

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	38mΩ@-10V	-5.5A
	58mΩ@-4.5V	



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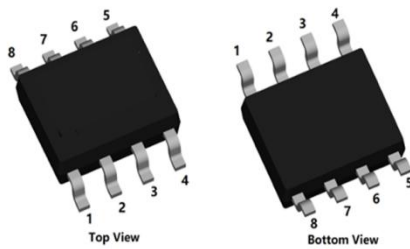
Feature

- Fast Switching
- Low Gate Charge and Rdson

Applications

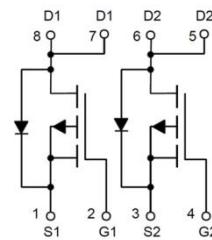
- Power Switching Application
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

Package

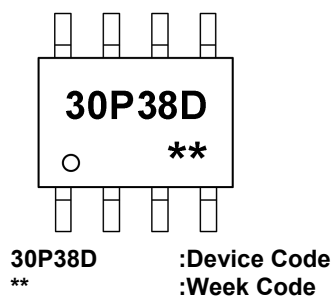


SOP-8L

Circuit Diagram



Marking



Order Information

Device	Package	Unit/Tape
SP30P38DP8	SOP-8L	4000

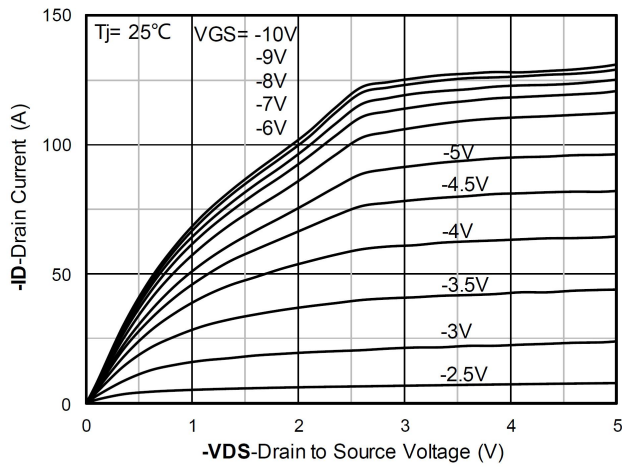
Absolute maximum ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-5.5	A
Pulsed Drain Current	I_{DM}	-22	A
Power Dissipation	P_D	1.5	W
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	85	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

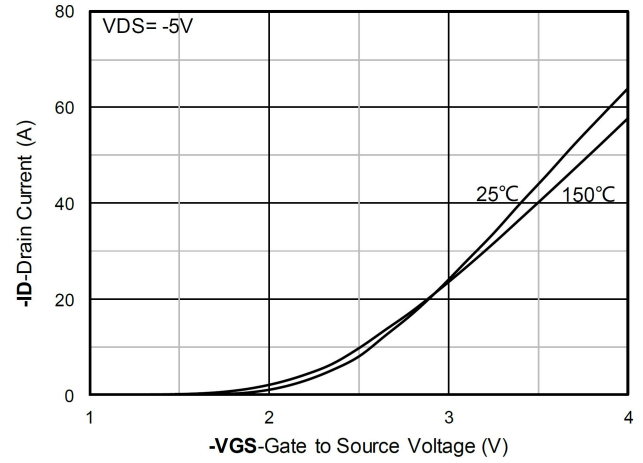
Electrical characteristics (Ta=25°C, unless otherwise noted)

