

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	3.5mΩ@10V	60A
	6mΩ@4.5V	



合肥矽普半导体

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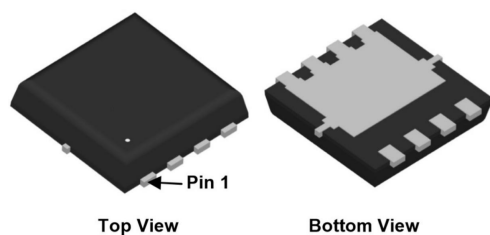
Feature

- Fast switching speed
- Low On-Resistance
- 100% Single Pulse avalanche energy Test

Applications

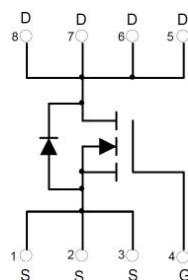
- DC-DC Converters.
- Power Management

Package

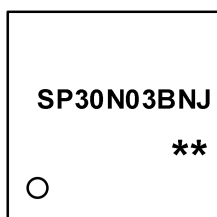


PDFN3X3-8L

Circuit diagram



Marking



SP30N03BNJ :Device Code
** :Week Code

Order Information

Device	Package	Unit/Tape
SP30N03BNJ	PDFN3X3-8L	5000

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current (Tc=25°C)	I_D	60	A
Pulse Drain Current Tested	I_{DM}	240	A
Single Pulse Avalanche Energy ¹	E_{AS}	225	mJ
Power Dissipation (Tc=25°C)	P_D	40	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	3.1	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

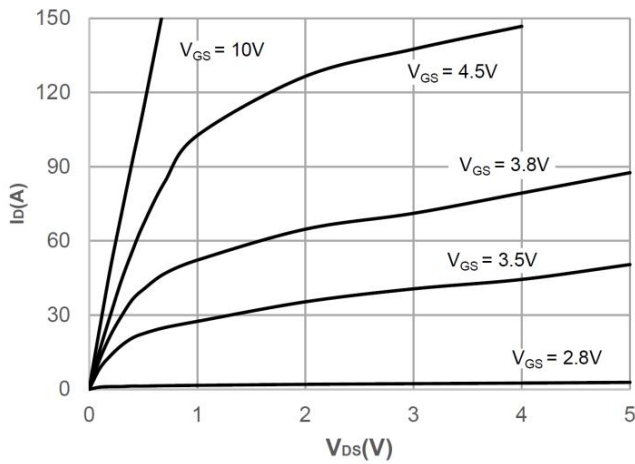
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250uA	30	33.5	-	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	1.0	1.5	2.5	V
Static Drain-Source On-Resistance	RDS(on)	VGS=10V, ID=20A	-	3.5	4.5	mΩ
		VGS=4.5V, ID=15A	-	6	8	
Dynamic characteristics						
Input Capacitance	Ciss	VDS=15V , VGS=0V , f=1MHz	-	2010	-	pF
Output Capacitance	Coss		-	250	-	
Reverse Transfer Capacitance	Crss		-	230	-	
Switching Characteristics						
Total Gate Charge	Qg	VDS=15V , VGS=10V , ID=30A	-	60	-	nC
Gate-Source Charge	Qgs		-	8.2	-	
Gate-Drain Charge	Qgd		-	7.4	-	
Turn-On Delay Time	Td(on)	VDD=15V, VGS=10V , RG=3Ω, ID=20A	-	12	-	nS
Rise Time	Tr		-	15	-	
Turn-Off Delay Time	Td(off)		-	40	-	
Fall Time	Tf		-	14	-	
Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V
Diode Continuous Current	IS		-	-	60	A
Reverse recover time	Trr	IS=20A, di/dt=100A/us, Tj=25℃	-	47	-	nS
Reverse recovery charge	Qrr		-	45	-	nC

