

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	6mΩ@10V	35A
	9.4mΩ@4.5V	



合肥矽普半导体

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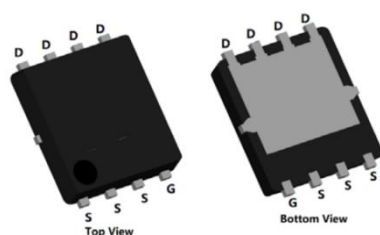
Feature

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

Applications

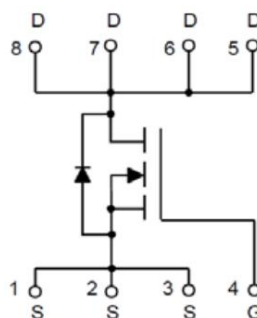
- Power switching application
- DC-DC Converters

Package

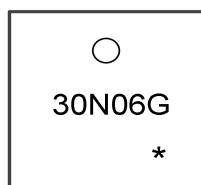


PDFN5X6-8L

Circuit diagram



Marking



30N06G
*

:Device Code
:Month Code

Order Information

Device	Package	Unit/Tape
SP30N06GNK	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	35	A
Continuous Drain Current (Tc=100°C)	I_D	23	A
Pulsed Drain Current	I_{DM}	140	A
Single Pulse Avalanche Energy ¹	E_{AS}	39.2	mJ
Power Dissipation (Tc=25°C)	P_D	28	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	4.5	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

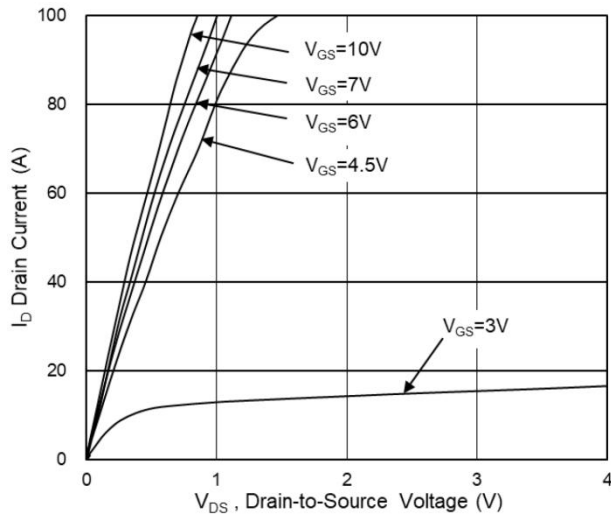
Electrical characteristics (Ta=25°C, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250uA	30	-	-	V
Drain Cut-Off Current	I _{DSS}	VDS=30V , VGS=0V	-	-	1	uA
Gate Leakage Current	I _{GSS}	VGS= ± 20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	VGS=VDS , ID =250uA	1.2	1.7	2.2	V
Drain-Source ON Resistance	R _{DS(ON)}	VGS=10V , ID=12A	-	6	8	mΩ
		VGS=4.5V , ID=12A	-	9.4	11	
Dynamic Characteristics						
Input Capacitance	C _{iss}	VDS=15V,VGS=0V,f=1MHZ	-	625	-	pF
Output Capacitance	C _{oss}		-	240	-	
Reverse Transfer Capacitance	C _{rss}		-	25	-	
Total Gate Charge	Q _g	VGS=10V,VDS=15V,ID=12A	-	7.1	-	nC
Gate-Source Charge	Q _{gs}		-	2.2	-	
Gate-Drain Charge	Q _{gd}		-	3.1	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	VGS=10V,VDD=15V, ID=12A, RGEN=2Ω	-	7	-	nS
Rise Time	t _r		-	18.8	-	
Turn-Off Delay Time	t _{d(off)}		-	19.5	-	
Fall Time	t _f		-	3.4	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V _{SD}	I _S = 1A, VGS = 0V	-	-	1.2	V
Maximum Body-Diode Continuous Current	I _S		-	-	35	A
Reverse Recovery Time	T _{rr}	I _S =20A, di/dt=100A/us, T _J =25℃	-	11	-	nS
Reverse Recovery Charge	Q _{rr}		-	18	-	nC

