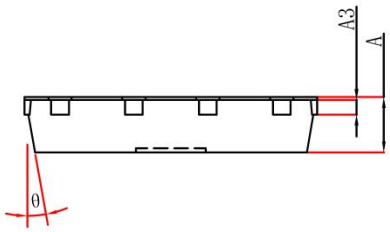
PDFN5X6-8L Package Information



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°