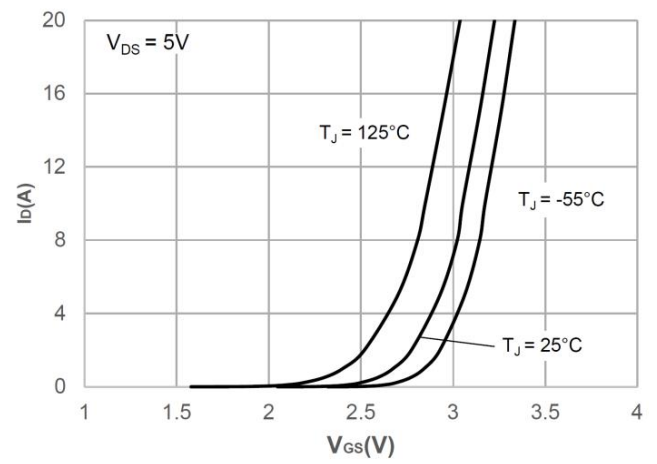
Note:

- The EAS test condition is $V_{DD}=15V, V_G=10V, L=0.5mH, R_g=25\Omega$

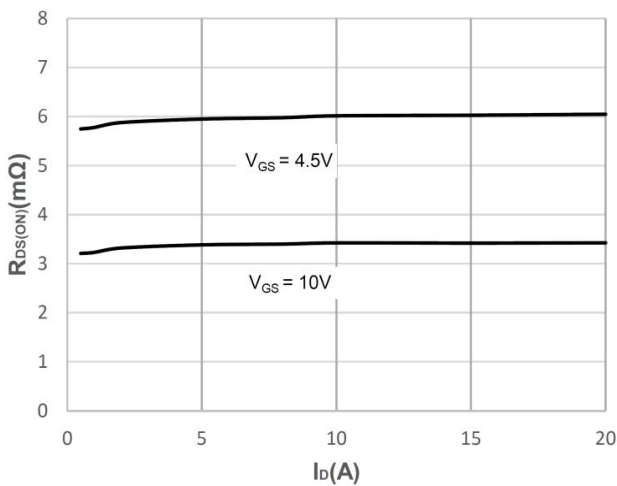
Typical Characteristics



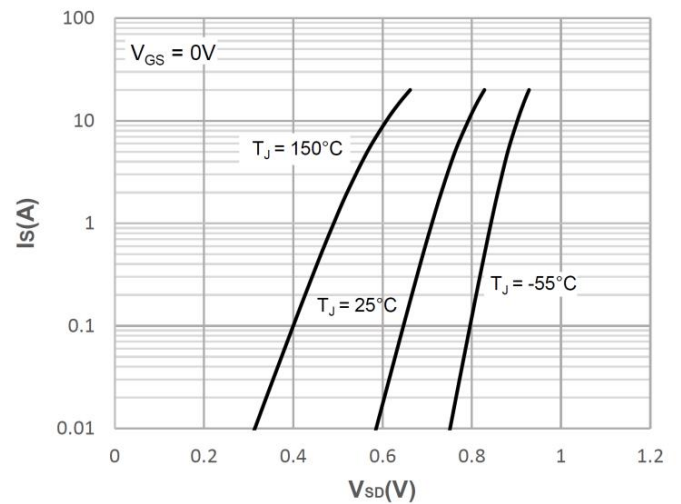
