

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
100V	8.5mΩ@10V	60A
	12mΩ@4.5V	



**合肥矽普半导体**

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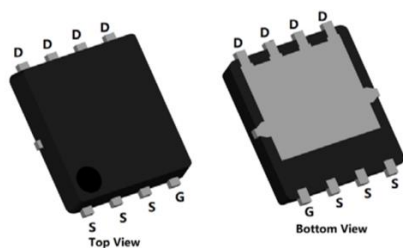
## Feature

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

## Applications

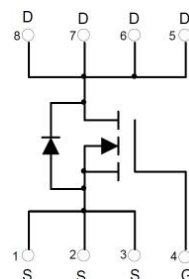
- Power switching application
- Battery management
- Uninterruptible power supply

## Package

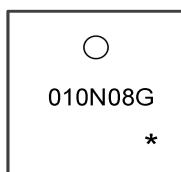


PDFN5X6-8L

## Circuit diagram



## Marking



**010N08G** : Product code  
\* : Month code

## Order Information

Device	Package	Unit/Tape
SP010N08GNK	PDFN5X6-8L	5000

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current (Tc=25°C)	$I_D$	60	A
Continuous Drain Current (Tc=100°C)	$I_D$	40	A
Pulsed Drain Current	$I_{DM}$	240	A
Single Pulse Avalanche Energy <sup>1</sup>	$E_{AS}$	173	mJ
Power Dissipation (Tc=25°C)	$P_D$	89	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.4	°C/W
Storage Temperature Range	$T_{STG}$	55 to 150	°C
Operating Junction Temperature Range	$T_J$	55 to 150	°C

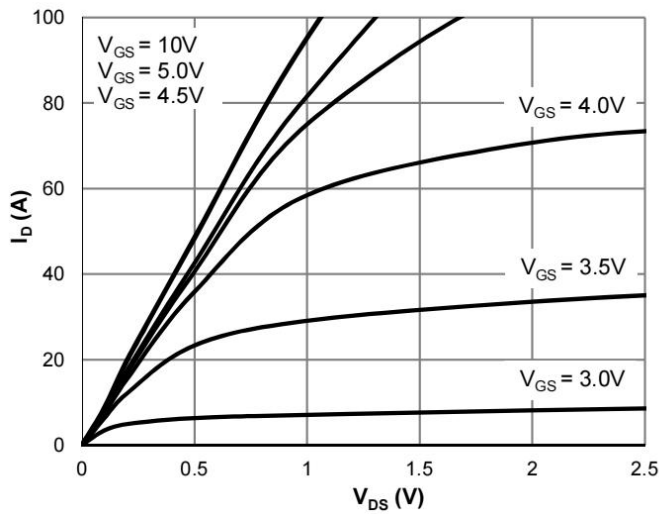
**Electrical characteristics (Ta=25°C, unless otherwise noted)**

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	B <sub>V</sub> DSS	I <sub>D</sub> = 250μA, V <sub>GS</sub> = 0V	100	-	-	V
Drain Cut-Off Current	I <sub>DSS</sub>	V <sub>DS</sub> = 80V, V <sub>GS</sub> = 0V	-	-	1	μA
Gate Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V	-	-	±0.1	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1.0	1.9	2.5	V
Drain-Source ON Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A	-	8.5	11	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 15A	-	12	16	
Dynamic Characteristics						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> = 0V, f = 1.0MHz	-	1635	-	pF
Output Capacitance	C <sub>oss</sub>		-	339	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	22	-	
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =50V , V <sub>GS</sub> =10V , I <sub>D</sub> =50A	-	14	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	5	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	7	-	
Switching Characteristics						
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>GS</sub> = 10V, V <sub>DS</sub> =50V, I <sub>D</sub> =50A R <sub>G</sub> = 4.7Ω	-	8	-	nS
Rise Time	t <sub>r</sub>		-	16	-	
Turn-Off Delay Time	t <sub>d(off)</sub>		-	31	-	
Fall Time	t <sub>f</sub>		-	27	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V , I <sub>S</sub> =1A , T <sub>J</sub> =25℃	-	-	1.2	V
Maximum Body-Diode Continuous Current	I <sub>S</sub>		-	-	60	A
Reverse Recovery Time	T <sub>rr</sub>	I <sub>S</sub> =20A, di/dt=100A/us, T <sub>J</sub> =25℃	-	49	-	nS
Reverse Recovery Charge	Q <sub>rr</sub>		-	78	-	nC

