

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-100V	70mΩ@-10V	-14A
	85mΩ@-4.5V	



合肥矽普半导体

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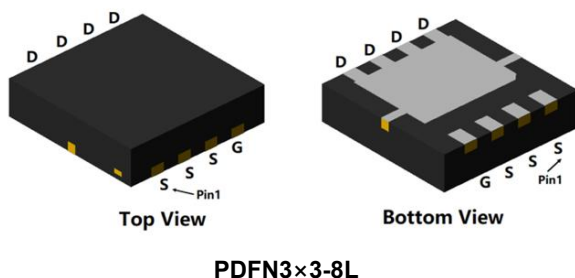
Feature

- Fast switching speed
- Low On-Resistance
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

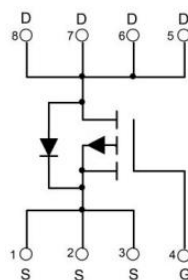
Applications

- DC-DC Converters.
- Power Management

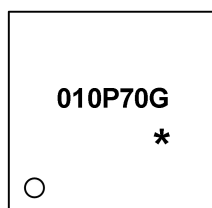
Package



Circuit diagram



Marking



010P70G :Device Code
* :Month Code

Order Information

Device	Package	Unit/Tape
SP010P70GNJ	PDFN3×3-8L	5000

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	-100	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current (Tc=25°C)	I_D	-14	A
Pulse Drain Current Tested	I_{DM}	-56	A
Single Pulse Avalanche Energy ¹	EAS	110	mJ
Maximum Power Dissipation (Tc=25°C)	P_D	50	W
Thermal Resistance-Junction to Case	$R_{\theta JC}$	2.5	°C/W
Maximum Junction Temperature	T_J	-55 to 150	°C
Storage Temperature Range	T_{STG}	-55 to 150	°C

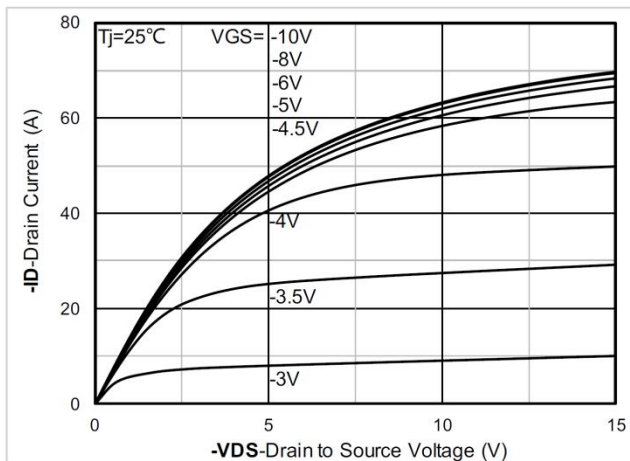
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=-250uA	-100	---	---	V
Drain-Source Leakage Current	IDSS	VDS=-80V , VGS=0V , TJ=25°C	---	---	-1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	---	---	±100	nA
Gate Threshold Voltage	VGS(th)	VGS=VDS , ID =-250uA	-1	-1.7	-2.5	V
Static Drain-Source On-Resistance	RDS(ON)	VGS=-10V , ID=-10A	---	70	88	mΩ
		VGS=-4.5V , ID=-5A	---	85	115	mΩ
Dynamic characteristics						
Input Capacitance	Ciss	VDS=-50V , VGS=0V , f=1MHz	---	1050	---	pF
Output Capacitance	Coss		---	120	---	
Reverse Transfer Capacitance	Crss		---	23	---	
Switching Characteristics						
Total Gate Charge (4.5V)	Qg	VDS=-50V , VGS=-10V , ID=-10A	---	20	---	nC
Gate-Source Charge	Qgs		---	4	---	
Gate-Drain Charge	Qgd		---	4.4	---	
Turn-On Delay Time	Td(on)	VDD=-50V, VGS=-10V , RG=9.1Ω, ID=-20A	---	15	---	ns
Rise Time	Tr		---	30	---	
Turn-Off Delay Time	Td(off)		---	73	---	
Fall Time	Tf		---	76	---	
Diode Characteristics						
Diode Forward Voltage ²	VSD	VGS=0V , IS=-1A , TJ=25°C	---	---	-1.2	V
Reverse recover time	Trr	ISD=5A, di/dt=100A/us, Vdd=50V, Tj=25°C	---	23	---	ns
Reverse recovery charge	Qrr		---	68	---	nC
Diode Continuous Current	IS		---	---	-14	A

