

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-40V	8.6mΩ@-10V	-33A
	13mΩ@-4.5V	



合肥矽普半导体

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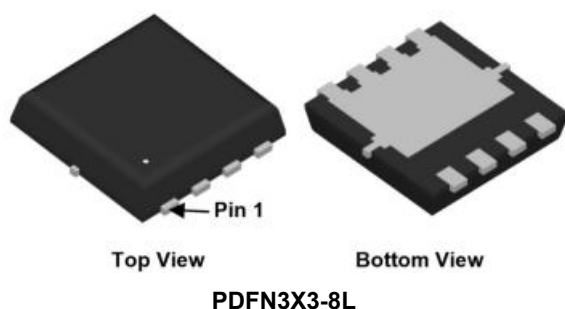
Feature

- Fast switching speed
- Low On-Resistance
- 100% Single Pulse avalanche energy Test

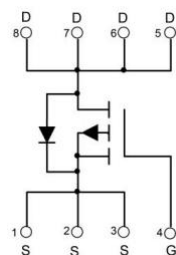
Applications

- DC-DC Converters.
- Power Management

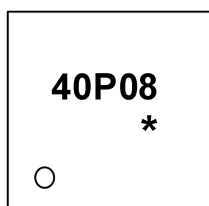
Package



Circuit diagram



Marking



40P08
*

:Device Code
:Month Code

Order Information

Device	Package	Unit/Tape
SP40P08NJ	PDFN3X3-8L	5000

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DSS}	-40	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current (Tc=25°C)	I _D	-33	A
Continuous Drain Current (Tc=100°C)	I _D	-22	A
Pulse Drain Current Tested	I _{DM}	-132	A
Single Pulse Avalanche Energy ¹	E _{AS}	144	mJ
Power Dissipation (Tc=25°C)	P _D	60	W
Thermal Resistance Junction-to-Case	R _{θJC}	2.08	°C/W
Storage Temperature Range	T _{STG}	-55 to 150	°C
Operating Junction Temperature Range	T _J	-55 to 150	°C

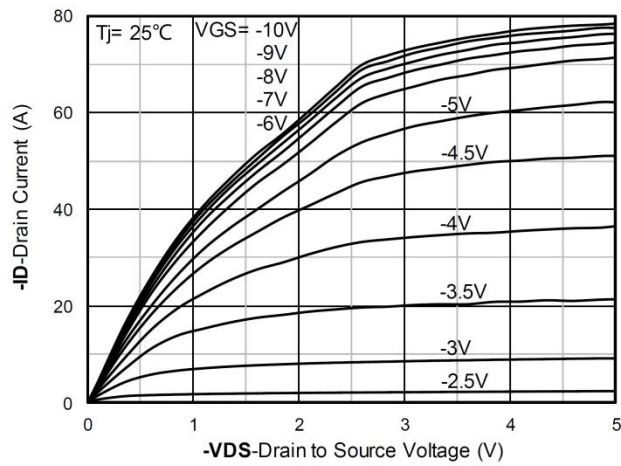
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=-250uA	-40	-	-	V
Drain-Source Leakage Current	I _{DSS}	VDS=-32V , VGS=0V , TJ=25℃	-	-	-1	uA
Gate-Source Leakage Current	I _{GSS}	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	VGS=VDS , ID =-250uA	-1.2	-1.6	-2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	VGS=-10V , ID=-10A	-	8.6	11	mΩ
		VGS=-4.5V , ID=-8A	-	13	18	
Dynamic characteristics						
Input Capacitance	C _{iss}	VDS=-20V , VGS=0V , f=1MHz	-	3800	-	pF
Output Capacitance	C _{oss}		-	329	-	
Reverse Transfer Capacitance	C _{rss}		-	289	-	
Total Gate Charge	Q _g	VDS=-20V , VGS=-10V , ID=-20A	-	69	-	nC
Gate-Source Charge	Q _{gs}		-	11	-	
Gate-Drain Charge	Q _{gd}		-	13	-	
Switching Characteristics						
Turn-On Delay Time	T _{d(on)}	VDD=-20V, VGS=-10V , RG=3Ω, ID=-20A	-	11	-	nS
Rise Time	T _r		-	81	-	
Turn-Off Delay Time	T _{d(off)}		-	95	-	
Fall Time	T _f		-	73	-	
Diode Characteristics						
Diode Forward Voltage	V _{SD}	VGS=0V , IS=-1A , TJ=25℃	-	-	-1.2	V
Maximum Body-Diode Continuous Current	I _S		-	-	-33	A
Reverse recover time	T _{rr}	I _S =-20A, di/dt=100A/us, TJ=25℃	-	21	-	nS
Reverse recovery charge	Q _{rr}		-	12	-	nC

