

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	13mΩ@-10V	-9A
	20mΩ@-4.5V	



合肥矽普半导体

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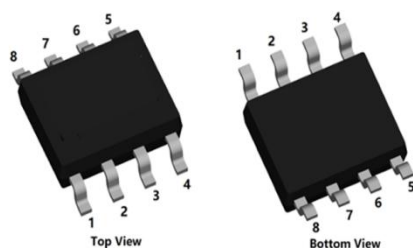
Feature

- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

Applications

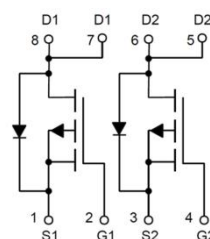
- Power Switching Application
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

Package

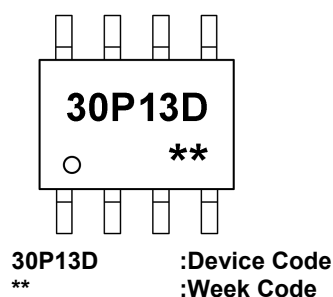


SOP-8L

Circuit Diagram



Marking



Order Information

Device	Package	Unit/Tape
SP30P13DP8	SOP-8L	4000

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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-9	A
Pulsed Drain Current	I_{DM}	-36	A
Single Pulse Avalanche Energy ¹	E_{AS}	11.2	mJ
Power Dissipation	P_D	1.5	W
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	83	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

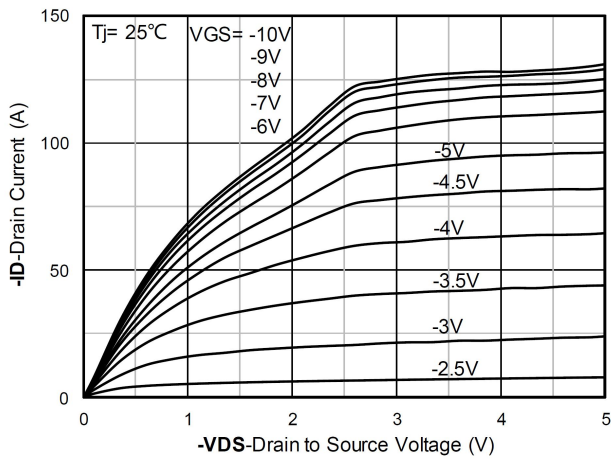
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=-250uA	-30	-	-	V
Drain-Source Leakage Current	IDSS	VDS=-24V , VGS=0V	-	-	-1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VGS=VDS , ID =-250uA	-1.0	-1.5	-2.5	V
Static Drain-Source On-Resistance	RDS(ON)	VGS=-10V , ID=-9A	-	13	18	mΩ
		VGS=-4.5V , ID=-7A	-	20	30	
Dynamic characteristics						
Input Capacitance	Ciss	VDS=-15V , VGS=0V , f=1MHz	-	1600	-	pF
Output Capacitance	Coss		-	350	-	
Reverse Transfer Capacitance	Crss		-	300	-	
Total Gate Charge	Qg	VDS=-15V , VGS=-10V , ID=-10A	-	30	-	nC
Gate-Source Charge	Qgs		-	5.5	-	
Gate-Drain Charge	Qgd		-	8	-	
Switching Characteristics						
Turn-On Delay Time	Td(on)	VDD=-15V,VGS=-10V,RG=3Ω, ID=-10A	-	10	-	nS
Rise Time	Tr		-	60	-	
Turn-Off Delay Time	Td(off)		-	52	-	
Fall Time	Tf		-	70	-	
Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=-1A	-	-	-1.2	V
Maximum Body-Diode Continuous Current	IS		-	-	-9	A
Reverse Recovery Time	Trr	IS=-5A, di/dt=100A/us, TJ=25℃	-	35	-	nS
Reverse Recovery Charge	Qrr		-	11	-	nC

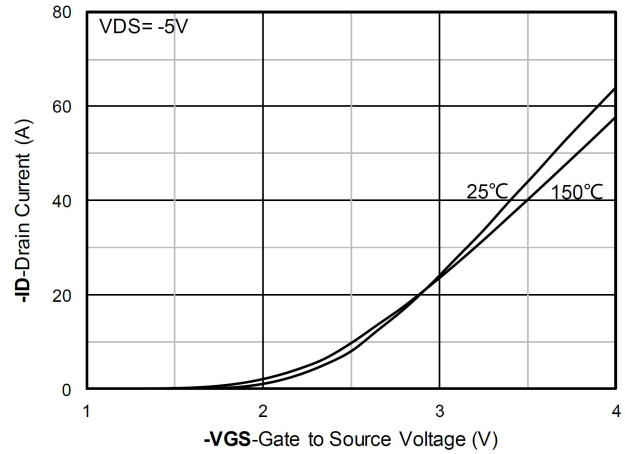
Note :