Output Characteristics



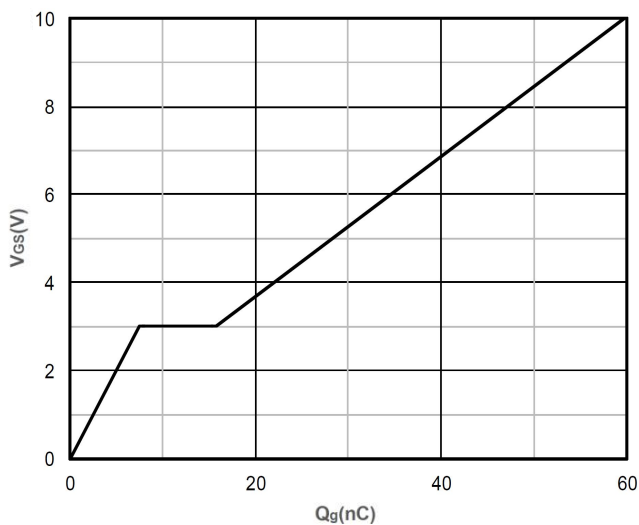
Typical Transfer Characteristics



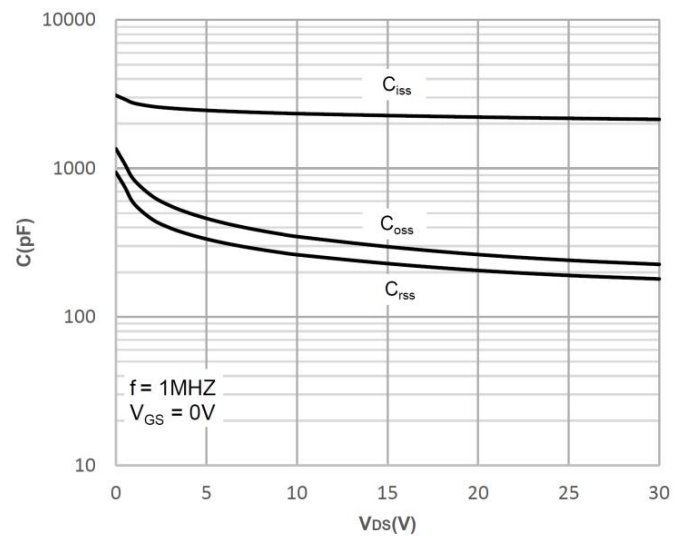
On-resistance vs. Drain Current



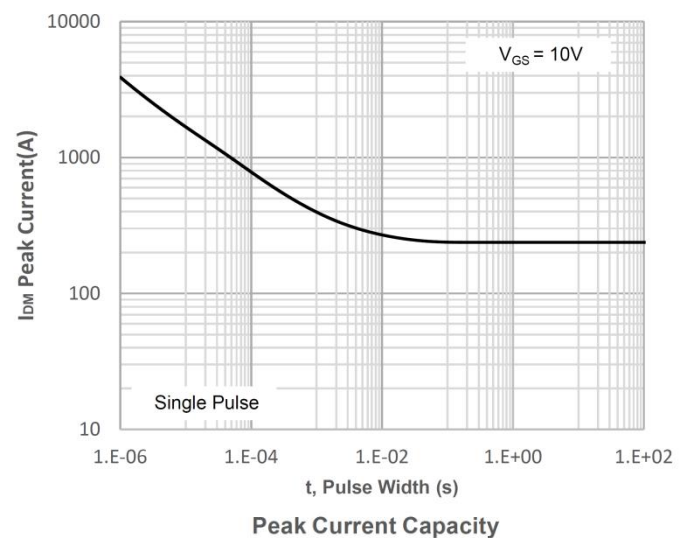