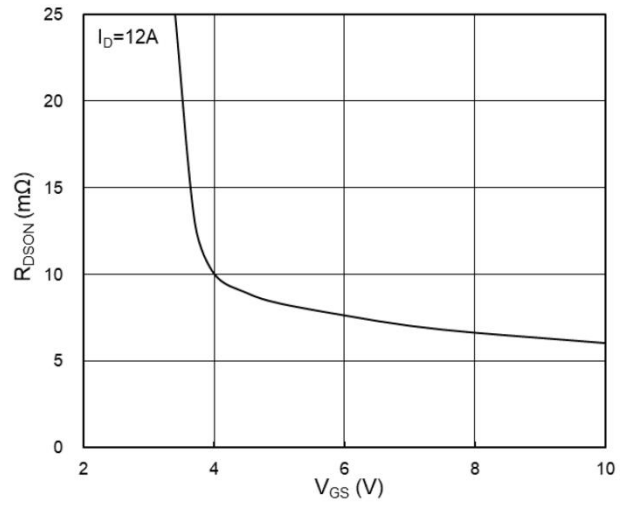
Note :

The test condition is $V_{DD}=15V, V_{GS}=10V, L=0.1mH, R_G=25\Omega$

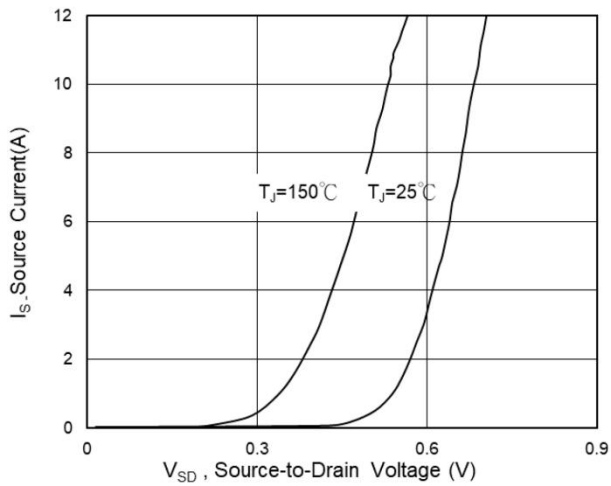
Typical Characteristics



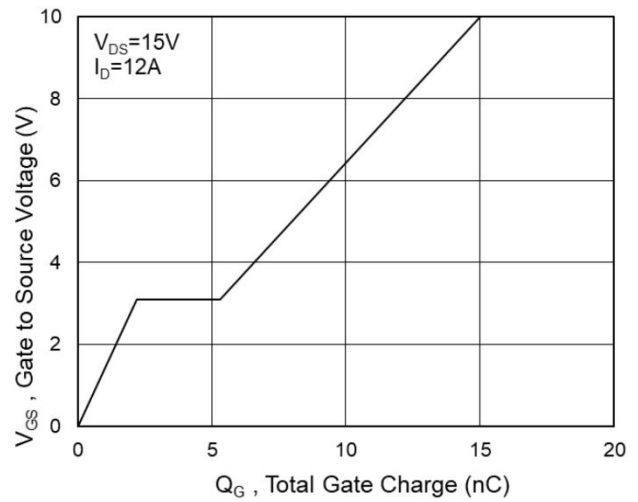
Typical Output Characteristics



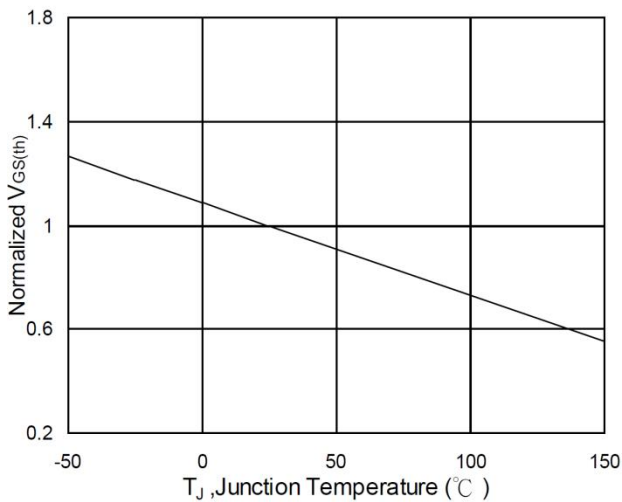
