

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
80V	3.3m Ω @10V	110A



合肥矽普半导体

Siliup Semiconductor Technology Co., Ltd

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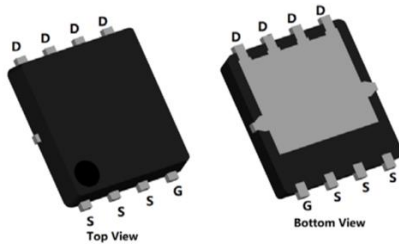
Feature

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

Applications

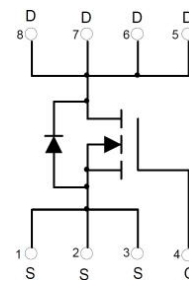
- Power switching application
- DC-DC Converter
- Uninterruptible power supply

Package

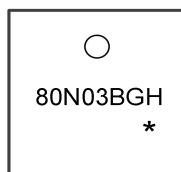


PDFN5X6-8L

Circuit diagram



Marking



80N03BGH :Device Code
* :Month Code

Order Information

Device	Package	Unit/Tape
SP80N03BGH NK	PDFN5X6-8L	5000

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	80	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current (Tc=25°C)	I_D	110	A
Continuous Drain Current (Tc=100°C)	I_D	75	A
Pulse Drain Current Tested	I_{DM}	440	A
Single Pulse Avalanche Energy ¹	E_{AS}	600	mJ
Power Dissipation (Tc=25°C)	P_D	120	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.04	°C/W
Maximum Junction Temperature	T_J	-55 to 150	°C
Storage Temperature Range	T_{STG}	-55 to 150	°C

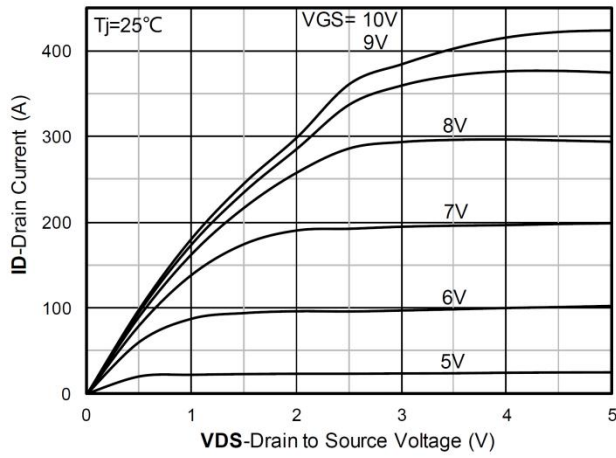
Electrical characteristics (Ta=25°C, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	ID = 250μA, VGS = 0V	80	-	-	V
Zero Gate Voltage Drain Current	IDSS	VDS = 64V, VGS = 0V	-	-	1	uA
Gate Leakage Current	IGSS	VGS = ±20V, VDS = 0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VDS = VGS, ID = 250μA	2.0	3.0	4.0	V
Drain-Source On-state Resistance	RDS(ON)	VGS = 10V, ID = 20A	-	3.3	4.1	mΩ
Dynamic Characteristics						
Input Capacitance	Ciss	VGS=0V, VDS=40V,F=1MHz	-	3444	-	pF
Output Capacitance	Coss		-	663	-	
Reverse Transfer Capacitance	Crss		-	20	-	
Total Gate Charge	Qg	VDS=40V, VGS=10V, ID=50A	-	42	-	nC
Gate-Source Charge	Qgs		-	15	-	
Gate-Drain Charge	Qgd		-	20	-	
Switching Characteristics						
Turn-On Delay Time	td(on)	VDD=40V, ID=50A, VGS=10V, RG=3Ω	-	17	-	nS
Rise Time	tr		-	39	-	
Turn-Off Delay Time	td(off)		-	64	-	
Fall Time	tf		-	42	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	VSD	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V
Maximum Body-Diode Continuous Current	IS		-	-	110	A
Reverse Recovery Time	Trr	IS=50 A,di/dt=100 A/μs, TJ=25℃	-	45	-	nS
Reverse Recovery Charge	Qrr		-	56	-	nC

