

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	2.3mΩ@10V	120A
	2.7mΩ@4.5V	



合肥矽普半导体

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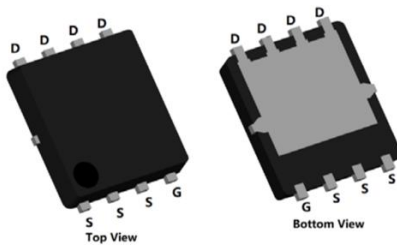
Feature

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

Applications

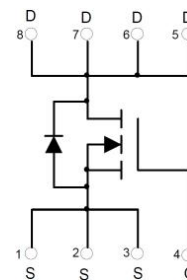
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

Package



PDFN5X6-8L

Circuit diagram



Marking



SP60N02BGNK
**

:Device Code
:Week Code

Order Information

Device	Package	Unit/Tape
SP60N02BGNK	PDFN5X6-8L	5000

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

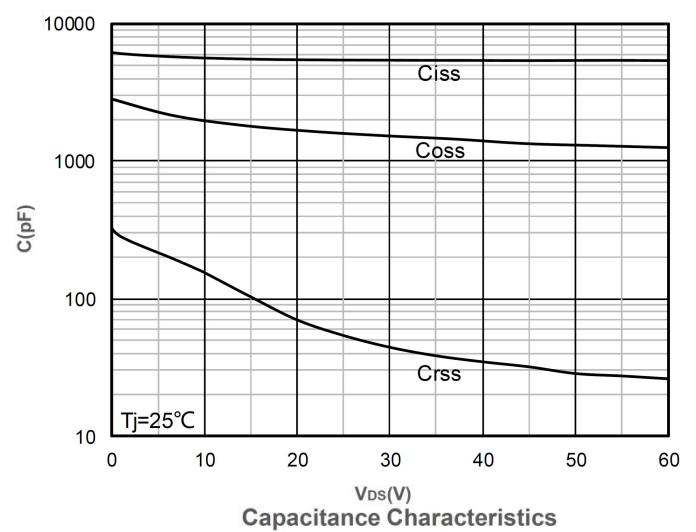
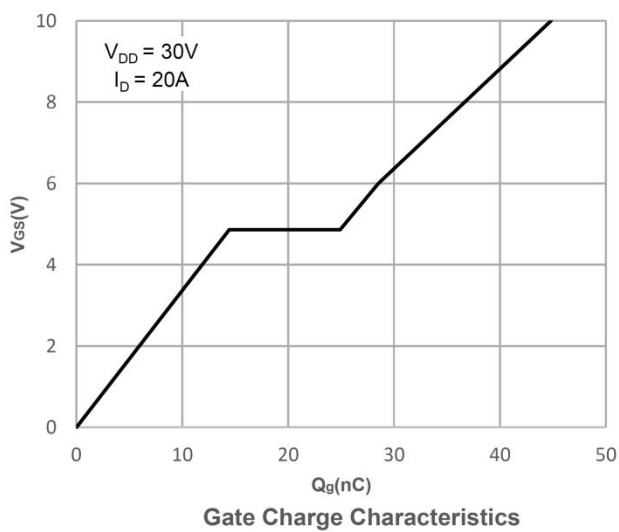