On-Resistance vs G-S Voltage



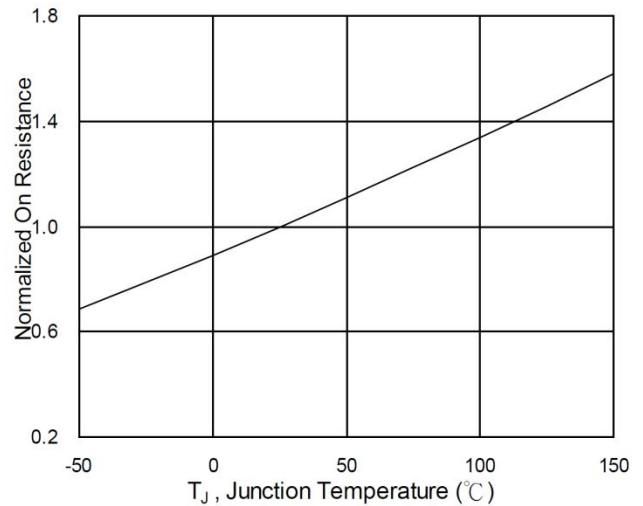
Source Drain Forward Characteristics



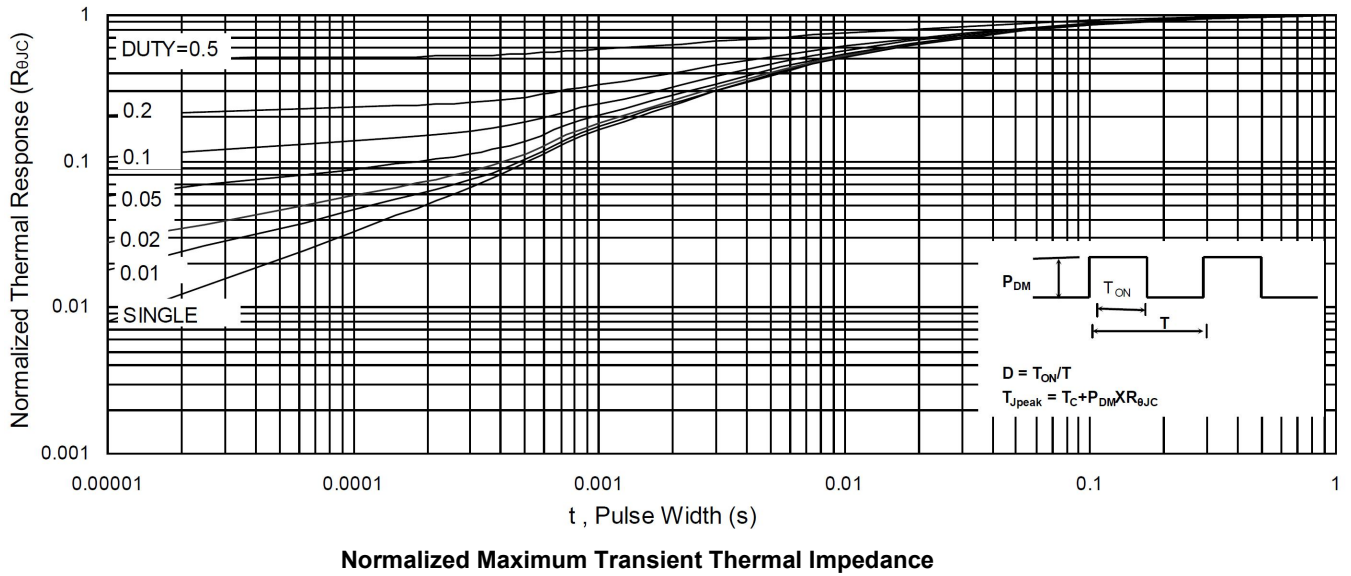
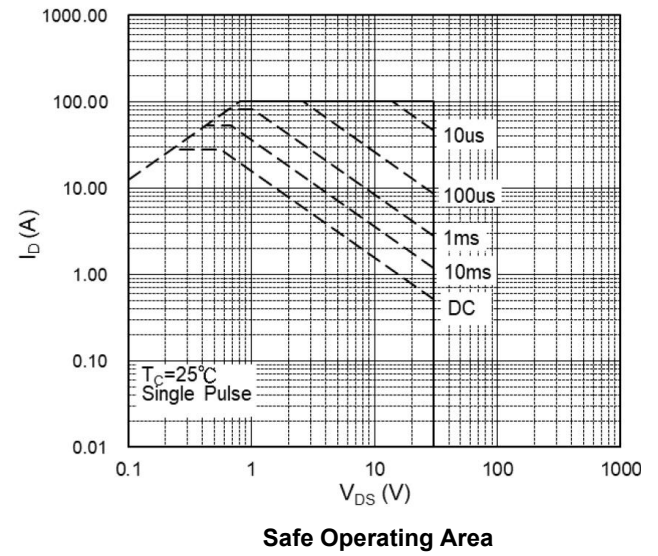
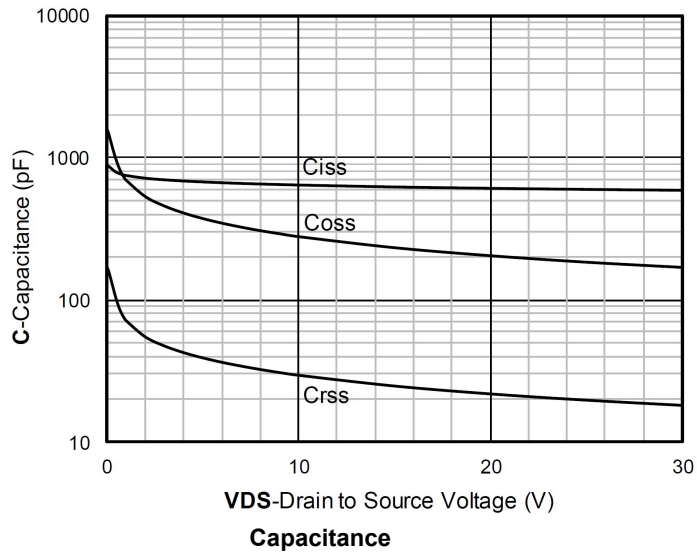
Gate-Charge Characteristics