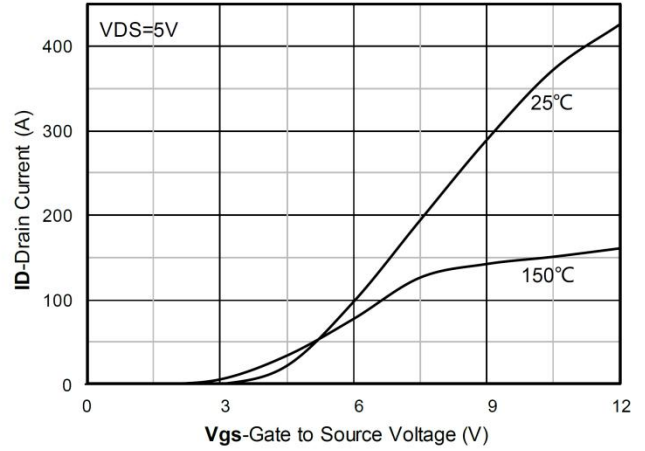
Note :

1. The test condition is $V_{DD}=40V$, $V_{GS}=10V$, $L=0.5mH$, $R_G=25\Omega$

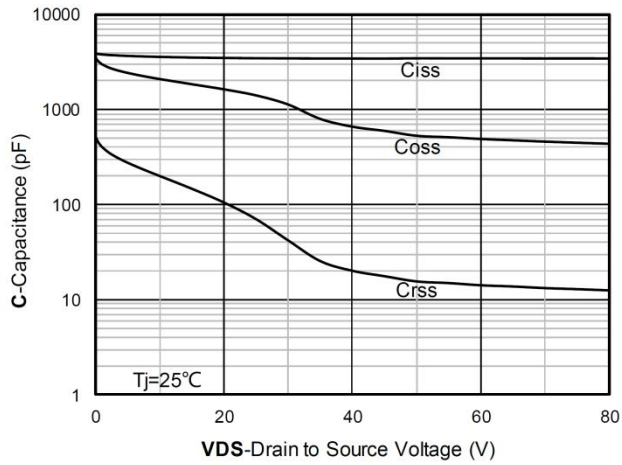
Typical Characteristics



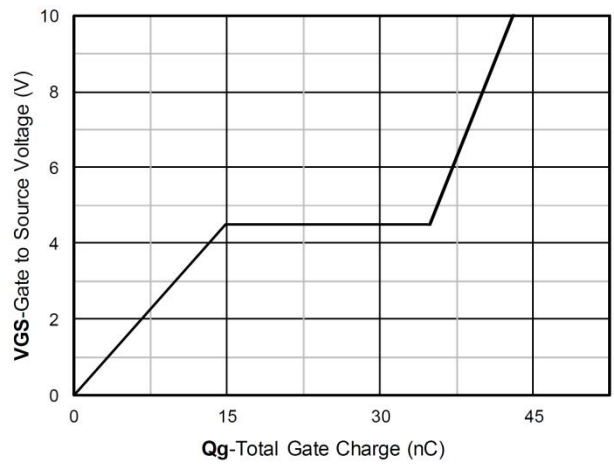
Output Characteristics



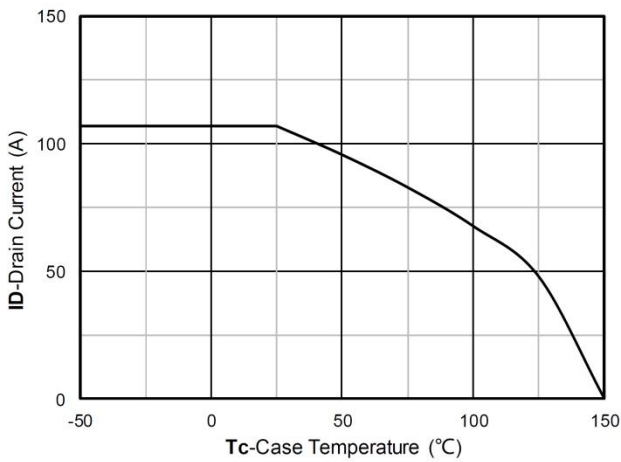
Transfer Characteristics



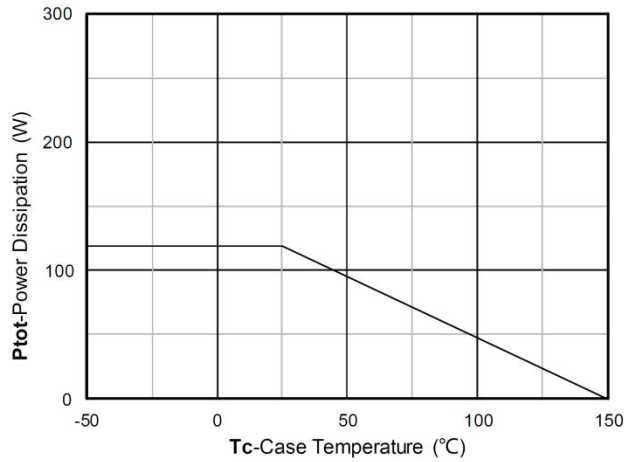