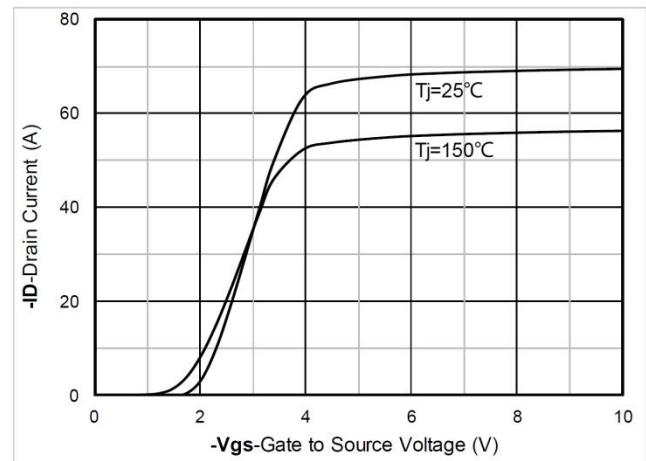
Note:

1. EAS test conditions $T_J=25^\circ C, V_{DD}=20V, V_G=10V, L=0.5mH, R_g=25\Omega$

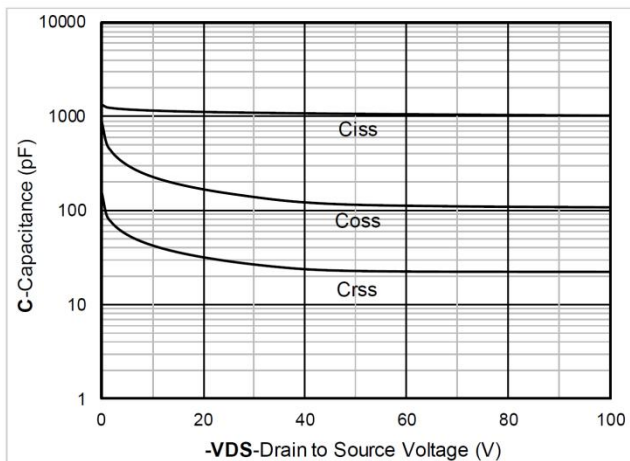
Typical Characteristics



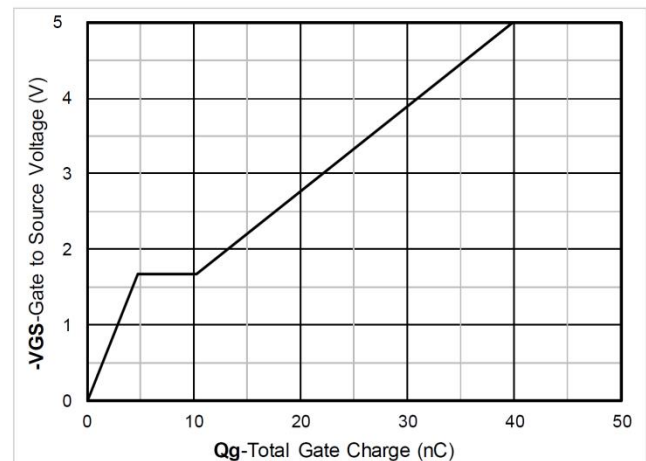
Output Characteristics



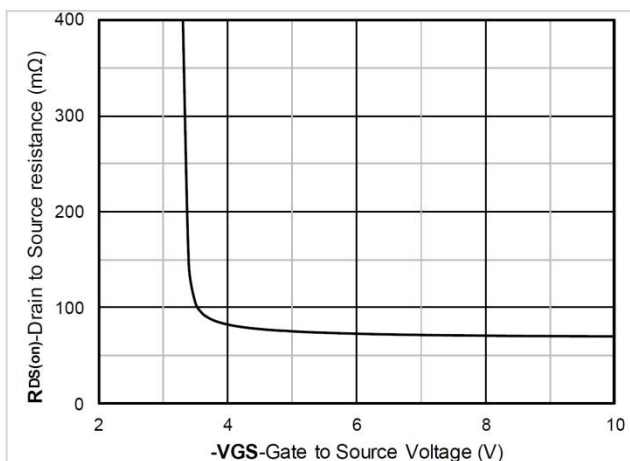
Transfer Characteristics



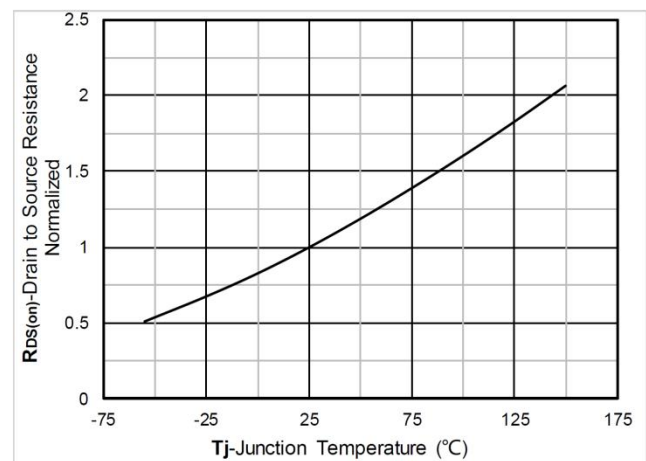
