

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	30mΩ@10V	4A
	35mΩ@4.5V	
-30V	60mΩ@-10V	-3.5A
	80mΩ@-4.5V	



合肥矽普半导体

Siliup Semiconductor Technology Co., Ltd

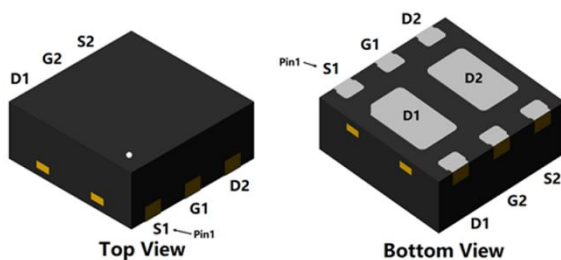
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Feature

- Low On-Resistance
- Low Input Capacitance

Package

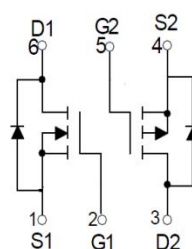


PDFN2×2-6L

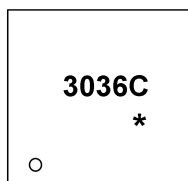
Application

- Power Management Functions
- DC-DC Converters

Circuit diagram



Marking



3036C :Device Code
***** :Month Code

Order Information

Device	Package	Unit/Tape
SP3036CNQ	PDFN2×2-6L	3000

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

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V_{DS}	30	-30	V
Gate-Source Voltage	V_{GS}	± 20	± 20	V
Continuous Drain Current (TC=25°C)	I_D	4	-3.5	A
Pulsed Drain Current	I_{DM}	16	-14	A
Power Dissipation	P_D	2		W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	62.5		°C/W
Operating Junction Temperature Range	T_{STG}	-55 ~ +150		
Storage Temperature Range	T_J	-55 ~ +150		°C

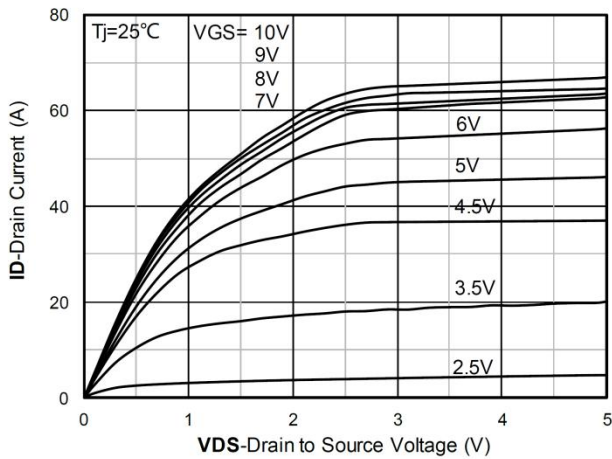
N-Channel Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250uA	30	-	-	V
Drain-Source Leakage Current	IDSS	VDS=24V , VGS=0V , TJ=25℃	-	-	1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VGS=VDS , ID =250uA	1	1.5	2.5	V
Static Drain-Source On-Resistance	RDS(on)	VGS =10V, ID =3.5A	-	30	45	mΩ
		VGS =4.5V, ID =2.8A	-	35	65	
Dynamic characteristics						
Input Capacitance	Ciss	VDS=15V , VGS=0V , f=1MHz	-	305	-	pF
Output Capacitance	Coss		-	65	-	
Reverse Transfer Capacitance	Crss		-	29	-	
Switching Characteristics						
Total Gate Charge	Qg	VDS =15V,VGS=10V,ID =2.5A	-	6	-	nC
Gate-Source Charge	Qgs		-	1.6	-	
Gate-Drain Charge	Qgd		-	0.6	-	
Turn-On Delay Time	Td(on)	VDD=15V, VGS=10V , RG=6Ω, ID=1A	-	7	-	nS
Rise Time	Tr		-	12	-	
Turn-Off Delay Time	Td(off)		-	14	-	
Fall Time	Tf		-	6	-	
Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V