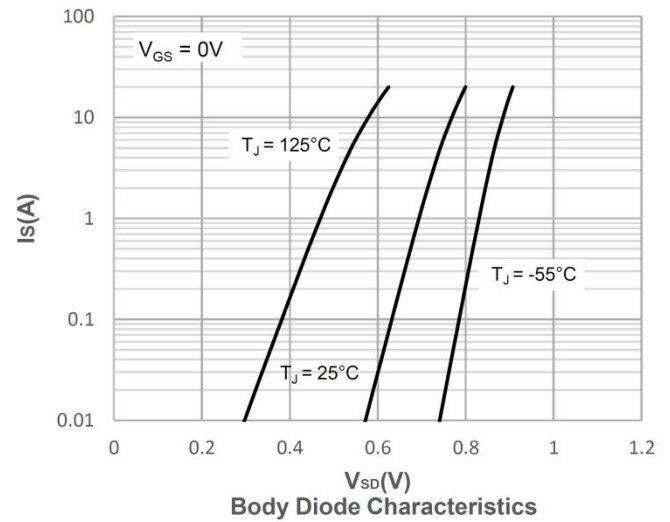
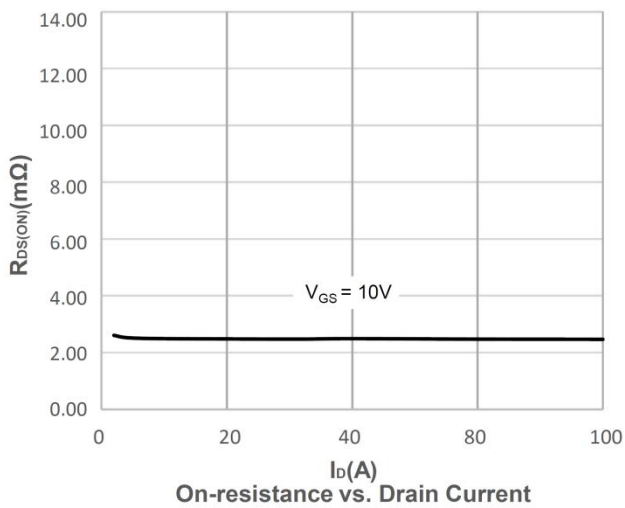
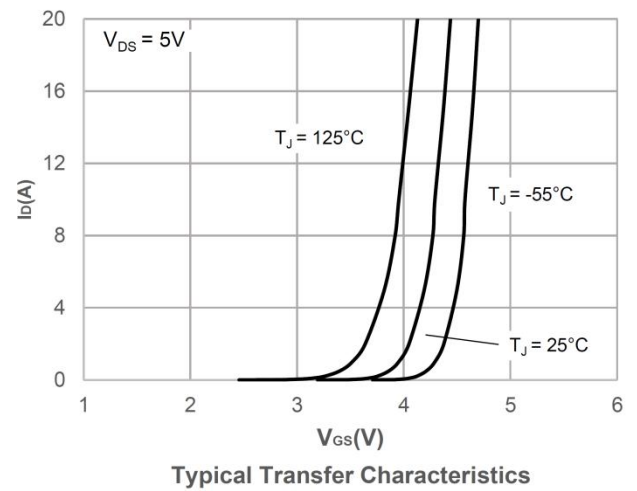
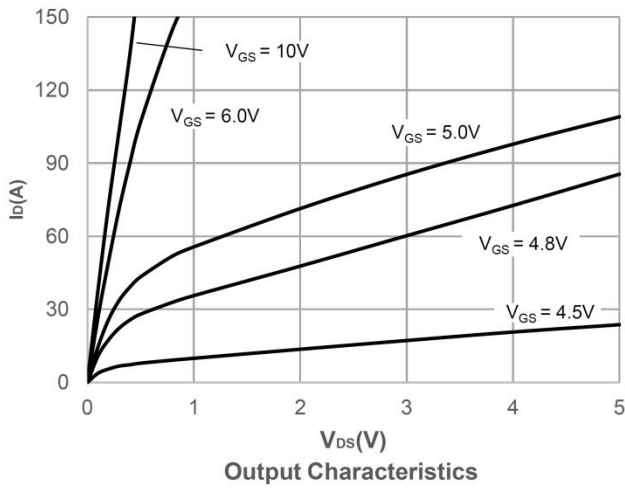
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DSS}	60	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current (Tc=25°C)	I _D	120	A
Continuous Drain Current (Tc=100°C)	I _D	80	A
Pulse Drain Current Tested	I _{DM}	480	A
Single Pulse Avalanche Energy ¹	E _{AS}	635	mJ
Power Dissipation (Tc=25°C)	P _D	120	W
Thermal Resistance Junction-to-Case	R _{θJC}	1.04	°C/W
Maximum Junction Temperature	T _J	-55 to 150	°C
Storage Temperature Range	T _{STG}	-55 to 150	°C