Capacitance Characteristics



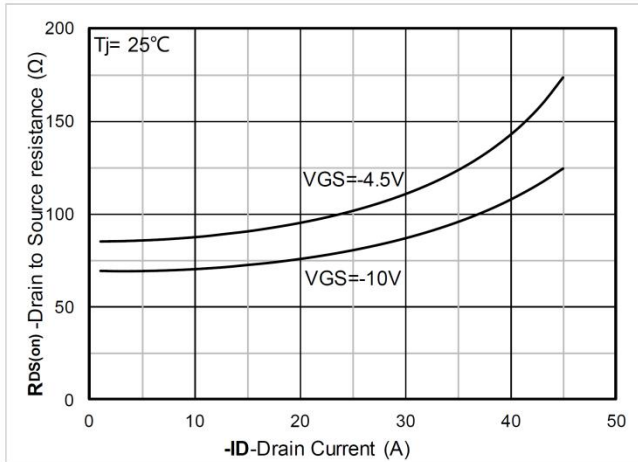
Gate Charge



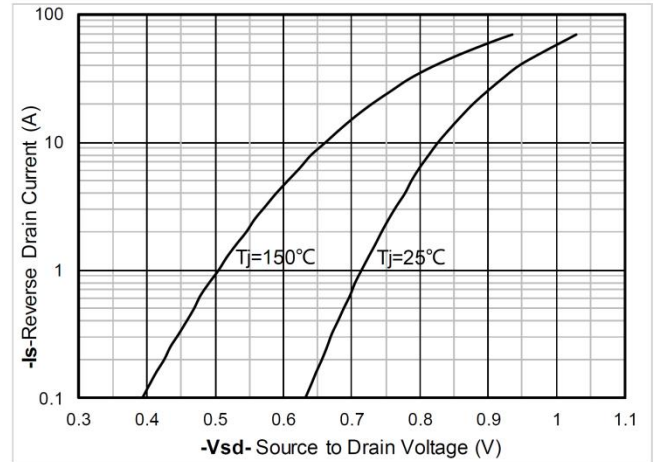
On-Resistance vs Gate to Source Voltage



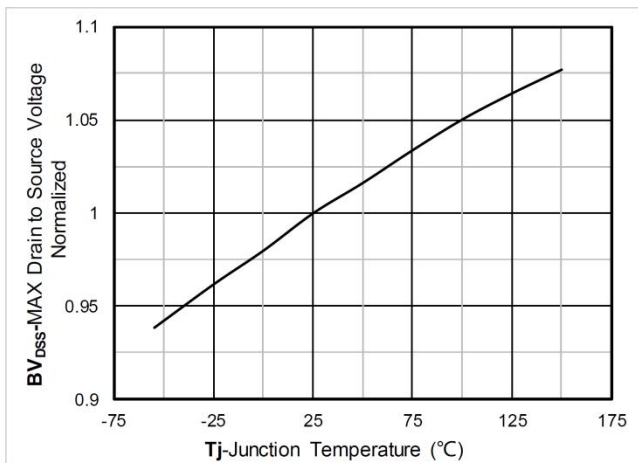
Normalized On-Resistance



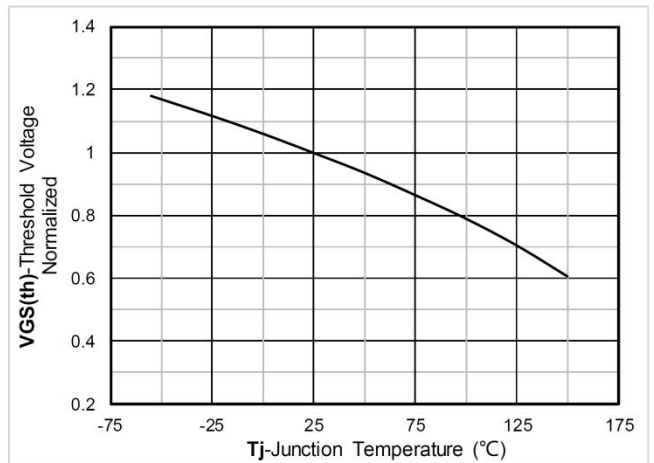
RDS(on) VS Drain Current



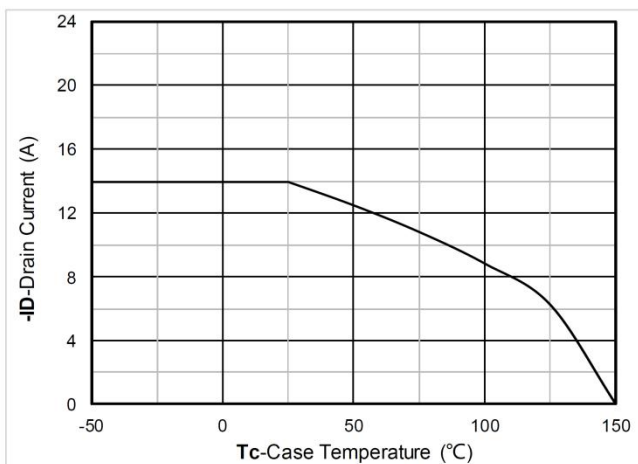
Forward characteristics of reverse diode