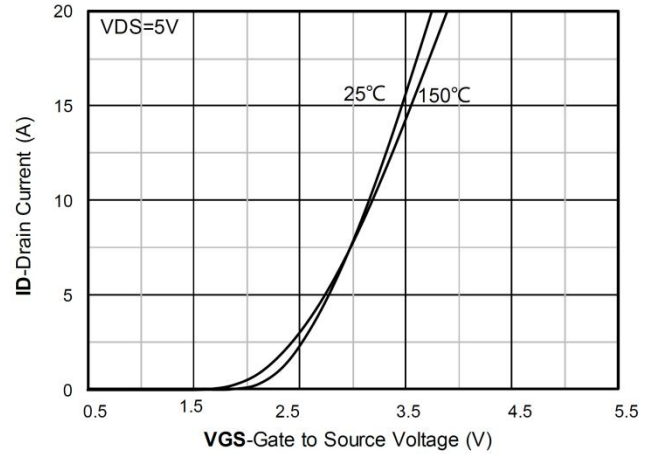
P-Channel Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=-250uA	-30	-	-	V
Drain-Source Leakage Current	IDSS	VDS=-24V , VGS=0V , TJ=25℃	-	-	-1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VGS=VDS , ID =-250uA	-1	-1.5	-2.5	V
Static Drain-Source On-Resistance	RDS(on)	VGS=-10V , ID=-2.5A	-	60	80	mΩ
		VGS =-4.5V, ID =-2.0A	-	80	105	
Dynamic characteristics						
Input Capacitance	Ciss	VDS=-10V,VGS=0V,f=1MHZ	-	365	-	pF
Output Capacitance	Coss		-	59	-	
Reverse Transfer Capacitance	Crss		-	45	-	
Switching Characteristics						
Total Gate Charge	Qg	VGS=-10V,VDS=-15V,ID=-3A	-	7.6	-	nC
Gate-Source Charge	Qgs		-	1.64	-	
Gate-Drain Charge	Qgd		-	1.22	-	
Turn-On Delay Time	Td(on)	VGS=-10V,VDS=-15V,ID=-1A,RG=2.5Ω	-	3.2	-	nS
Rise Time	Tr		-	17.8	-	
Turn-Off Delay Time	Td(off)		-	18	-	
Fall Time	Tf		-	23.2	-	
Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=-1A , TJ=25℃	-	-	-1.2	V