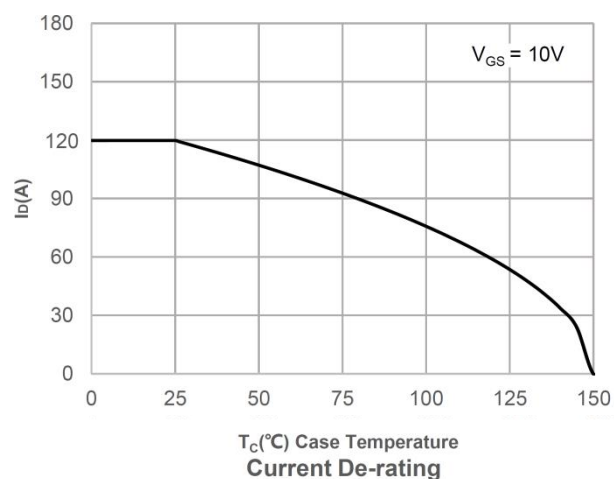
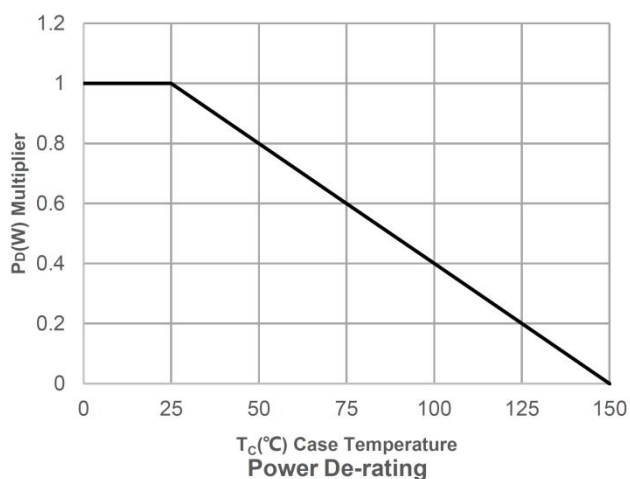
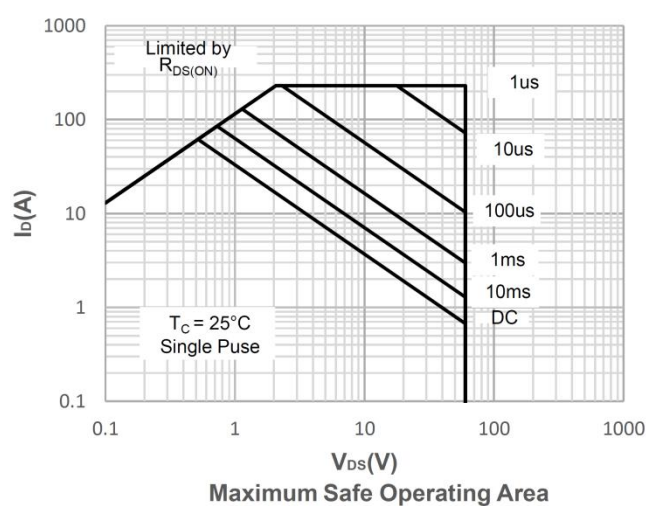
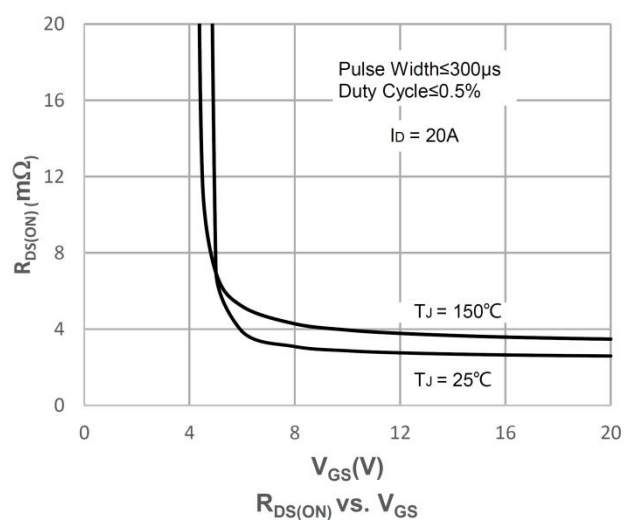
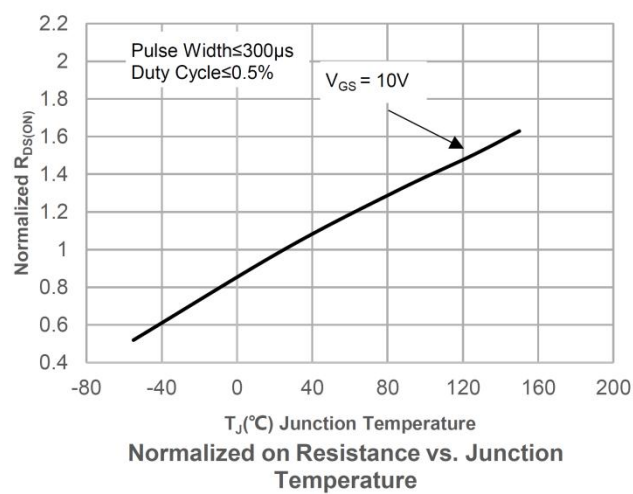
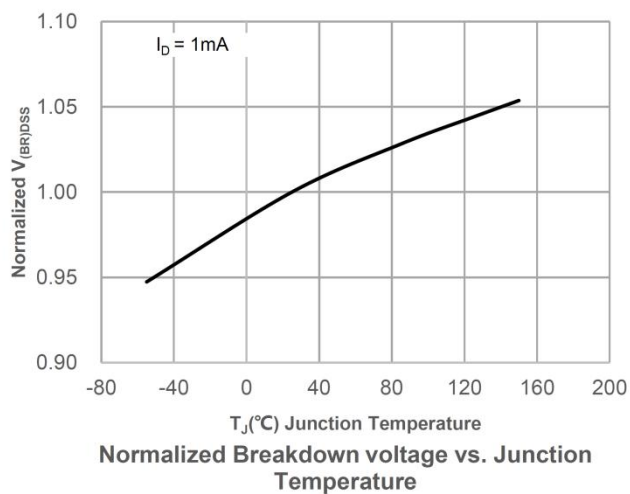
Electrical characteristics (Ta=25°C, unless otherwise noted)