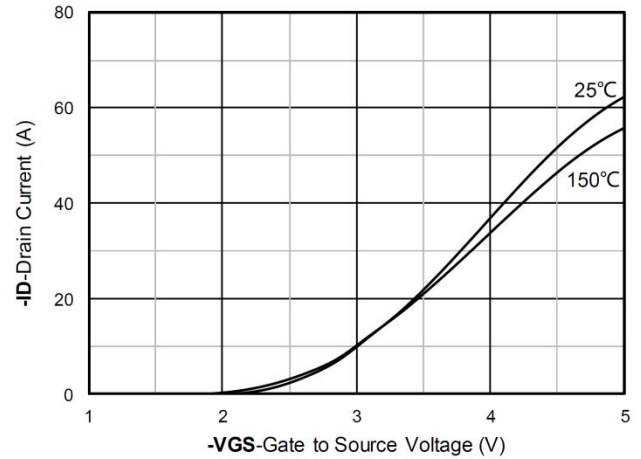
Note:

- The EAS test condition is VDD=-20V, VG=-10V, L=0.5mH, Rg=25Ω

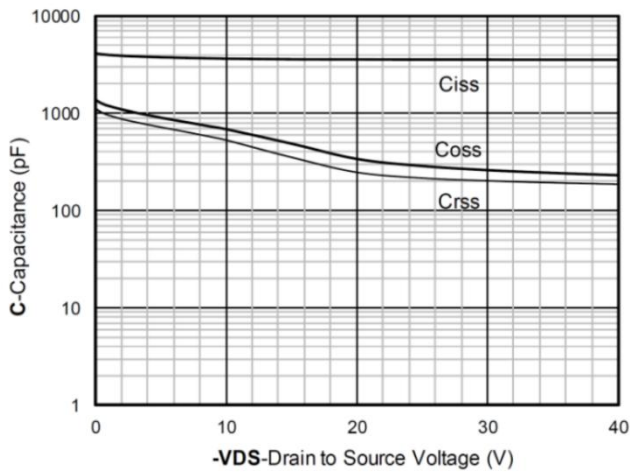
Typical Characteristics



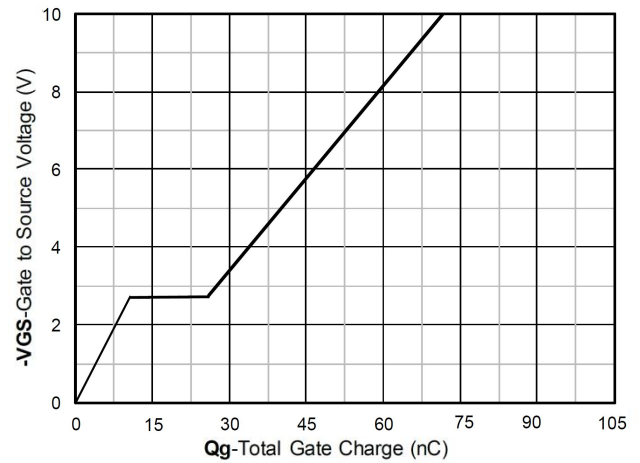
Output Characteristics