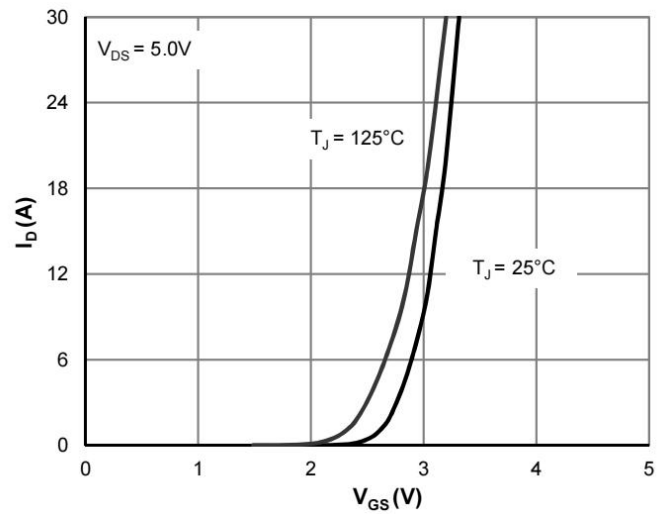
**Note:**

- The EAS test condition is  $V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$

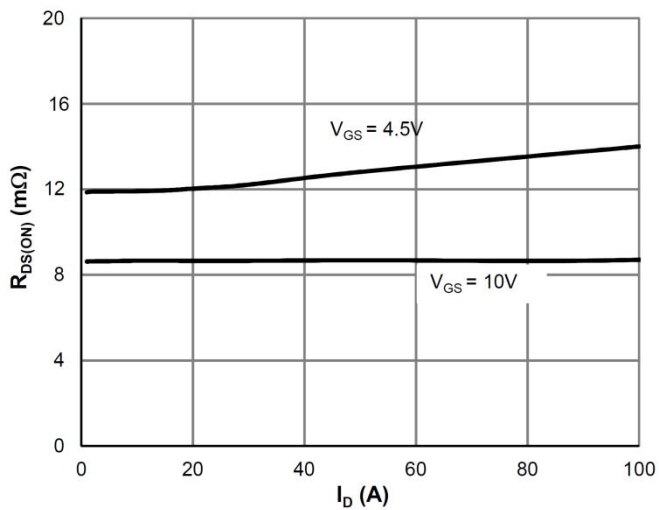
## Typical Characteristics



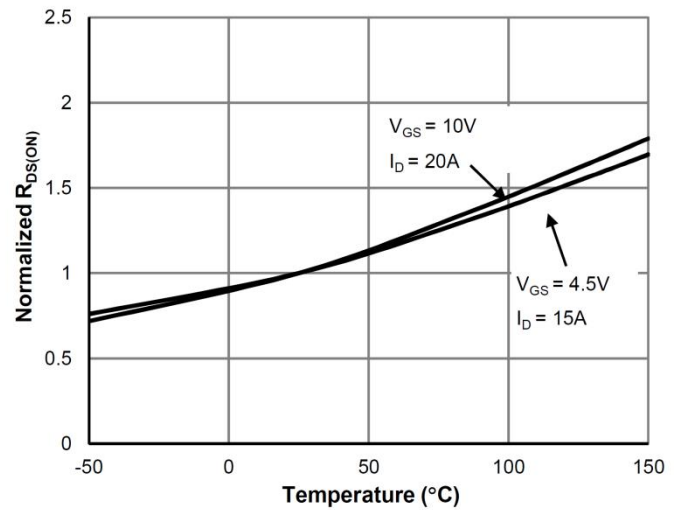