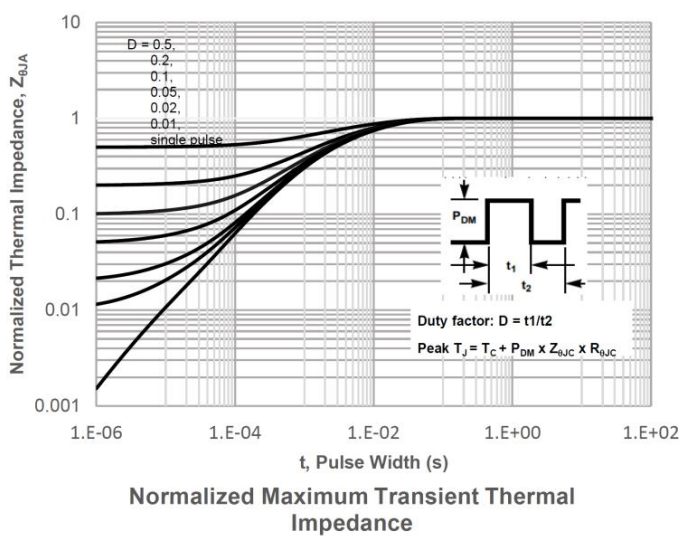
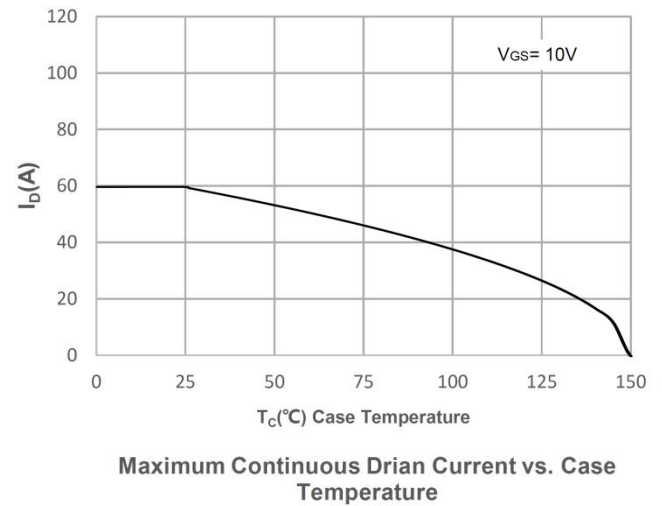
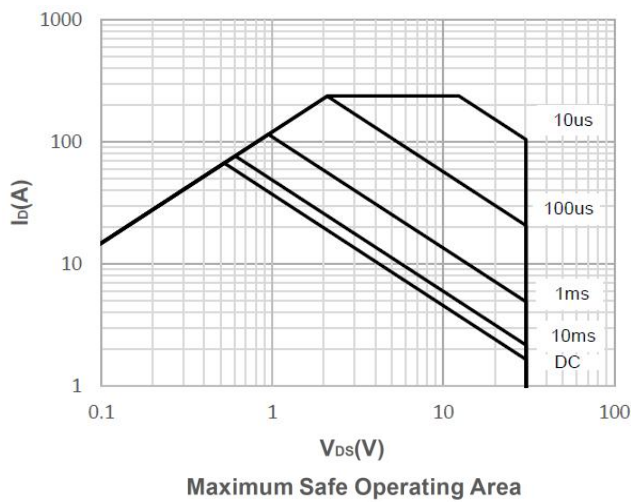
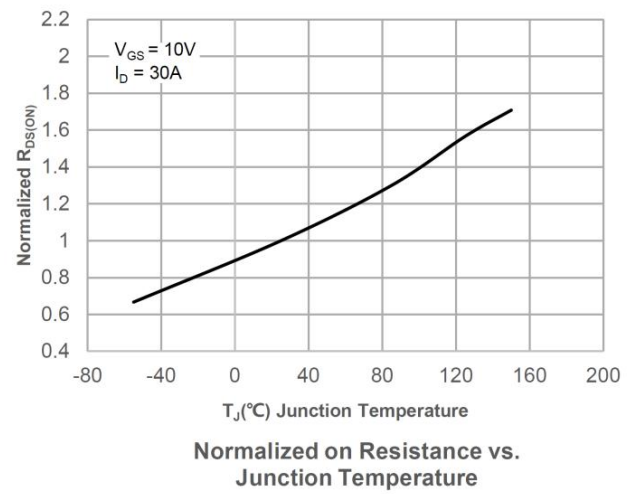
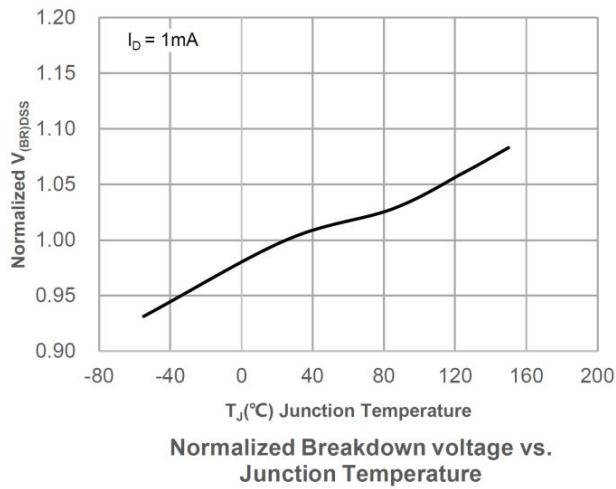
Body Diode Characteristics