1. The EAS test condition is $V_{DD}=-15V, V_{GS}=-10V, L=0.1mH, R_G=25\Omega$

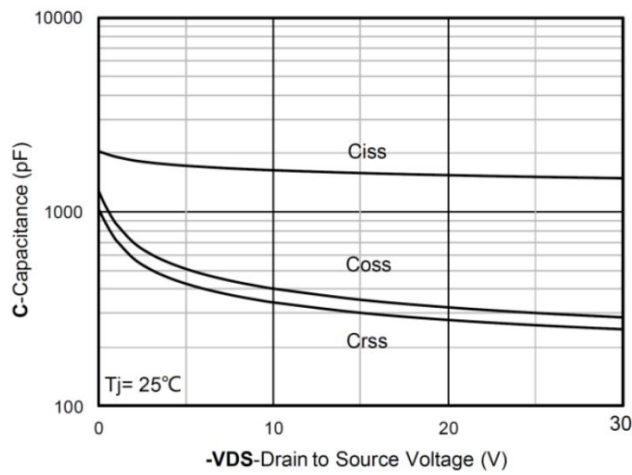
Typical Characteristics



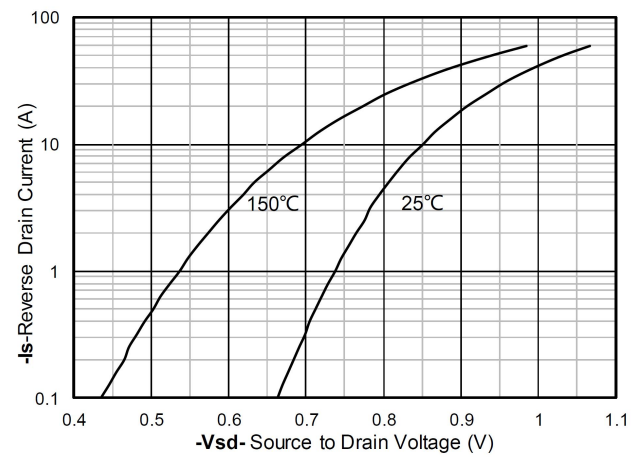
Output Characteristics



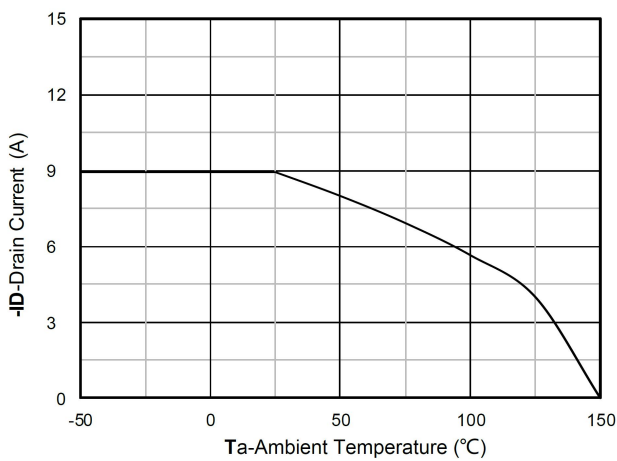
Transfer Characteristics



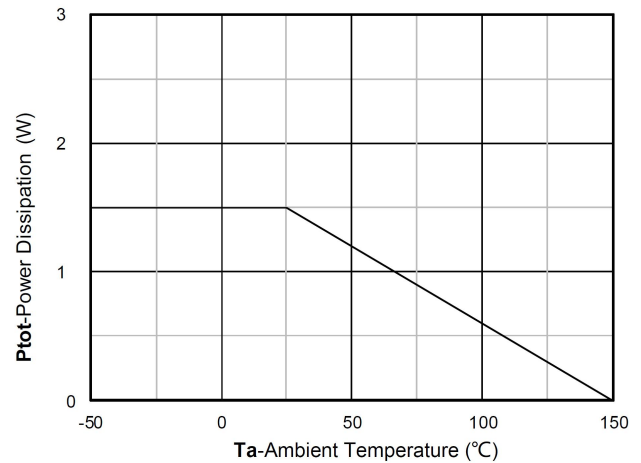
Capacitance Characteristics



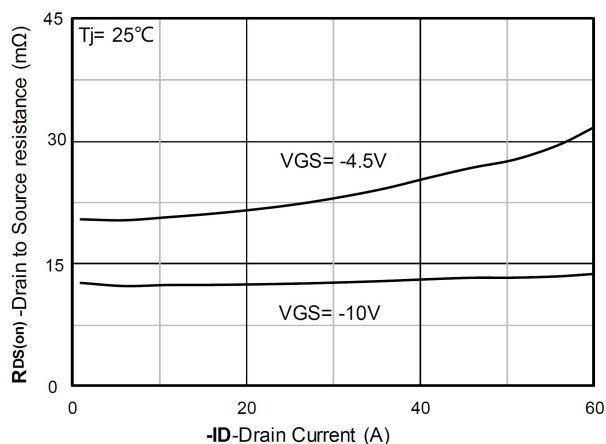
Forward characteristics of reverse diode



