Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	6mΩ@10V	28A
	9.4mΩ@4.5V	

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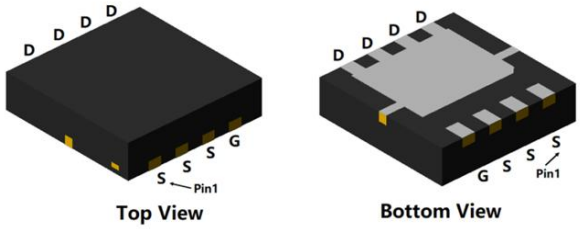
Feature

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

Applications

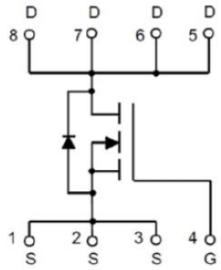
- Power switching application
- DC-DC Converters

Package

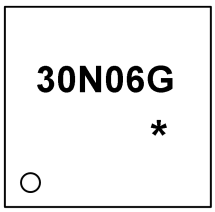


PDFN3X3-8L

Circuit diagram



Marking



30N06G :Device Code
***** :Month Code

Order Information

Device	Package	Unit/Tape
SP30N06GNJ	PDFN3X3-8L	5000

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

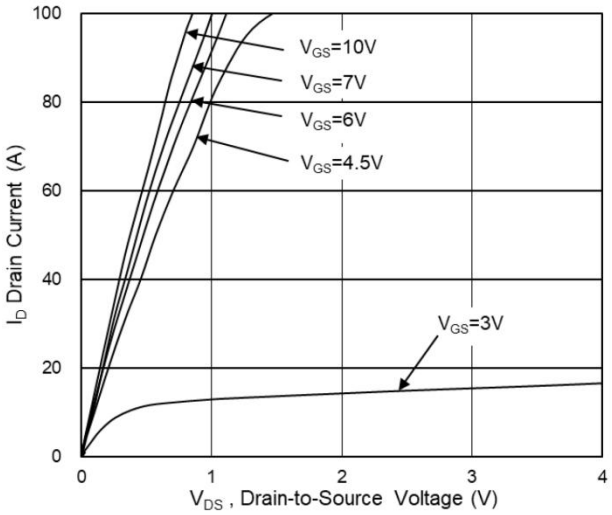
Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Tc=25℃)	I_D	28	A
Continuous Drain Current (Tc=100℃)	I_D	20	A
Pulsed Drain Current	I_{DM}	100	A
Single Pulse Avalanche Energy[1]	E_{AS}	39.2	mJ
Power Dissipation (Tc=25℃)	P_D	21	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	6	℃/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)

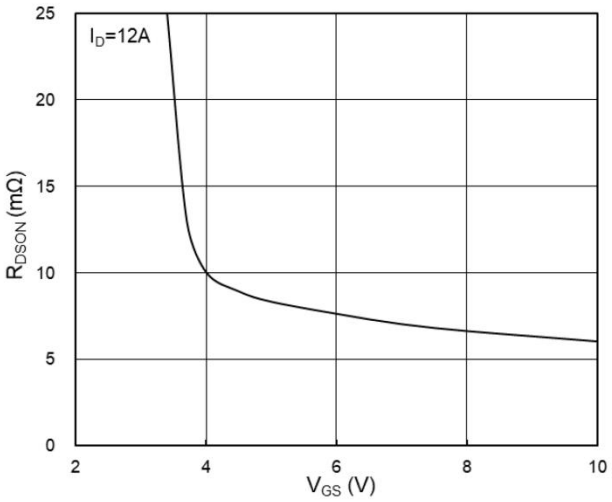
Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V , ID=250uA	30	---	---	V
Drain Cut-Off Current	I_{DSS}	VDS=30V , VGS=0V	---	---	1	uA
Gate Leakage Current	I_{GSS}	VGS=±20V , VDS=0V	---	---	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	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		-	-	28	A
Reverse Recovery Time	Trr	I_S=20A, di/dt=100A/us, TJ=25℃	-	11	-	nS
Reverse Recovery Charge	Qrr		-	18	-	nC