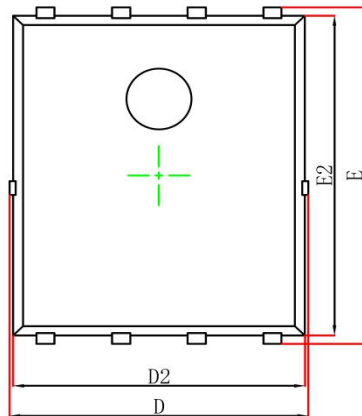
Normalized $V_{GS(th)}$ vs T_J



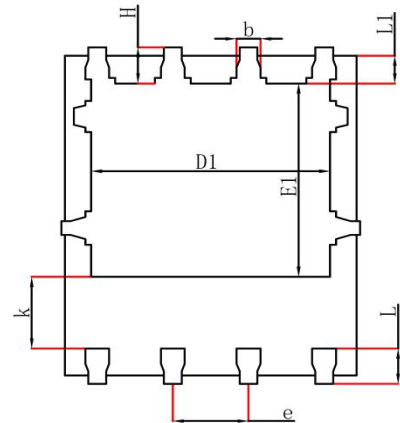
Normalized $R_{DS(on)}$ vs T_J



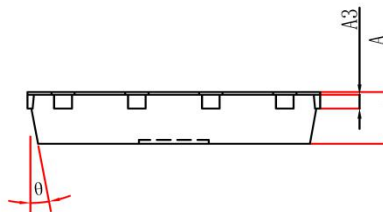
PDFN5X6-8L Package Information



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°