Typical Output Characteristics



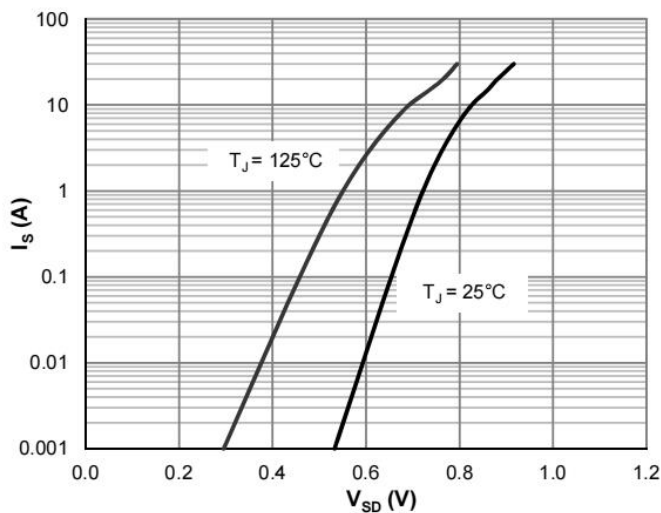
Transfer Characteristics



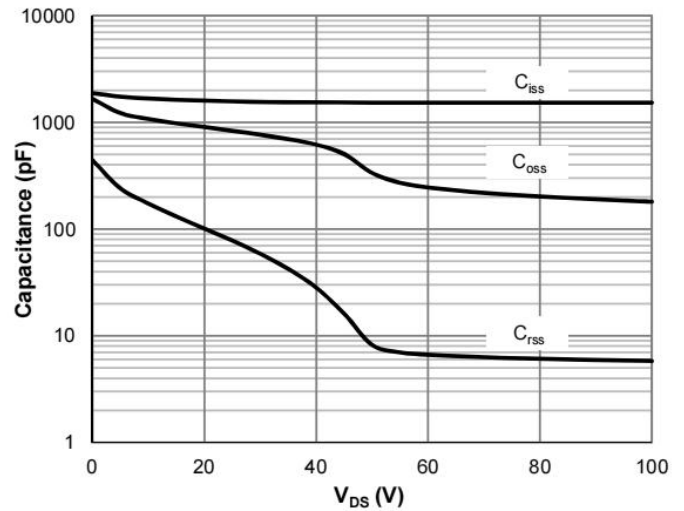
On-Resistance vs. Drain Current



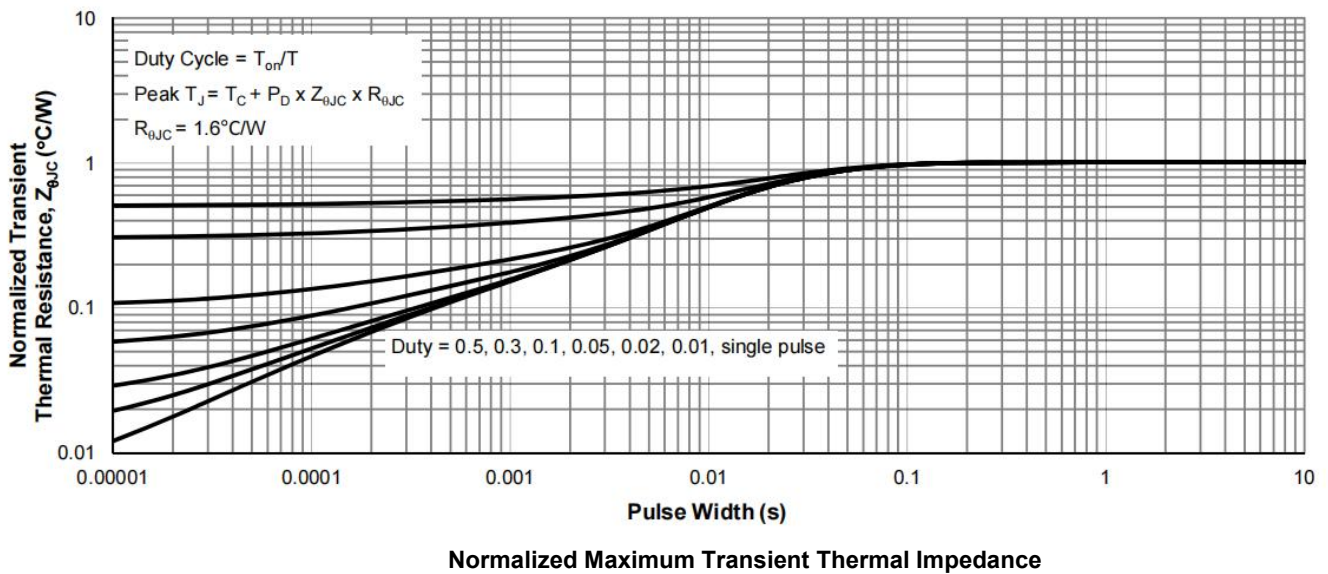