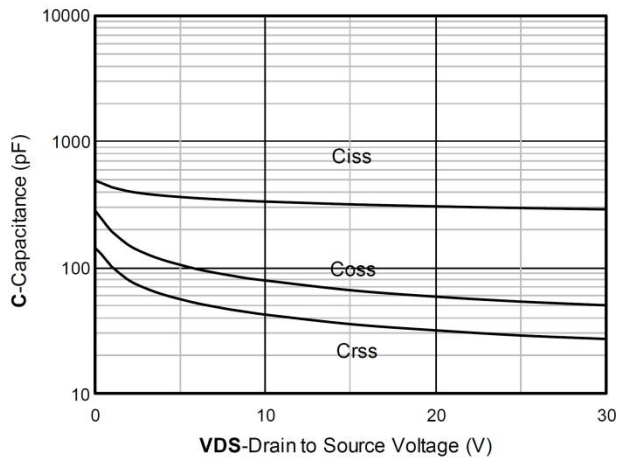
N-Channel Typical Characteristics



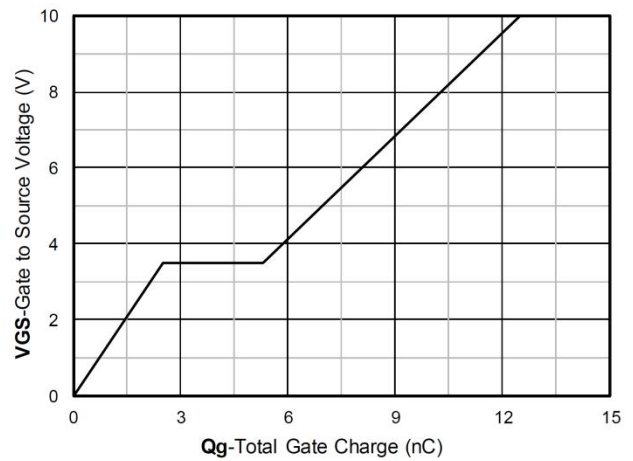
Output Characteristics



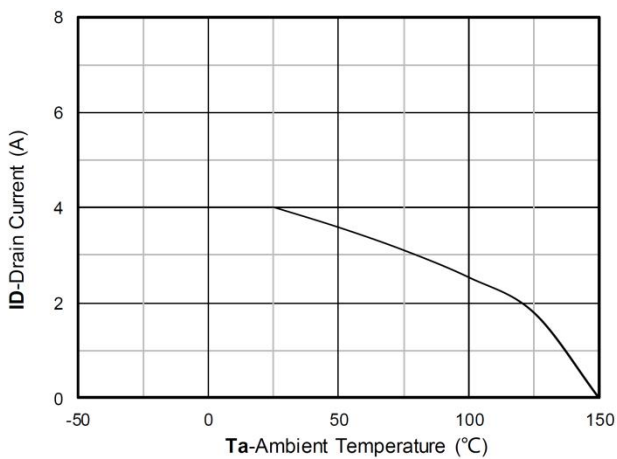
Transfer Characteristics



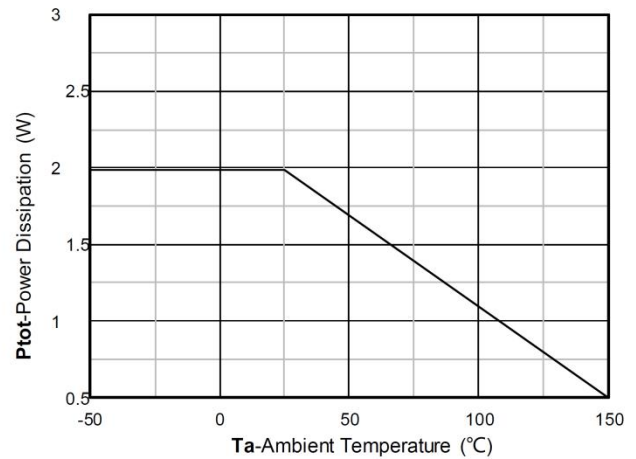
Capacitance Characteristics



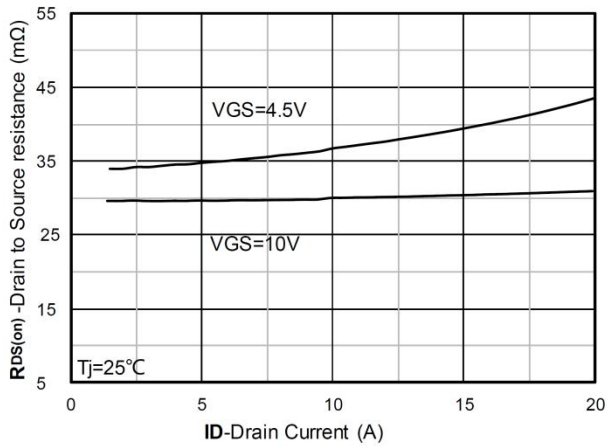
