Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	6.2mΩ@10V	70A
	8mΩ@4.5V	

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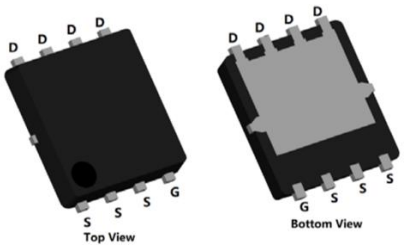
Feature

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

Applications

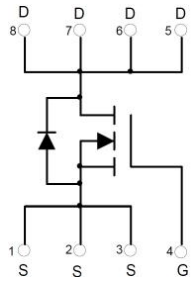
- Power switching application
- Battery management
- Uninterruptible power supply

Package

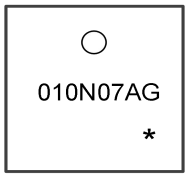


PDFN5X6-8L

Circuit diagram



Marking



010N07AG : Product code
*** : Month code**

Order Information

Device	Package	Unit/Tape
SP010N07AGNK	PDFN5X6-8L	5000

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Tc=25℃)	I_D	70	A
Continuous Drain Current (Tc=100℃)	I_D	50	A
Pulsed Drain Current	I_{DM}	280	A
Single Pulse Avalanche Energy[1]	E_{AS}	272	mJ
Power Dissipation (Tc=25℃)	P_D	92	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.36	℃/W
Storage Temperature Range	T_{STG}	55 to 150	℃
Operating Junction Temperature Range	T_J	55 to 150	℃

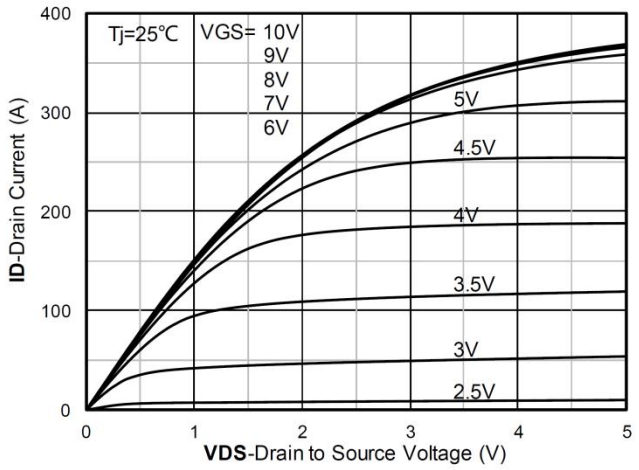
Electrical characteristics (Ta=25℃, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D = 250μA, V_{GS} = 0V	100	-	-	V
Drain Cut-Off Current	I_{DSS}	V_{DS} = 80V, V_{GS} = 0V	-	-	1	uA
Gate Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V	-	-	±0.1	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.7	2.5	V
Drain-Source ON Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 30A	-	6.2	7.8	mΩ
		V_{GS} = 4.5V, I_D = 25A	-	8	10.5	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} =50V, V_{GS} = 0V, f = 1.0MHz	-	1942	-	pF
Output Capacitance	C_{oss}		-	388	-	
Reverse Transfer Capacitance	C_{rss}		-	12	-	
Total Gate Charge	Q_g	V_{DS}=50V , VGS=10V , ID=50A	-	67	-	nC
Gate-Source Charge	Q_{gs}		-	12	-	
Gate-Drain Charge	Q_{gd}		-	21	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{GS} = 50V, V_{DS} =50V, ID=50A R_G = 4.7Ω	-	12	-	nS
Rise Time	t_r		-	11	-	
Turn-Off Delay Time	$t_{d(off)}$		-	42	-	
Fall Time	t_f		-	6	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_S=1A , T_J=25℃	-	-	1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	70	A
Reverse Recovery Time	Trr	I_S=20A, di/dt=100A/us, T_J=25℃	-	59	-	nS
Reverse Recovery Charge	Qrr		-	88	-	nC