Note :
The test condition is VDD=15V,VGS=10V,L=0.1mH,RG=25Ω

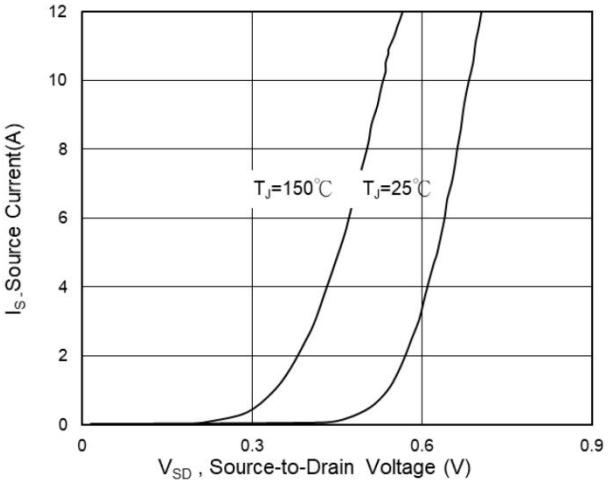
Typical Characteristics



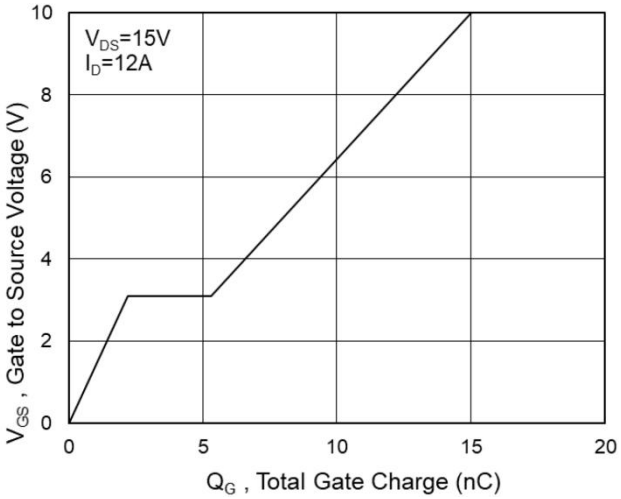
Typical Output Characteristics



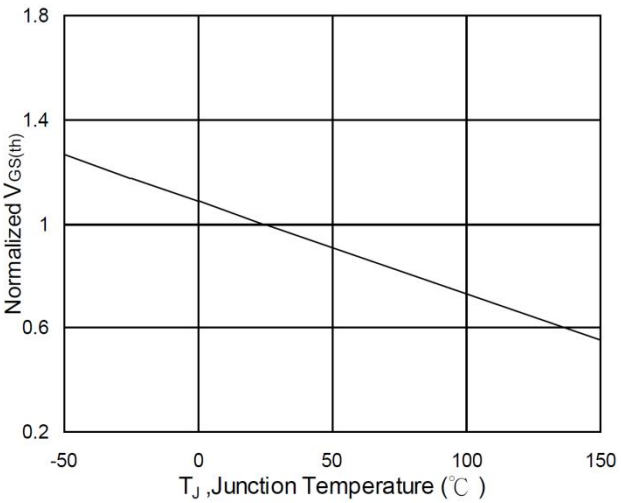
On-Resistance vs G-S Voltage



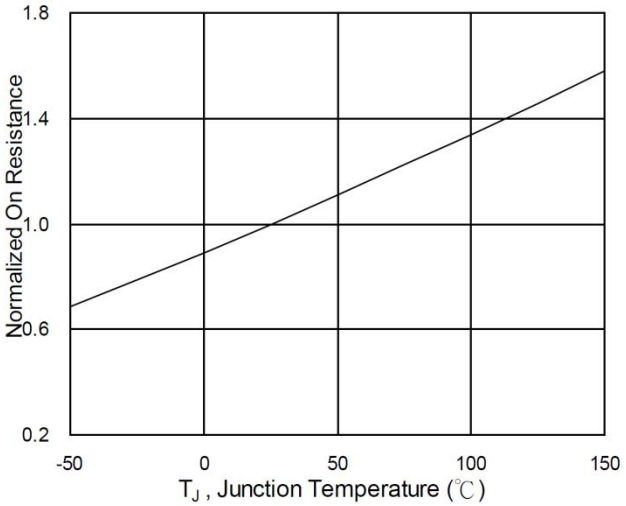