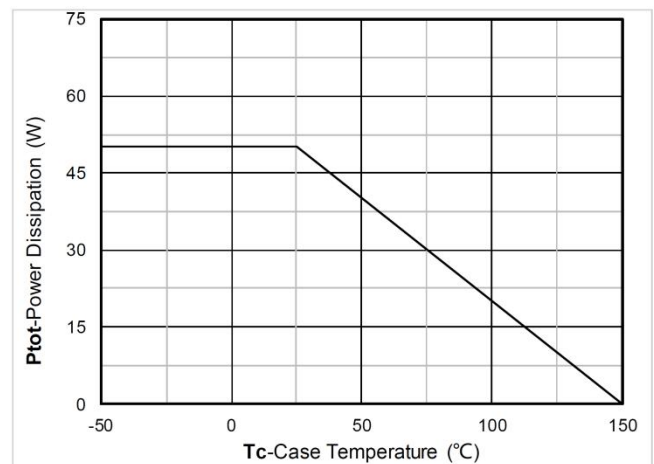
Normalized breakdown voltage



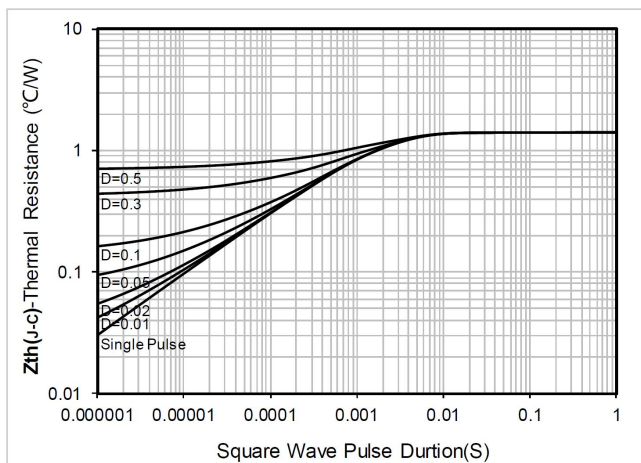
Normalized Threshold voltage



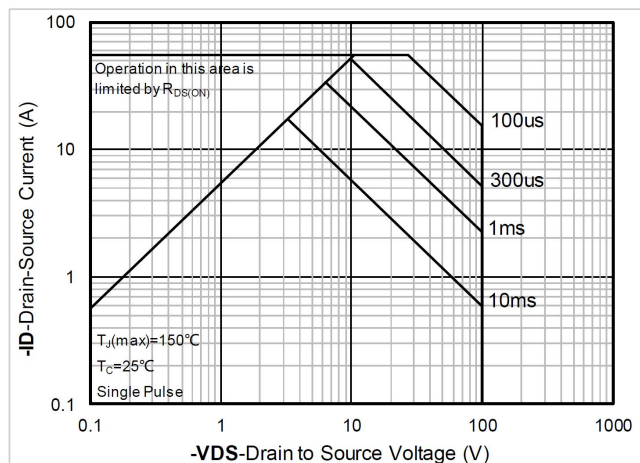