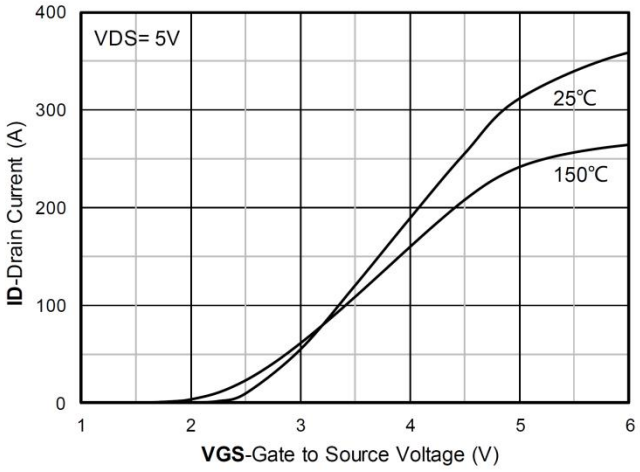
Note：

1. The EAS test condition is VDD=50V,VGS=10V,L=0.5mH,RG=25Ω

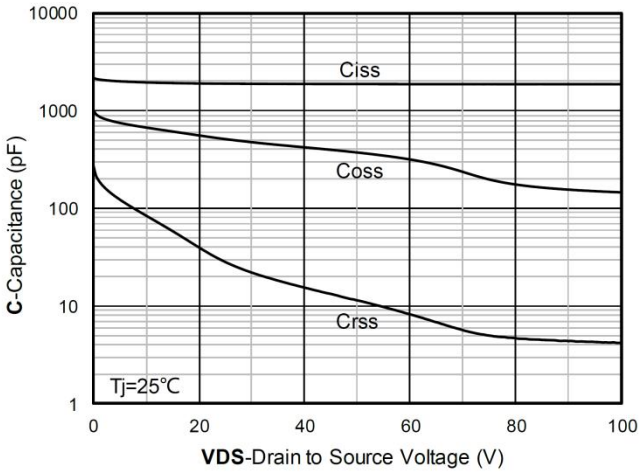
Typical Characteristics



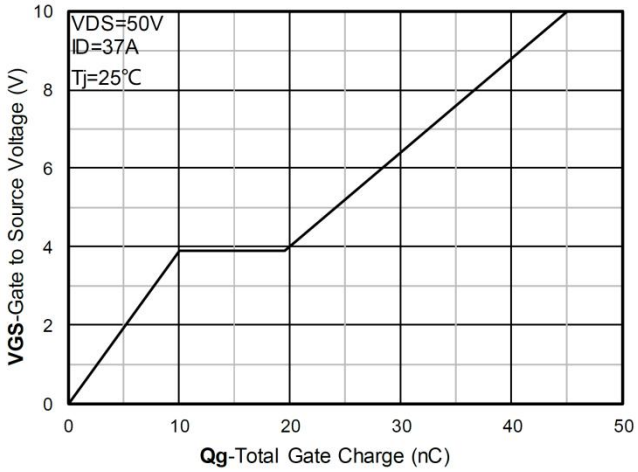
Output Characteristics



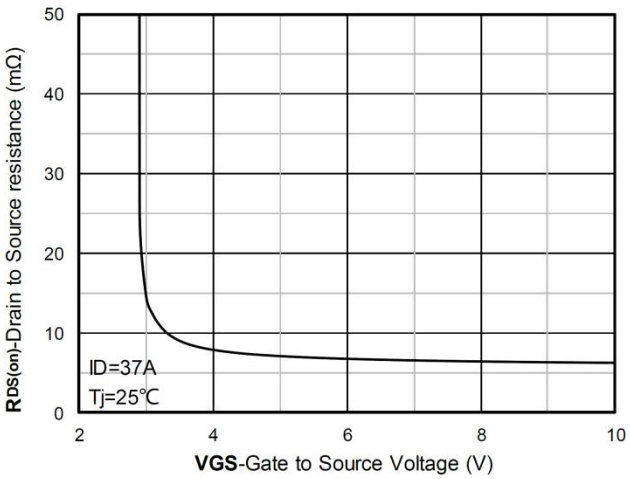
Transfer Characteristics



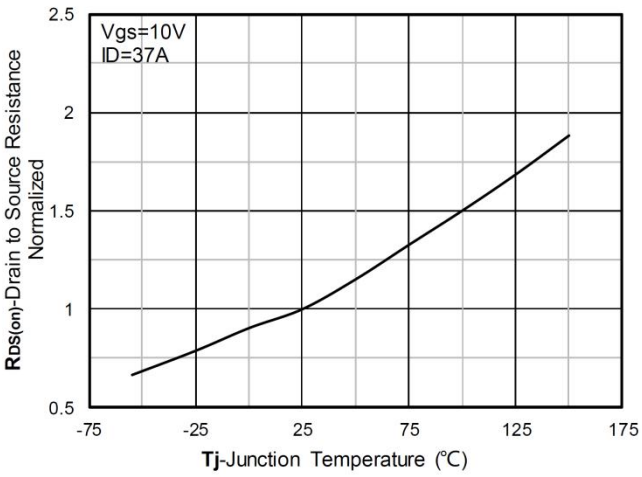
Capacitance Characteristics