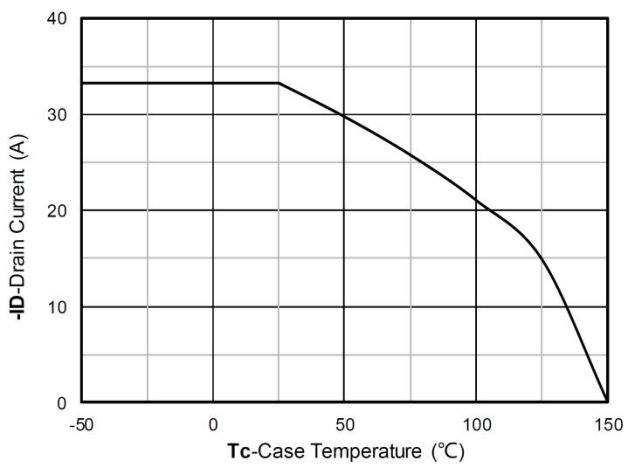
Transfer Characteristics



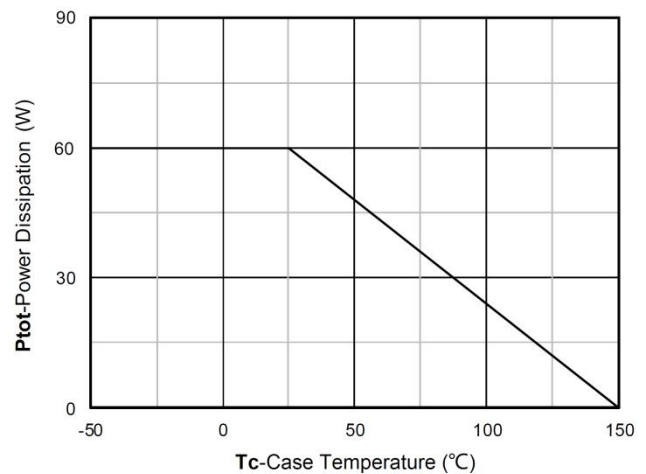
Capacitance Characteristics



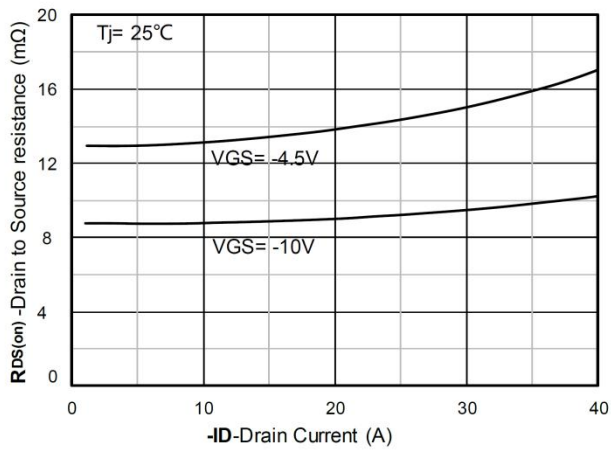
Gate Charge



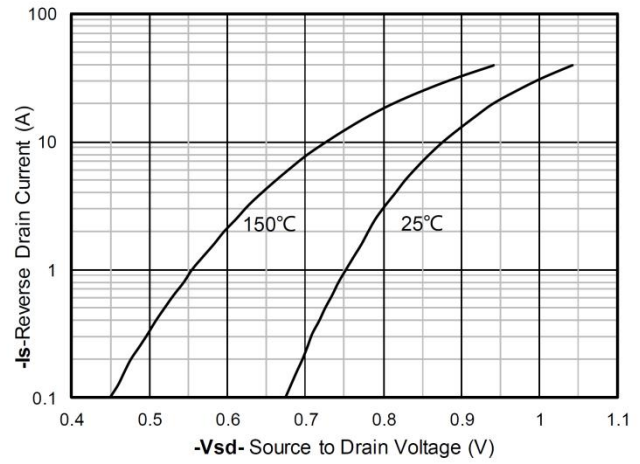