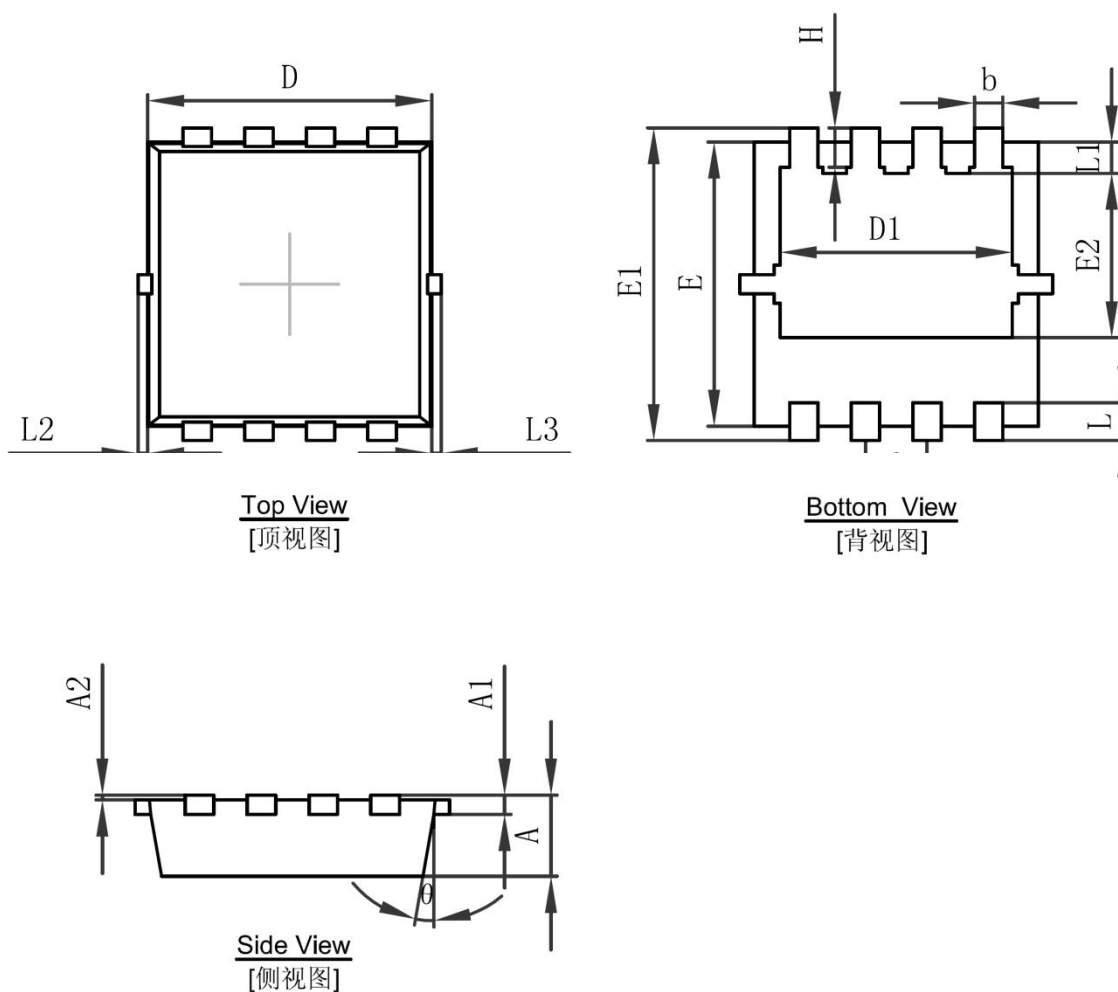


Gate Charge Characteristics



Capacitance Characteristics



PDFN3X3-8L Package Information


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°