Source Drain Forward Characteristics



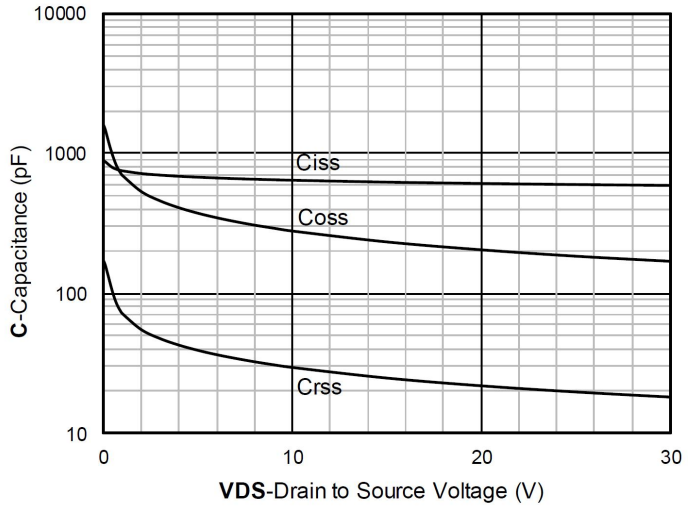
Gate-Charge Characteristics



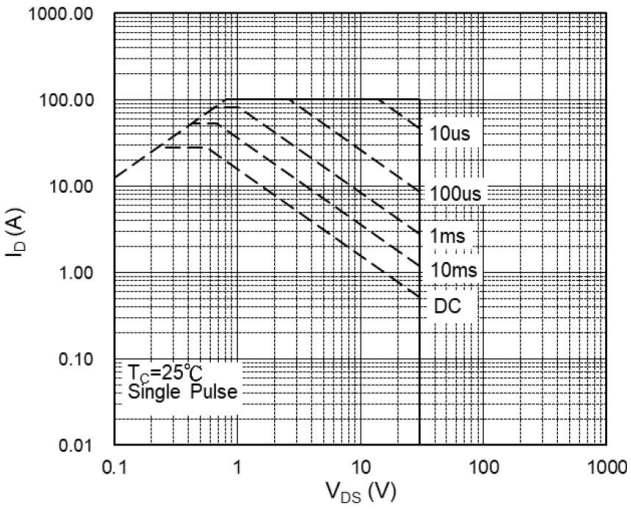
Normalized $V_{GS(th)}$ vs T_J



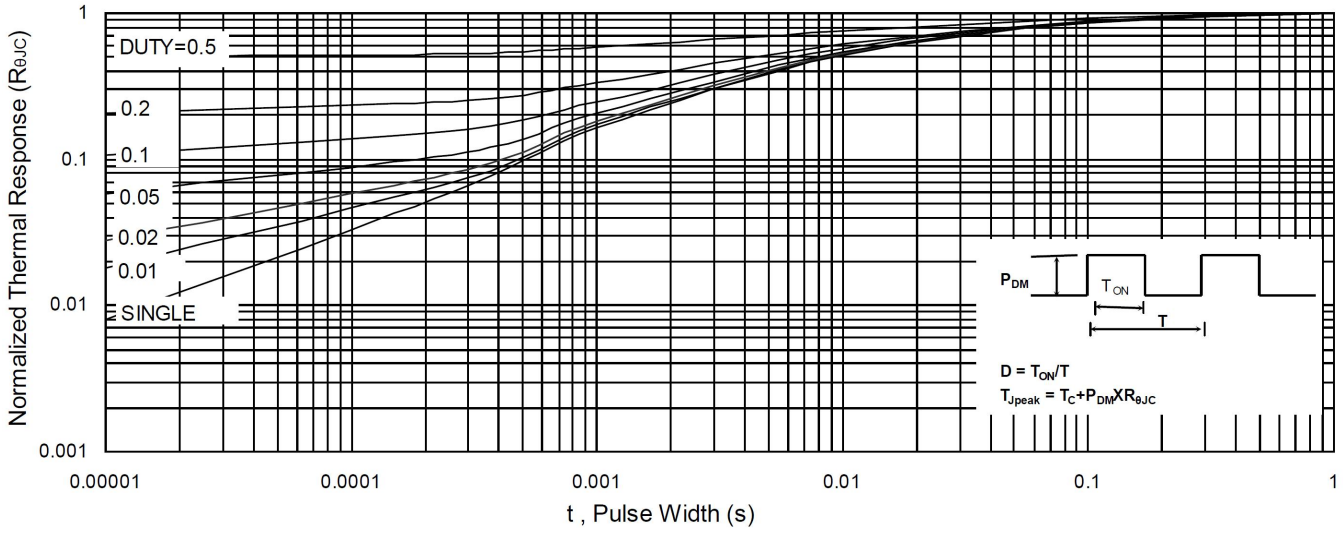
Normalized R_{DSON} vs T_J



Capacitance

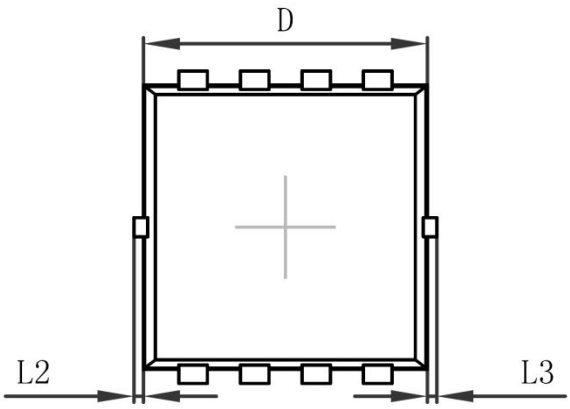