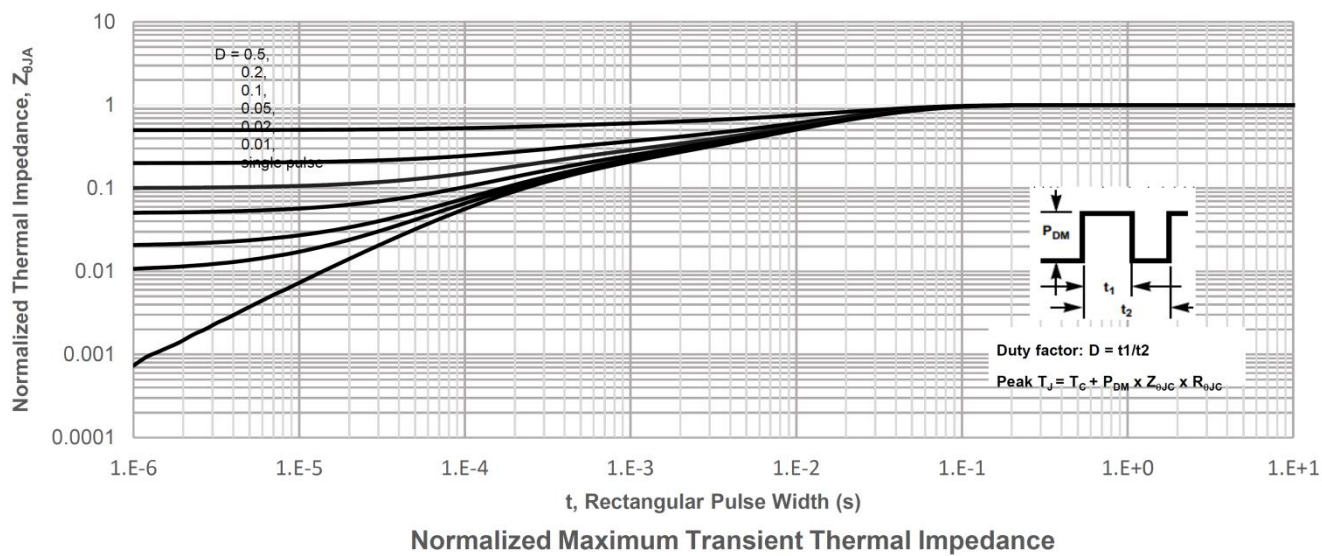
Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V, ID=250mA	60	-	-	V
Zero Gate Voltage Drain Current	IDSS	VDS=48V, VGS=0V	-	-	1	uA
Gate Leakage Current	IGSS	VGS=±20V, VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VDS=VGS, ID=250uA	1.2	1.7	2.2	V
Drain-Source On-state Resistance	RDS(ON)	VGS=10V, ID=40A	-	2.3	2.9	mΩ
		VGS=4.5V, ID=40A	-	2.7	4.3	
Dynamic Characteristics						
Input Capacitance	Ciss	VGS=0V, VDS=30V, F=1MHz	-	5300	-	pF
Output Capacitance	Coss		-	1698	-	
Reverse Transfer Capacitance	Crss		-	45	-	
Total Gate Charge	Qg	VDS=30V, VGS=10V, ID=30A	-	80	-	nC
Gate-Source Charge	Qgs		-	13.7	-	
Gate-Drain Charge	Qgd		-	18	-	
Switching Characteristics						
Turn-On Delay Time	td(on)	VDD=30V, ID=30A, VGS=10V, RG=3Ω	-	11.5	-	nS
Rise Time	tr		-	8.4	-	
Turn-Off Delay Time	td(off)		-	48.5	-	
Fall Time	tf		-	10.8	-	
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		-	-	120	A
Reverse Recovery Time	Trr	Is=20 A, di/dt=100 A/μs, TJ=25℃	-	45	-	nS
Reverse Recovery Charge	Qrr		-	41	-	nC