Gate Charge



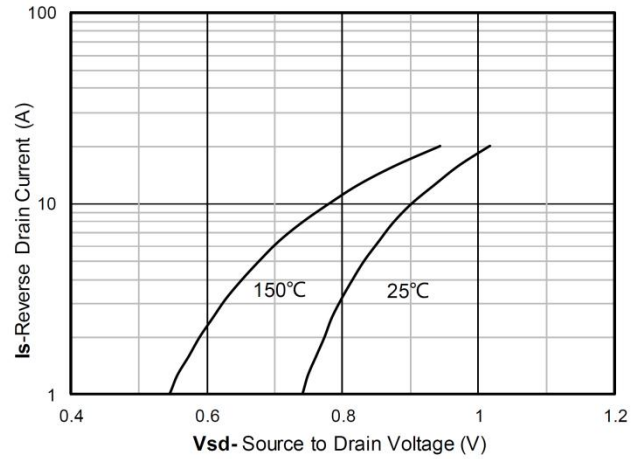
Current dissipation



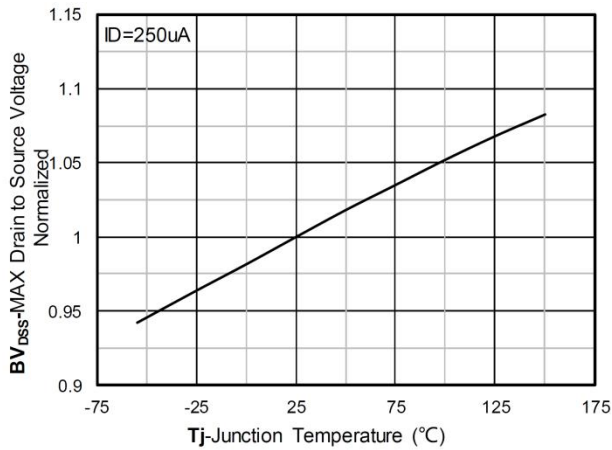
Power dissipation



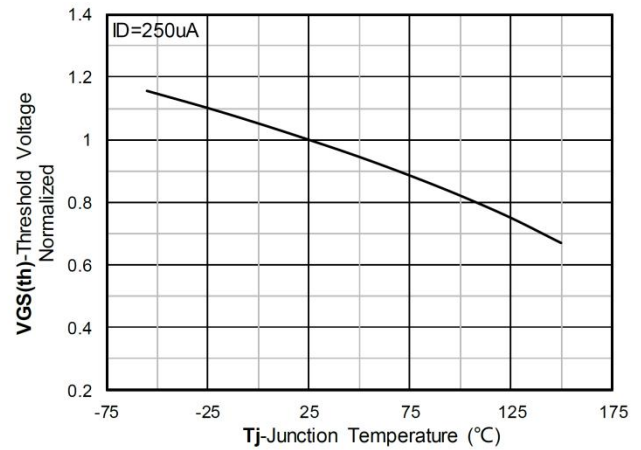
RDS(on) VS Drain Current



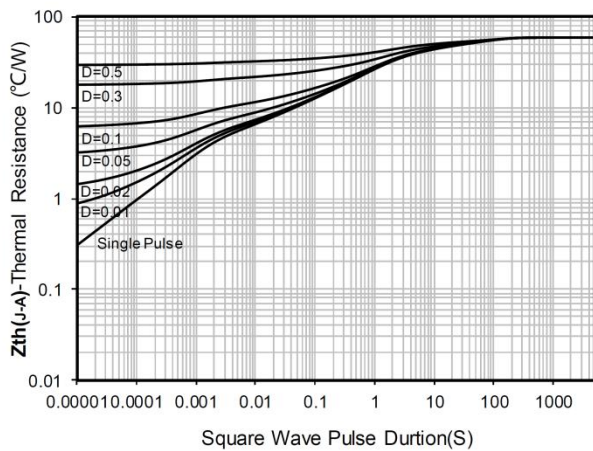
Forward characteristics of reverse diode