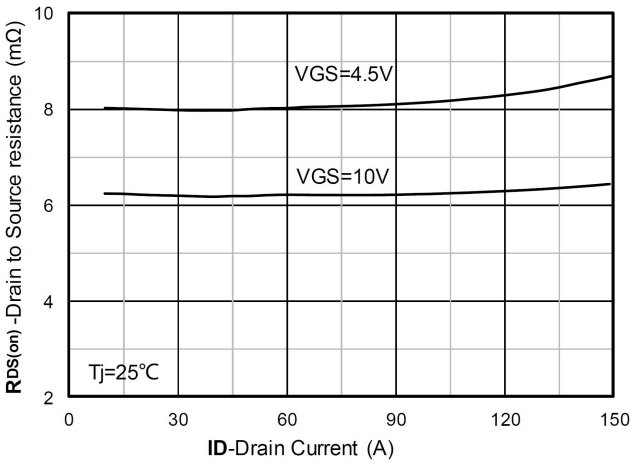
Gate Charge



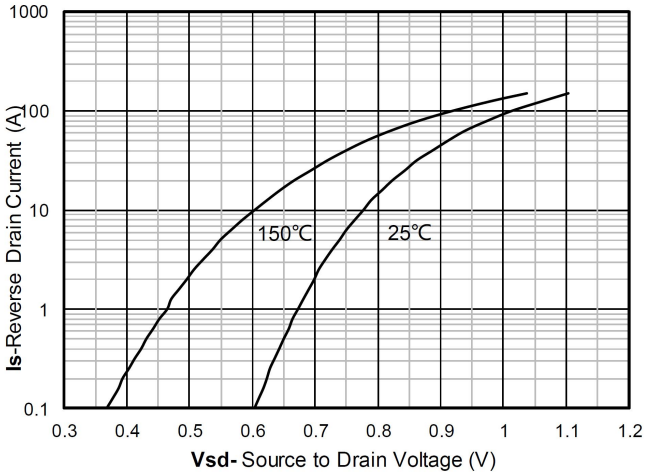
On-Resistance vs Gate to Source Voltage



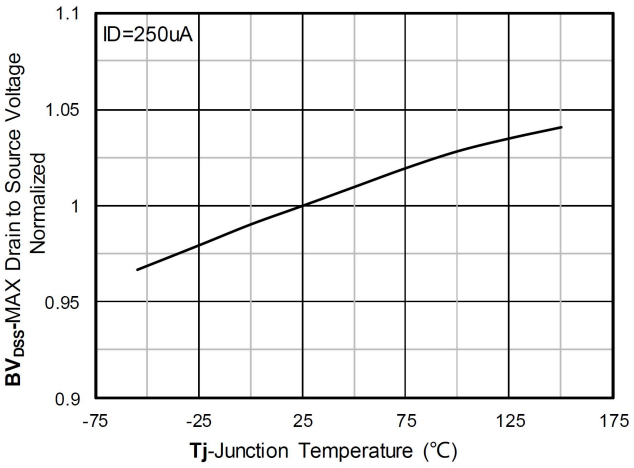
Normalized On-Resistance



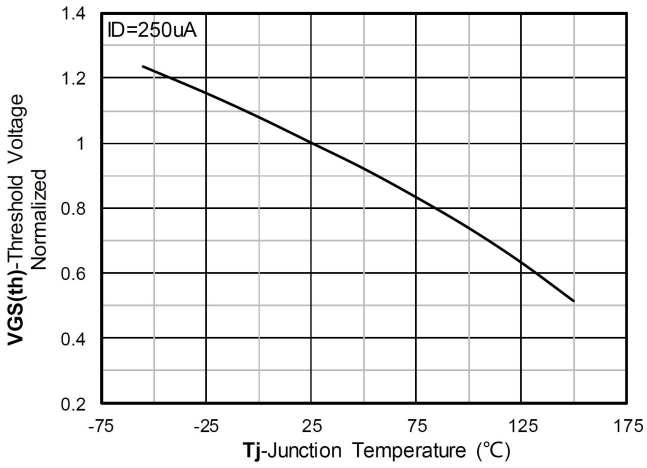
RDS(on) VS Drain Current



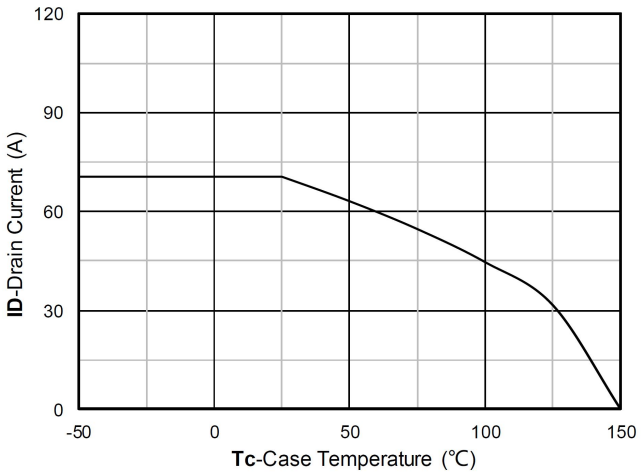
Forward characteristics of reverse diode