Current dissipation



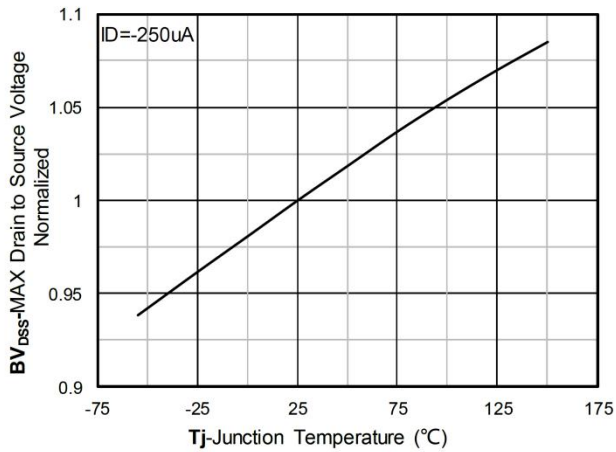
Power dissipation



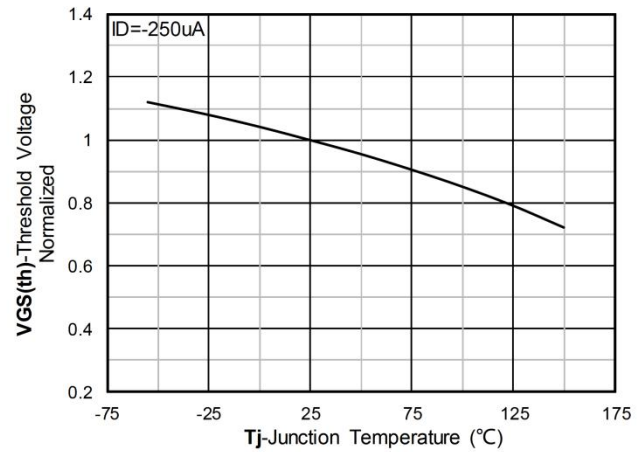
RDS(on) VS Drain Current



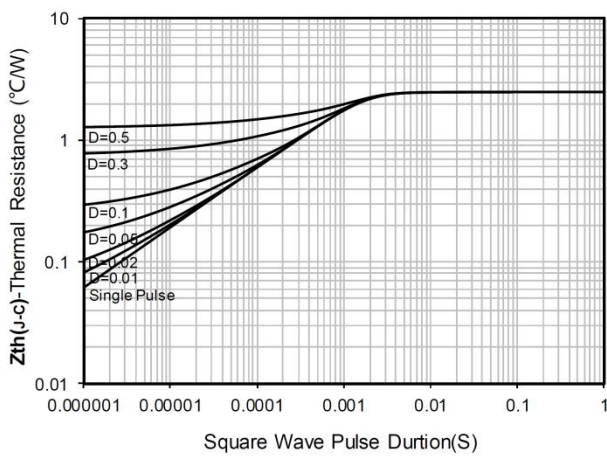
Forward characteristics of reverse diode