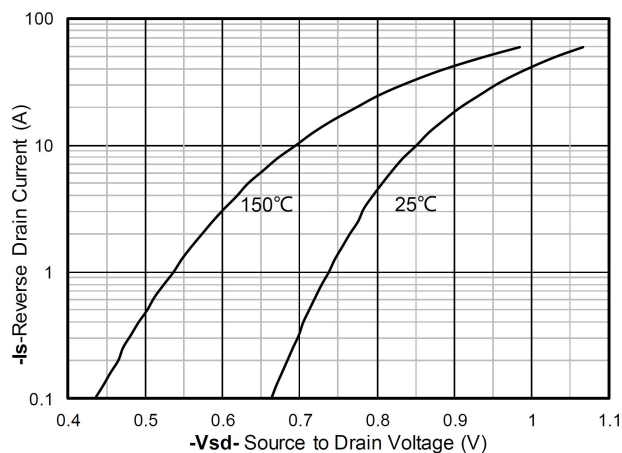
Current dissipation



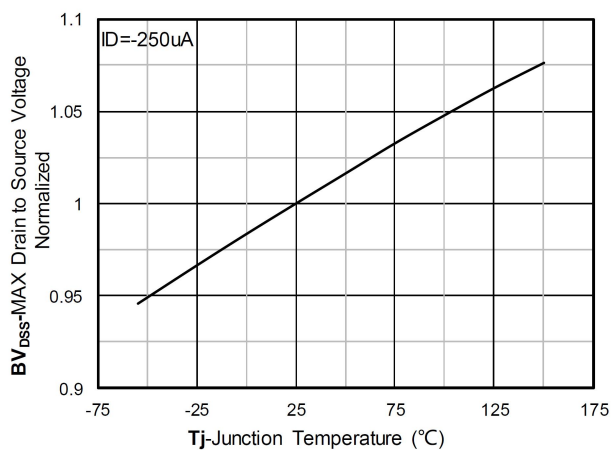
Power dissipation



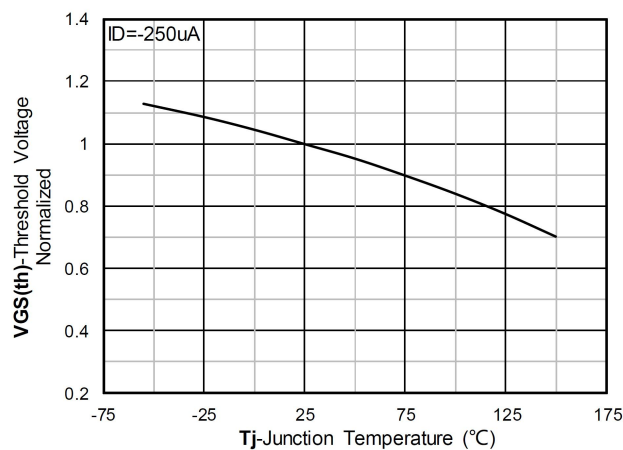
$R_{DS(on)}$ VS Drain Current



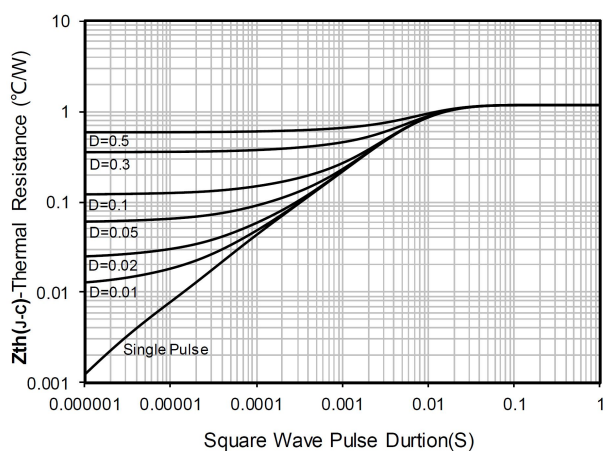
Forward characteristics of reverse diode