Capacitance Characteristics



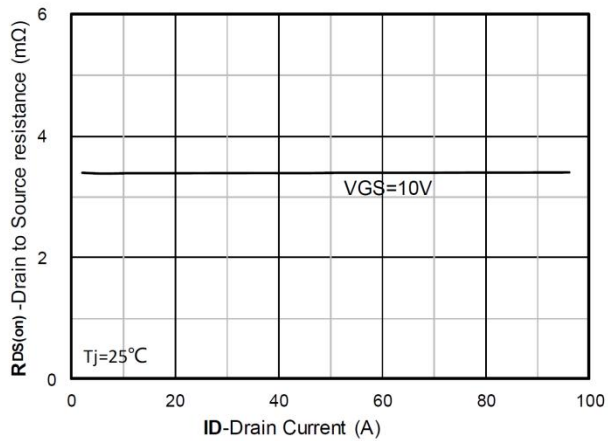
Gate Charge



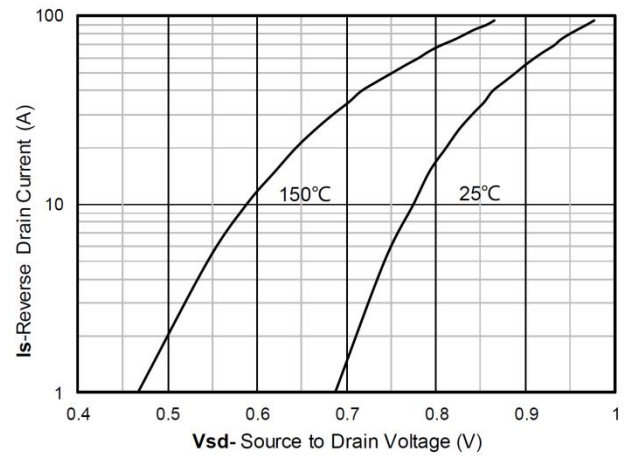
Current dissipation



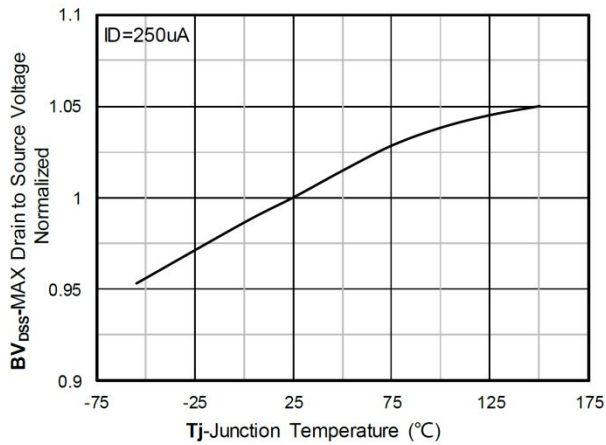
Power dissipation



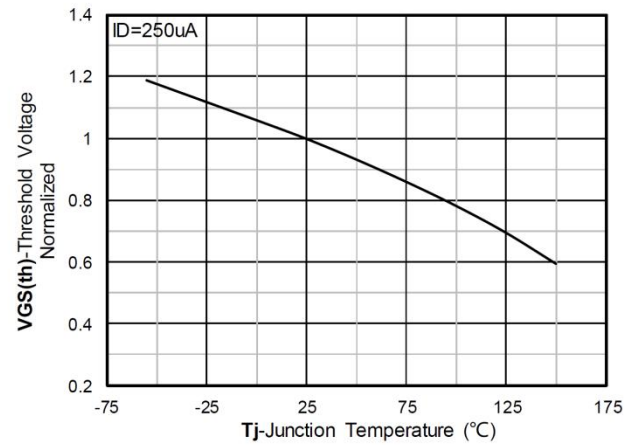
RDS(on) VS Drain Current



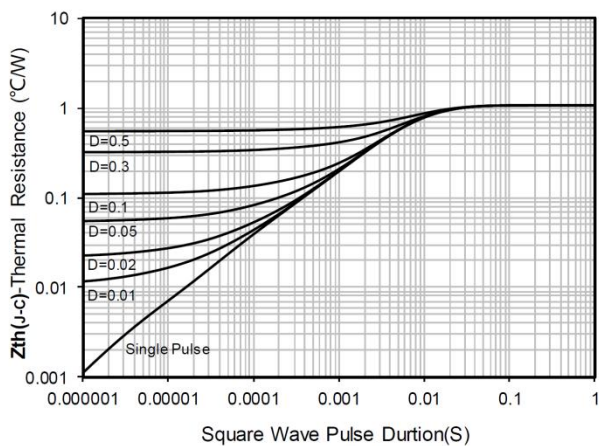
Forward characteristics of reverse diode