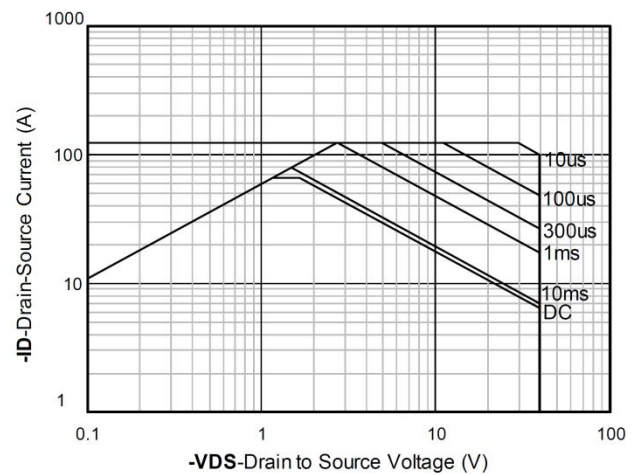
Normalized breakdown voltage



Normalized Threshold voltage

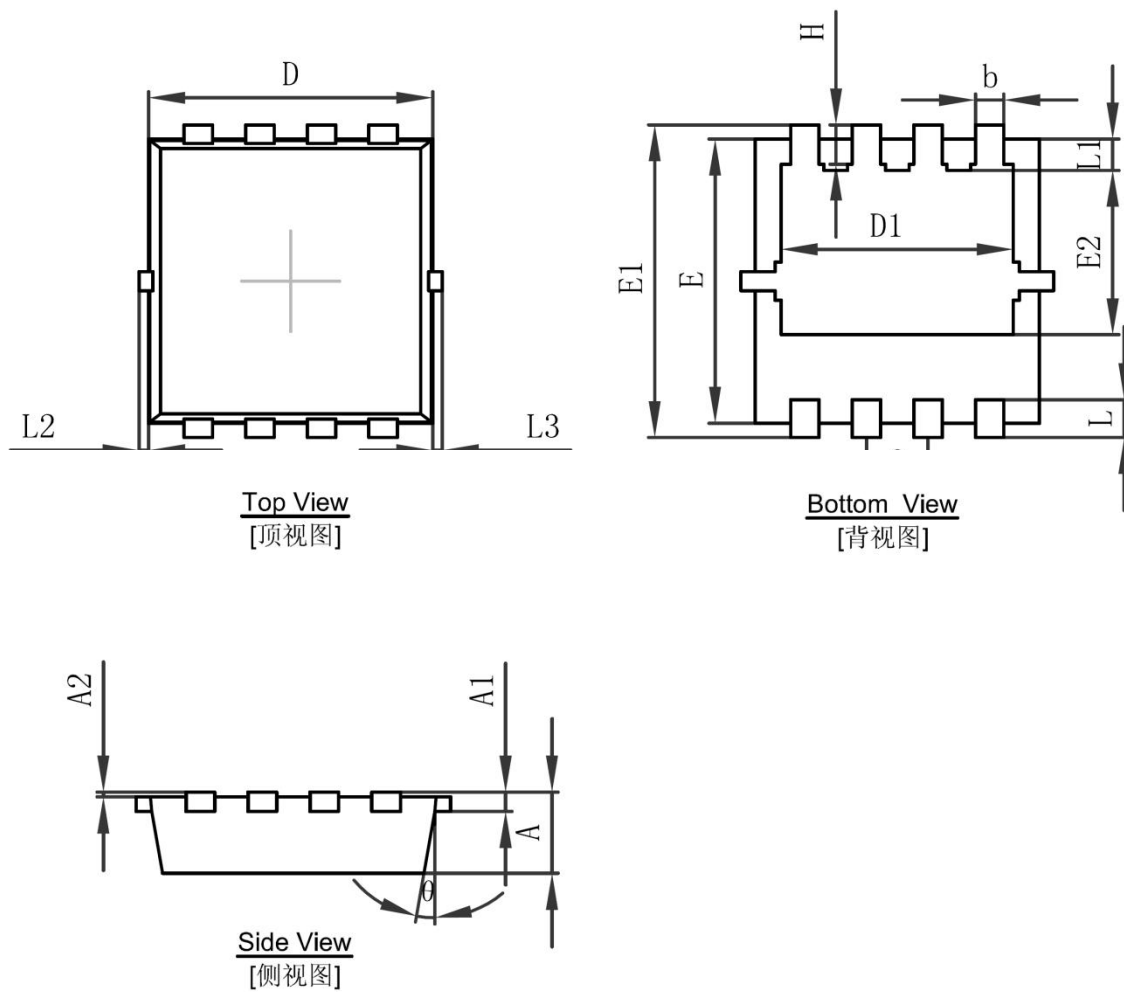


Maximum Transient Thermal Impedance



Safe Operation Area

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°