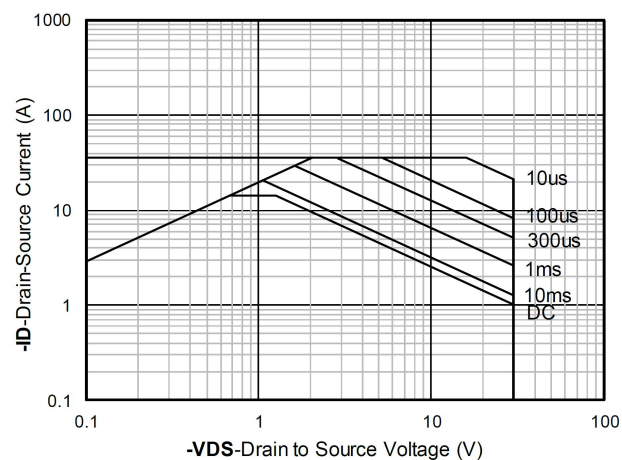
Normalized breakdown voltage



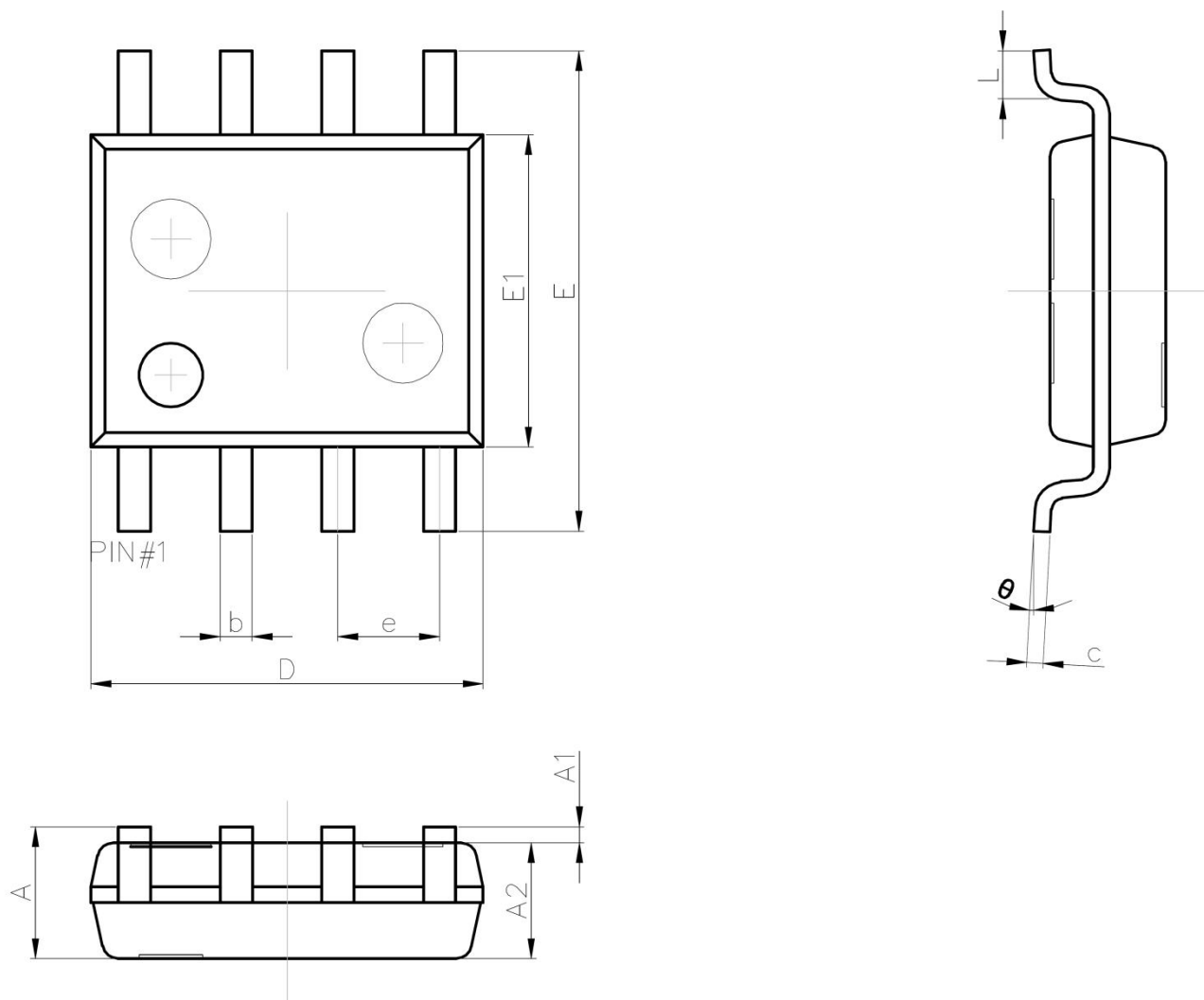
Normalized Threshold voltage



Maximum Transient Thermal Impedance



Safe Operation Area

SOP-8L Package Information


Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.35	1.75
A1	0.10	0.25
A2	1.35	1.55
b	0.33	0.51
c	0.17	0.25
D	4.80	5.00
e	1.27 REF.	
E	5.80	6.20
E1	3.80	4.00
L	0.40	1.27
θ	0°	8°