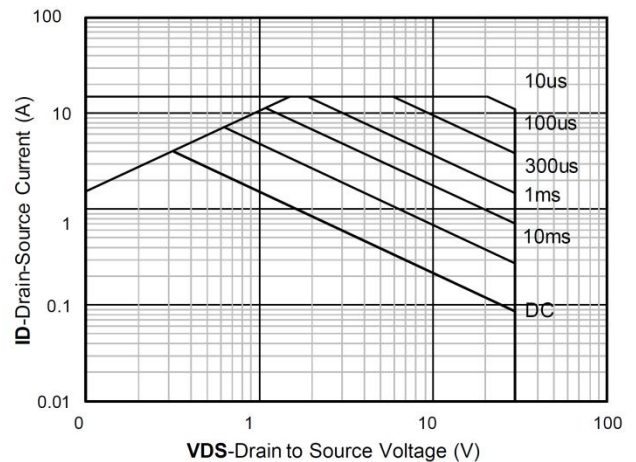
Normalized breakdown voltage



Normalized Threshold voltage

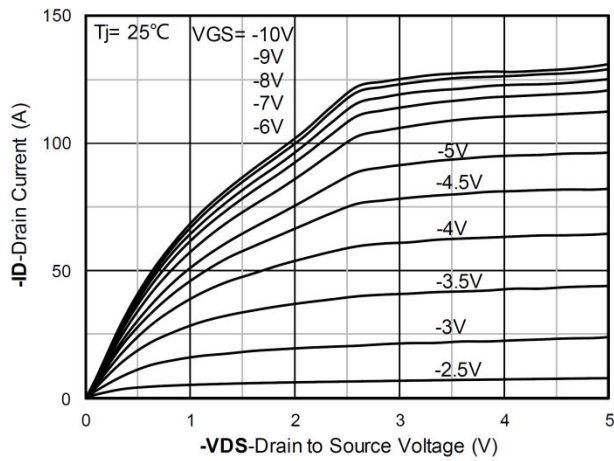


Maximum Transient Thermal Impedance

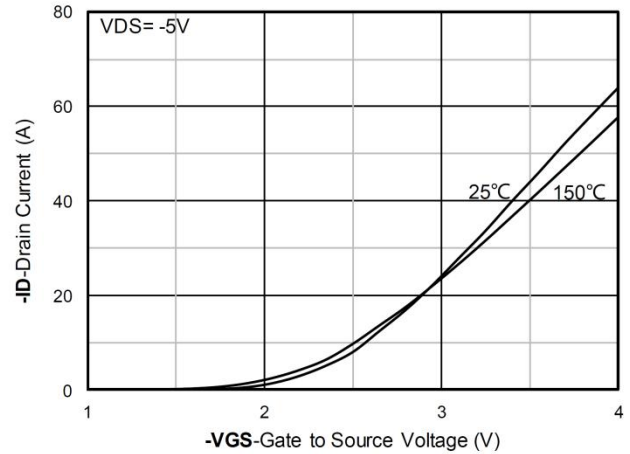


Safe Operation Area

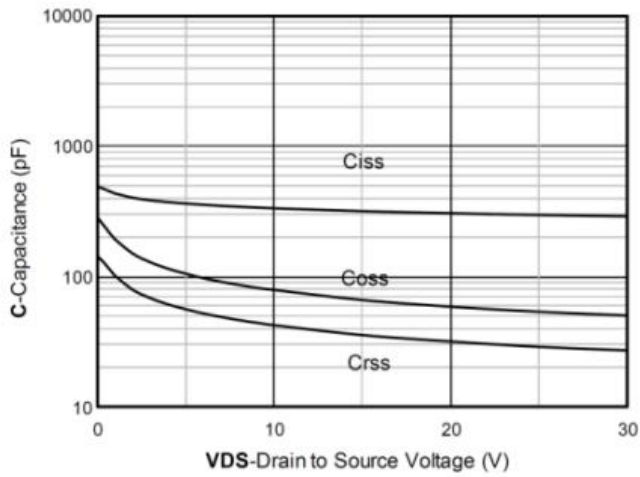