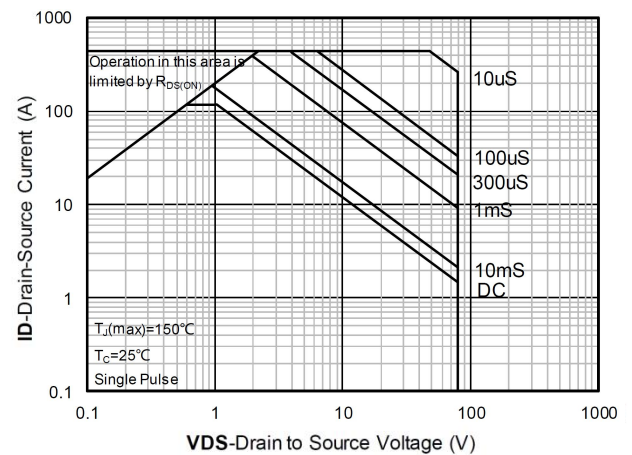
Normalized breakdown voltage



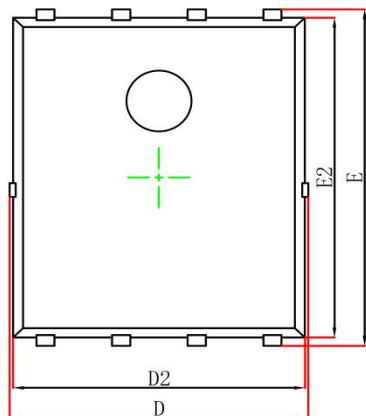
Normalized Threshold voltage



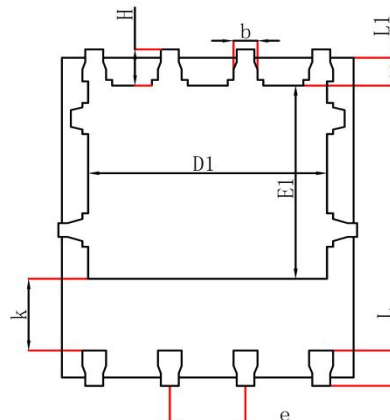
Maximum Transient Thermal Impedance



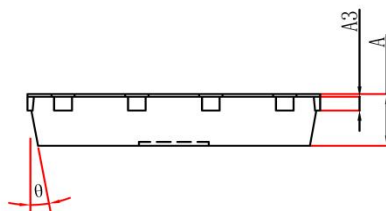
Safe Operation Area

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°