Note :

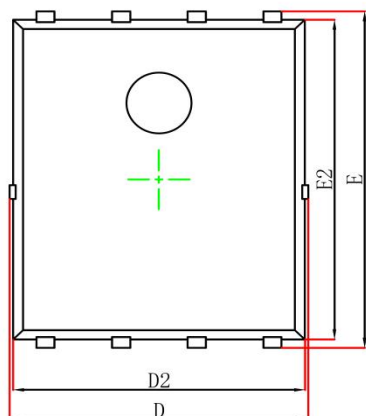
The test condition is VDD=30V, VGS=10V, L=0.3mH, RG=25Ω

**Typical Characteristics**

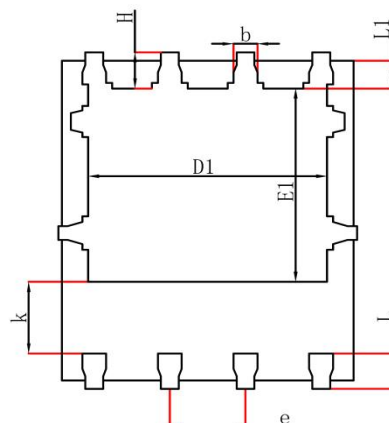




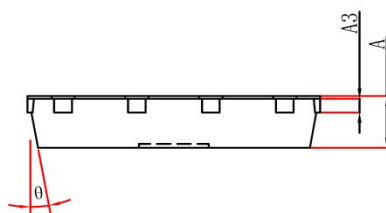
PDFN5X6-8L Package Information



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°