P-Channel Typical Characteristics



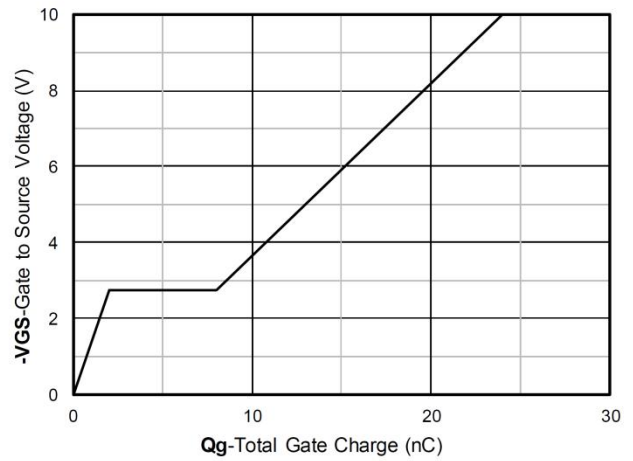
Output Characteristics



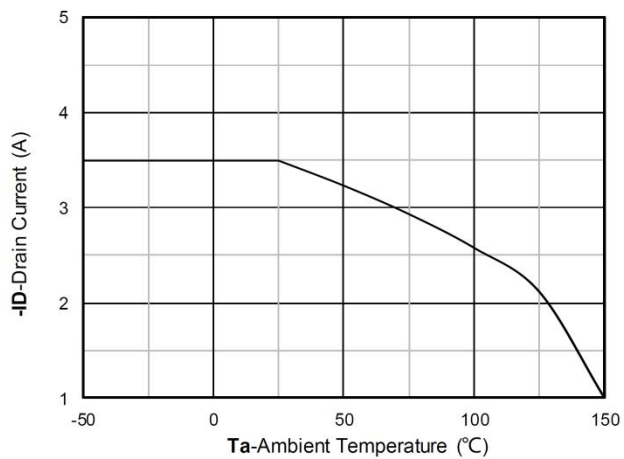
Transfer Characteristics



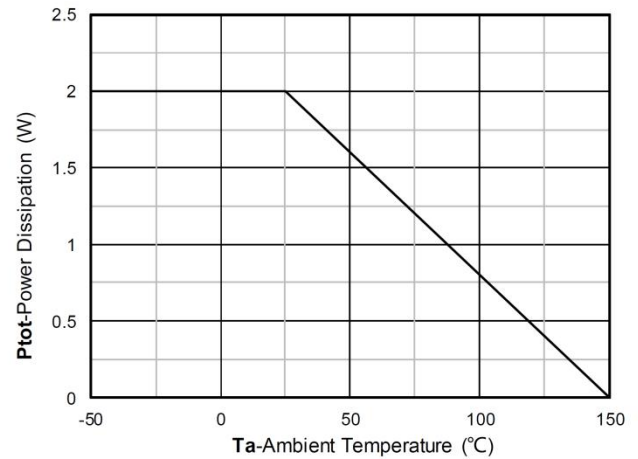
Capacitance Characteristics



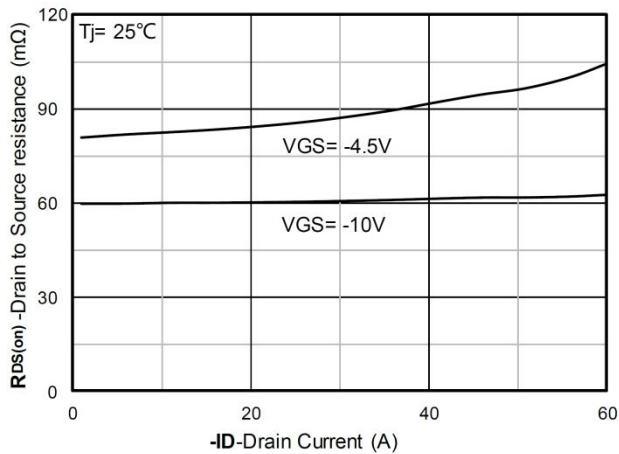
Gate Charge