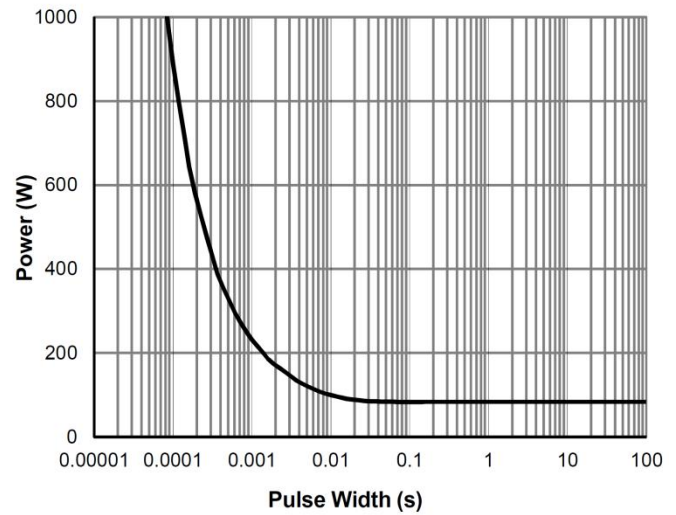
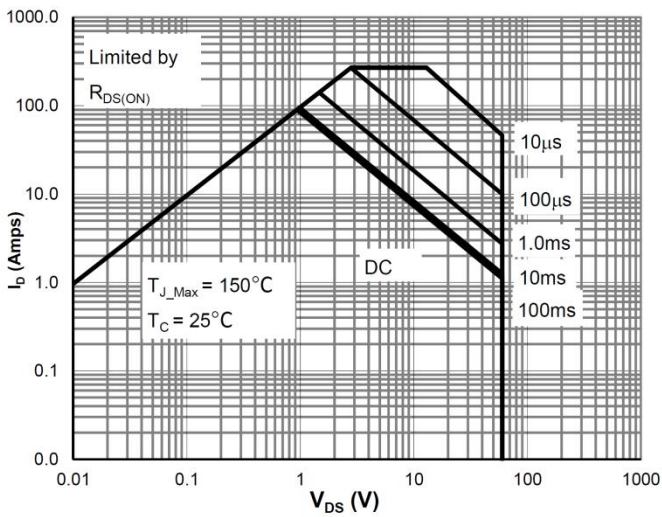
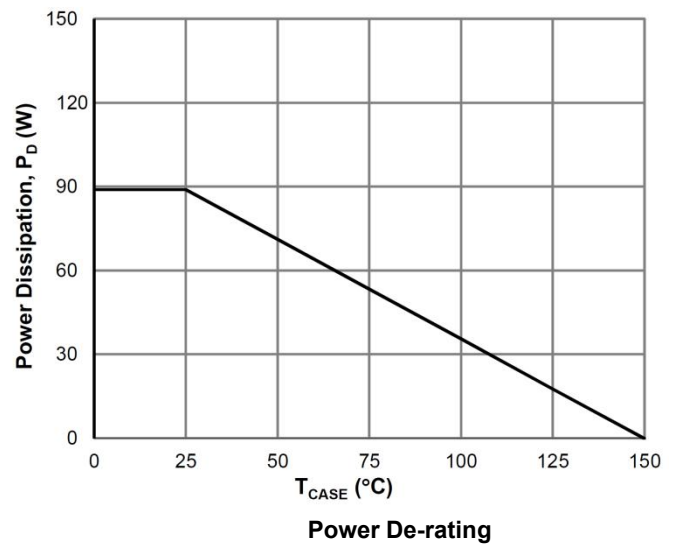
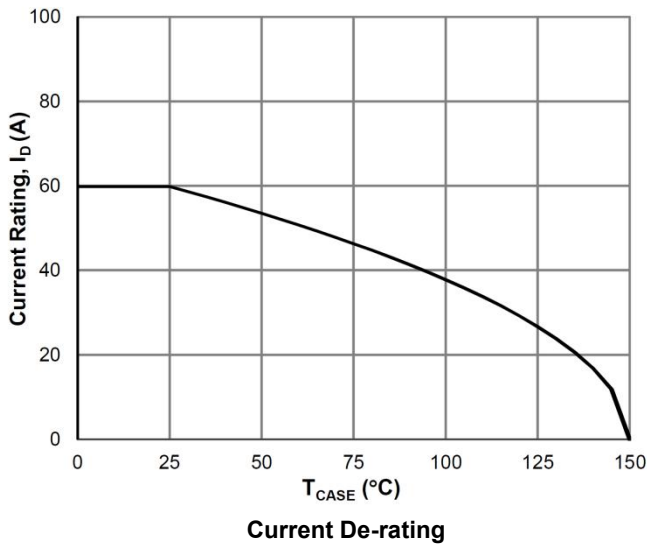
On-Resistance vs. Junction Temperature