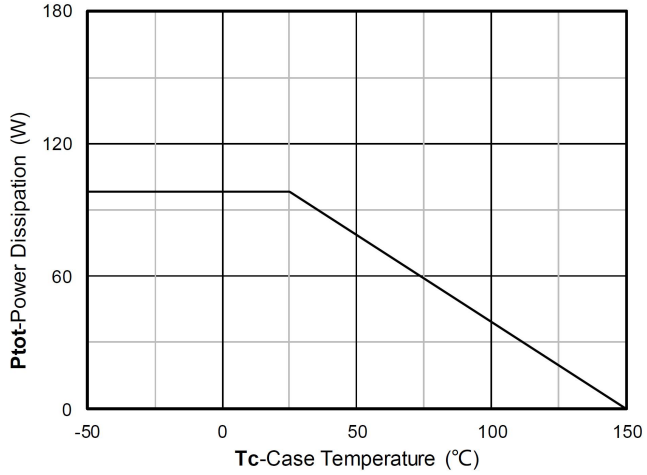
Normalized breakdown voltage



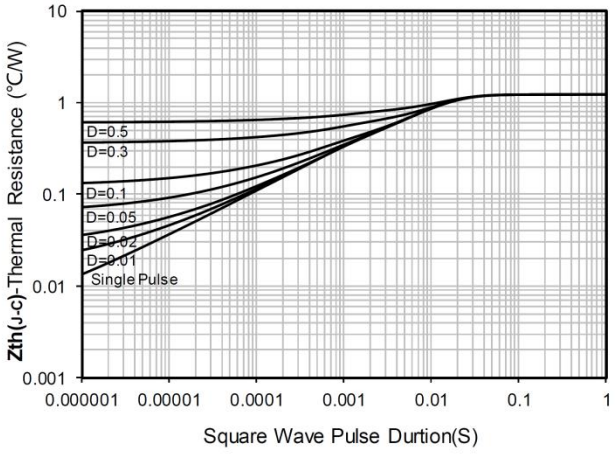
Normalized Threshold voltage



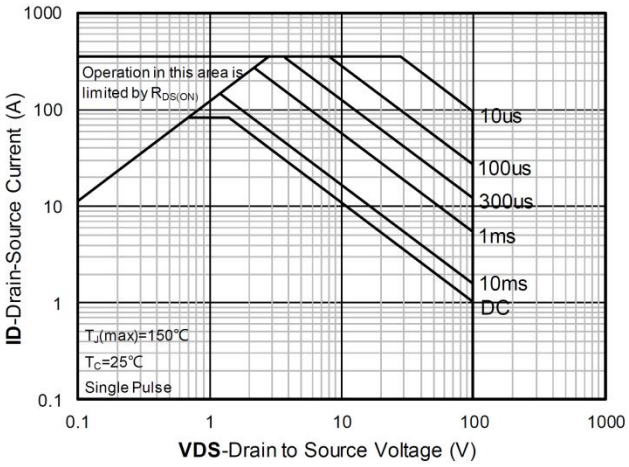
Current dissipation



Power dissipation

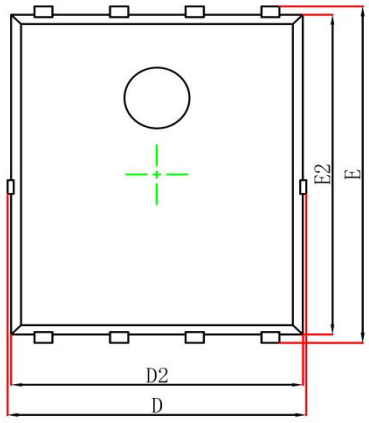


Maximum Transient Thermal Impedance

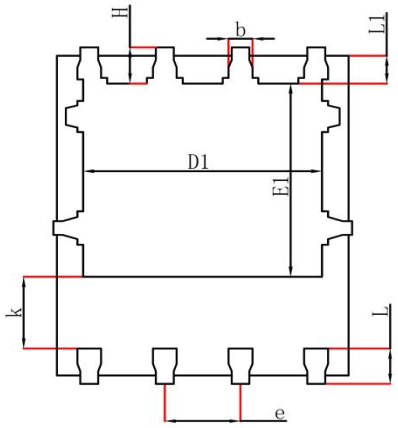


Safe Operation Area

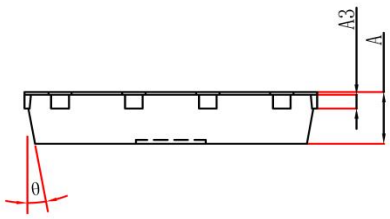
PDFN5X6-8L Package Information



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°