Safe Operating Area

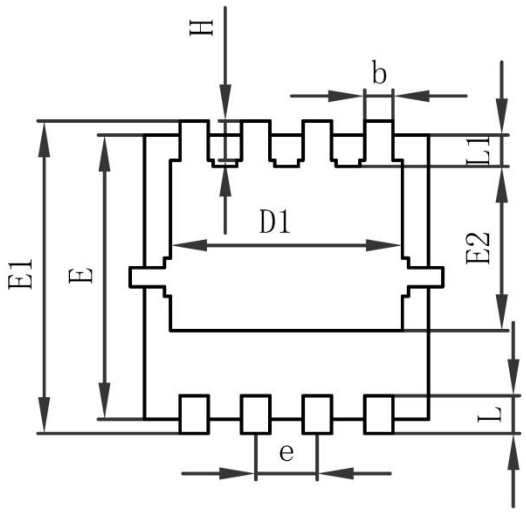


Normalized Maximum Transient Thermal Impedance

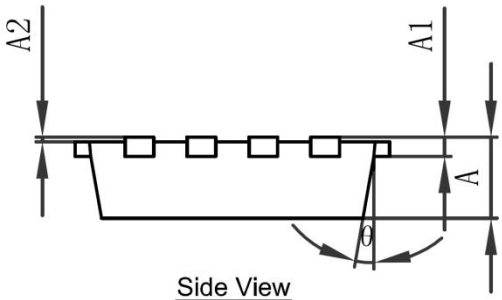
PDFN3X3-8L Package Information



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	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°