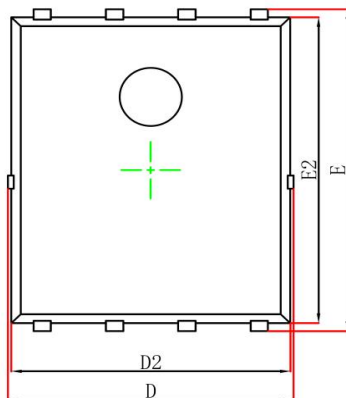
Body-Diode Characteristics



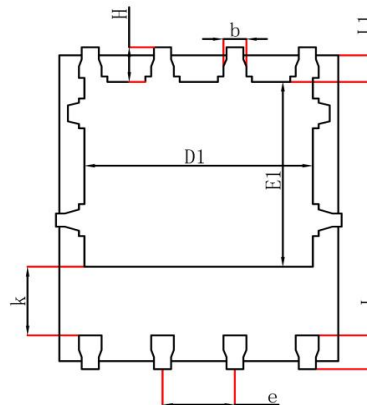
Capacitance Characteristics



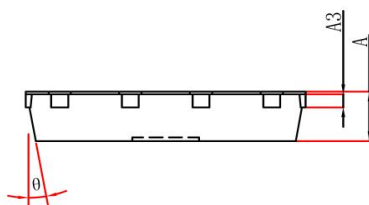
## PDFN5X6-8L Package Information



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°