Current dissipation



Power dissipation

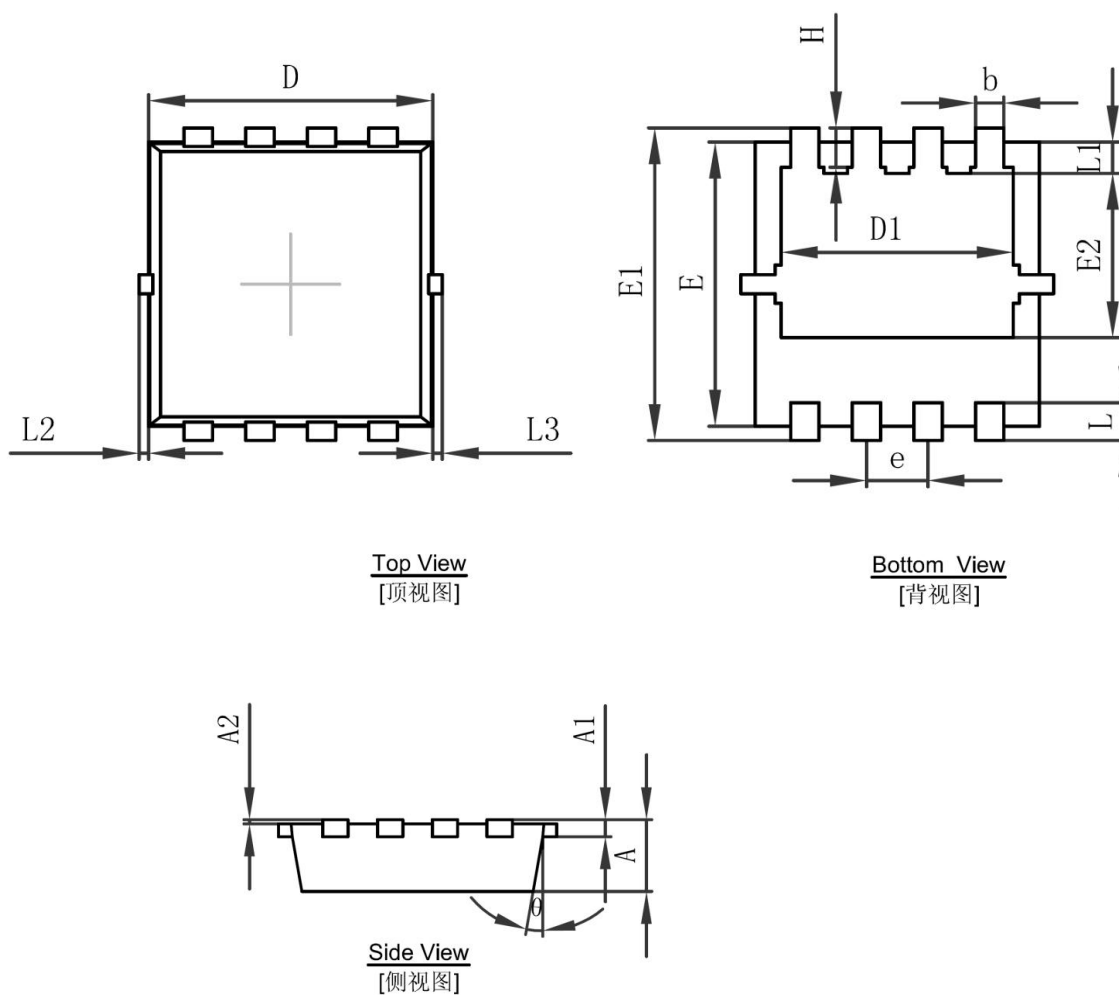


Maximum Transient Thermal Impedance



Safe Operation Area

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°