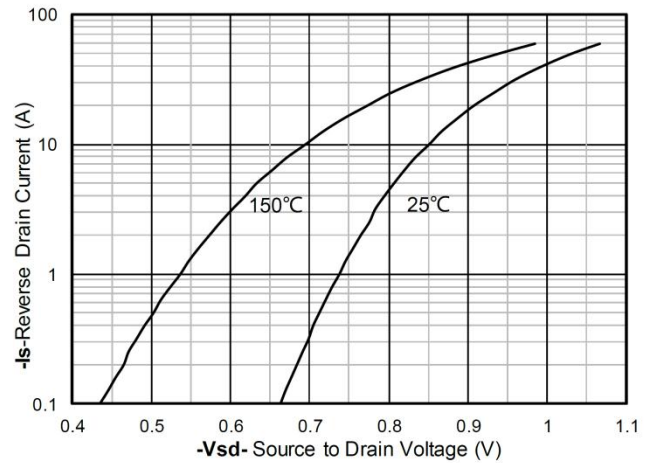
Current dissipation



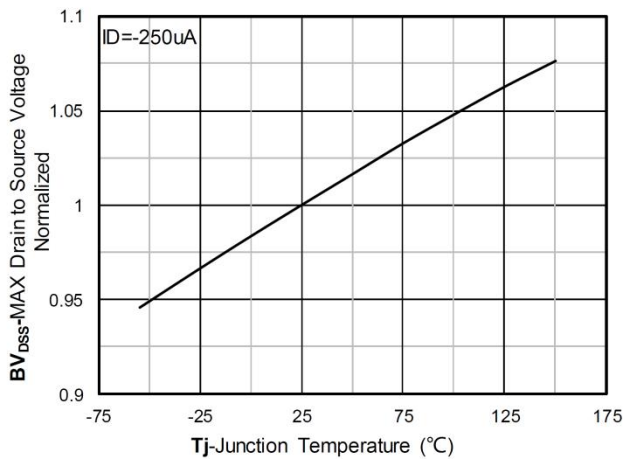
Power dissipation



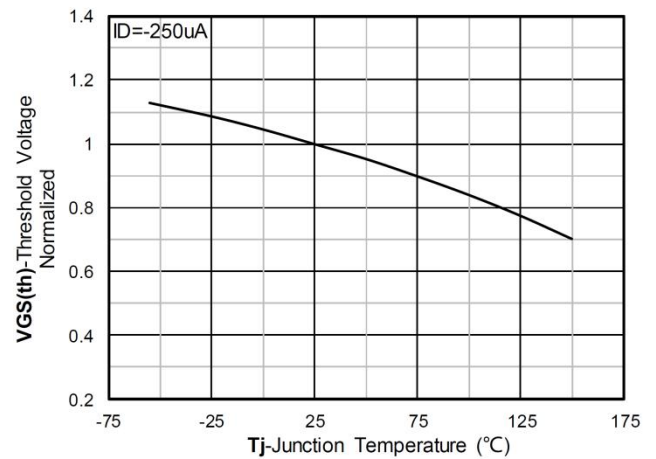
$R_{DS(on)}$ VS Drain Current



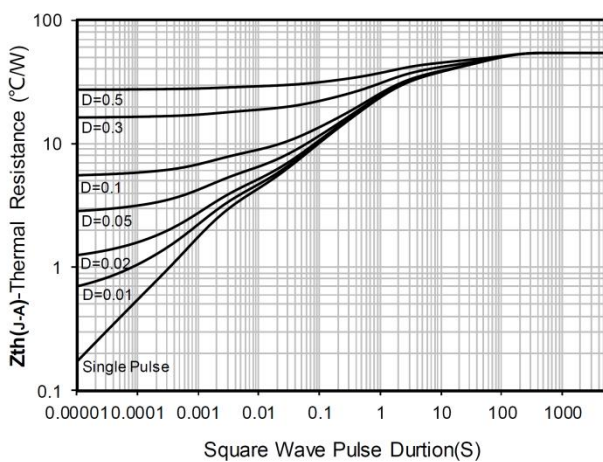
Forward characteristics of reverse diode



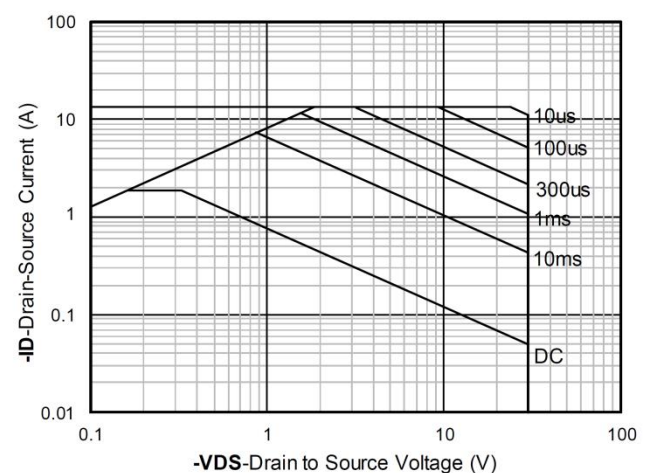
Normalized breakdown voltage



Normalized Threshold voltage

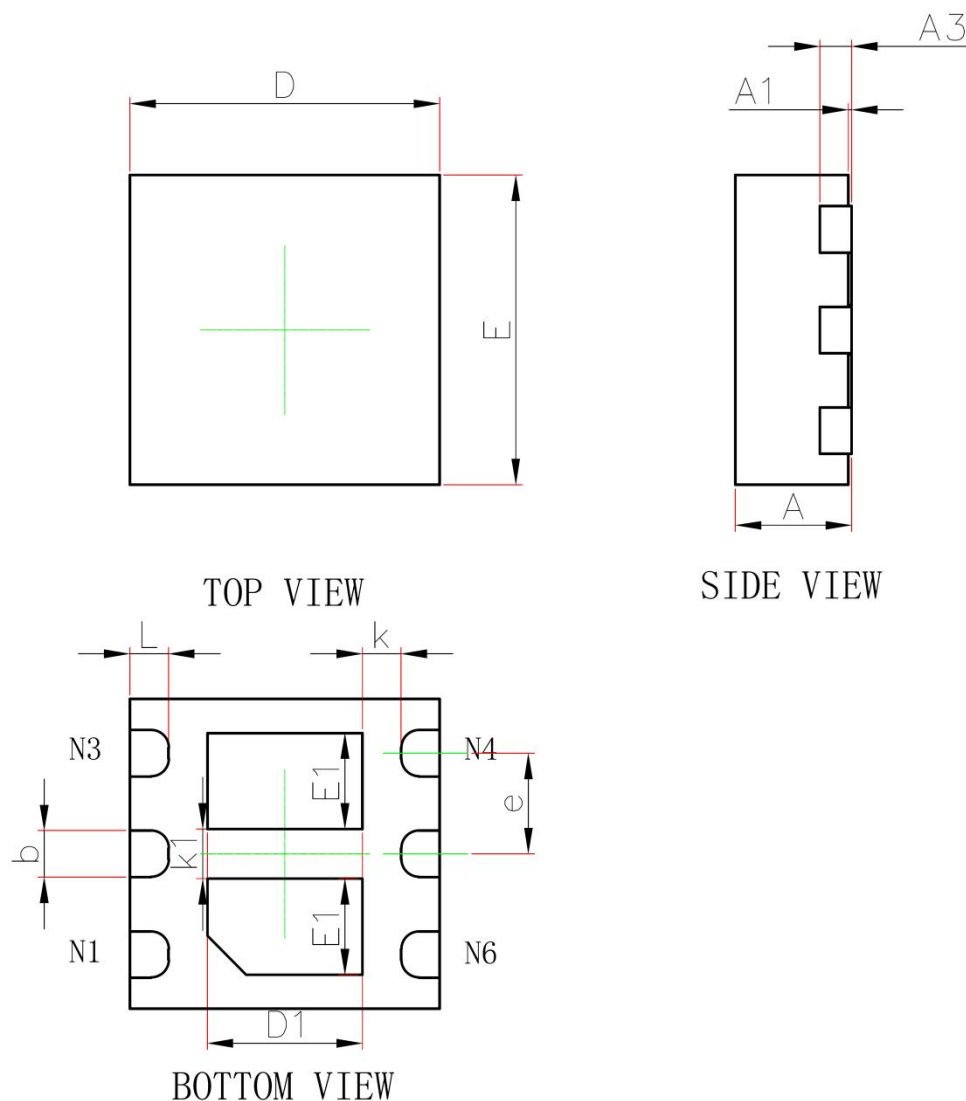


Maximum Transient Thermal Impedance



Safe Operation Area

PDFN2×2-6L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.900	2.100	0.075	0.083
E	1.900	2.100	0.075	0.083
D1	0.900	1.100	0.035	0.043
E1	0.520	0.720	0.020	0.028
b	0.250	0.350	0.010	0.014
e	0.650 TYP.		0.026 TYP.	
k	0.200MIN.		0.008MIN.	
L	0.200	0.300	0.008	0.012