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=-4.1A	-	38	50	mΩ
		VGS=-4.5V , ID=-3.0A	-	58	80	
Dynamic characteristics						
Input Capacitance	Ciss	VDS=-15V , VGS=0V , f=1MHz	-	501	-	pF
Output Capacitance	Coss		-	72	-	
Reverse Transfer Capacitance	Crss		-	57	-	
Total Gate Charge	Qg	VDS=-15V , VGS=-10V , ID=-5A	-	9	-	nC
Gate-Source Charge	Qgs		-	1.5	-	
Gate-Drain Charge	Qgd		-	2.3	-	
Switching Characteristics						
Turn-On Delay Time	Td(on)	VDD=-15V, VGS=-10V , RG=3Ω, ID=-1A	-	8.6	-	nS
Rise Time	Tr		-	5.0	-	
Turn-Off Delay Time	Td(off)		-	28.2	-	
Fall Time	Tf		-	13.5	-	
Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=-1A	-	-	-1.2	V
Maximum Body-Diode Continuous Current	IS		-	-	-5.5	A
Reverse recover time	Trr	IS=-5A, di/dt=100A/us, TJ=25℃	-	31	-	nS
Reverse recovery charge	Qrr		-	10	-	nC

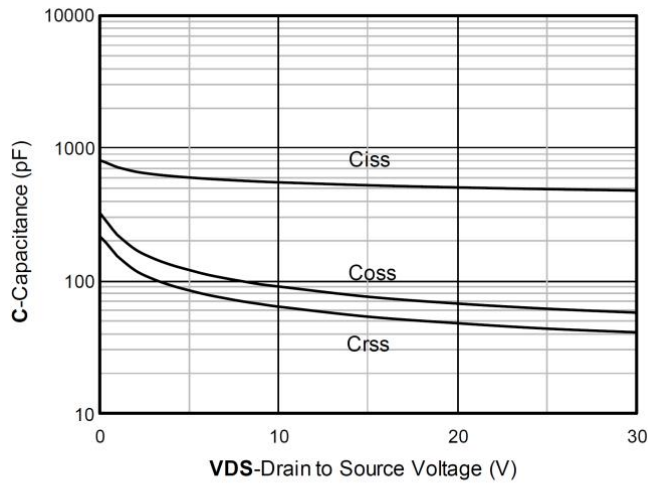
Typical Characteristics



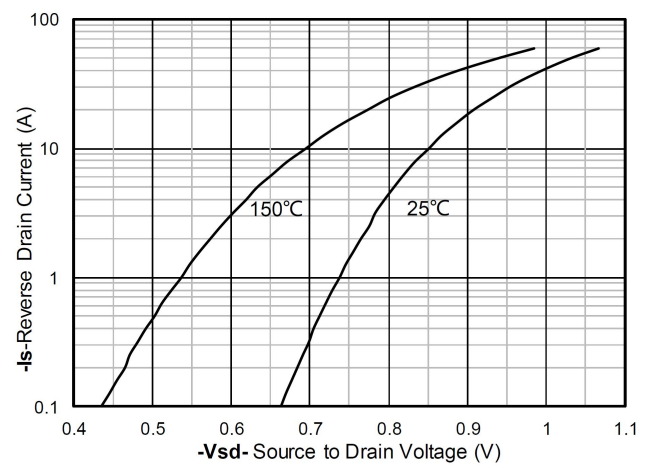
Output Characteristics



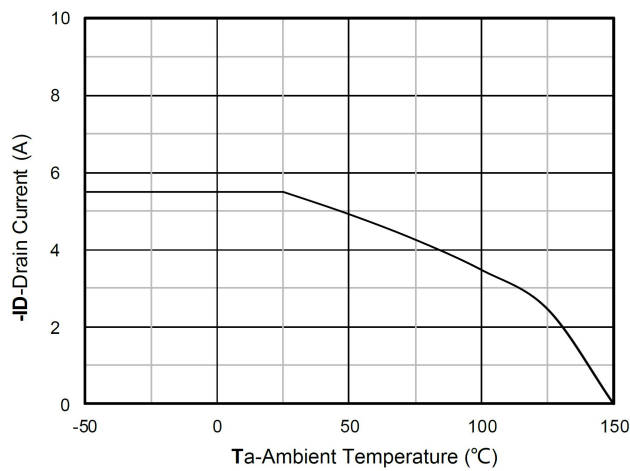
Transfer Characteristics



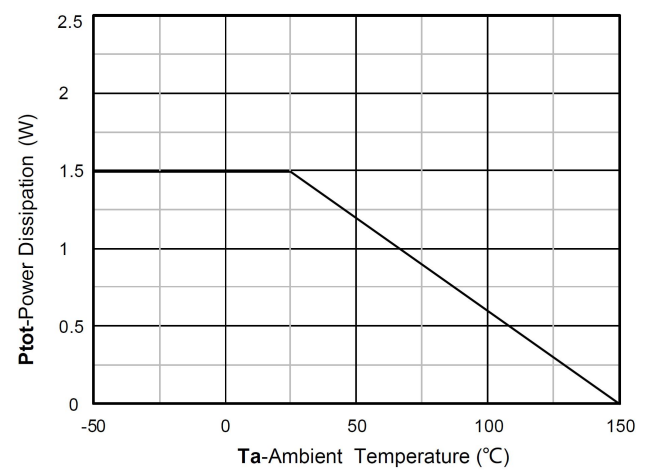
Capacitance Characteristics



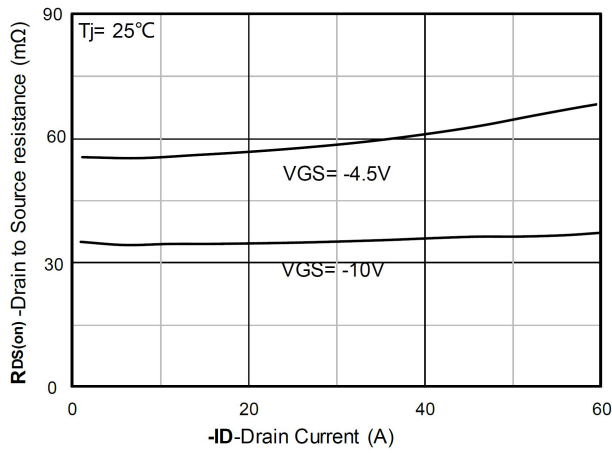
Forward characteristics of reverse diode



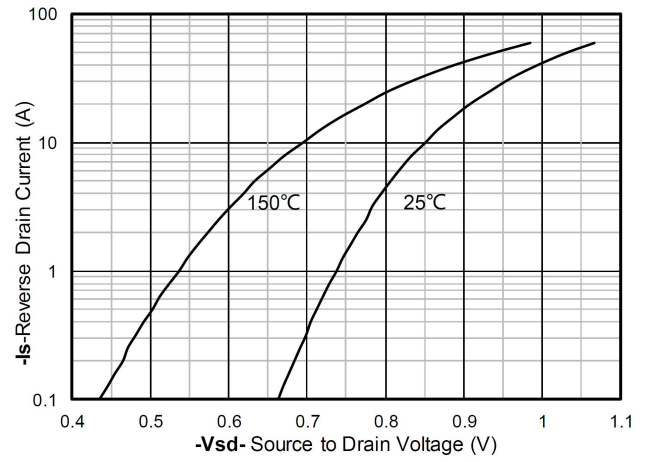
Current dissipation



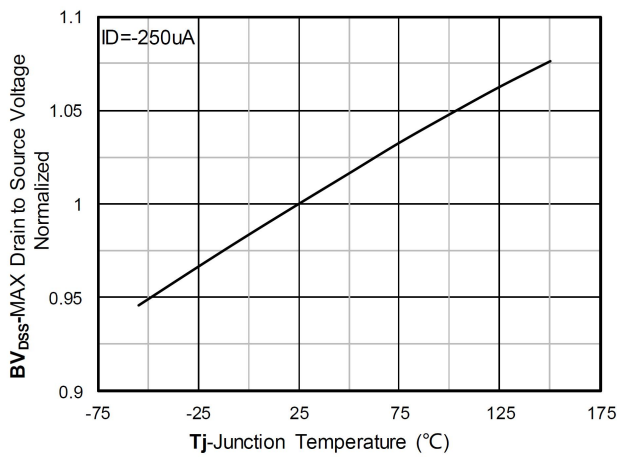
Power dissipation



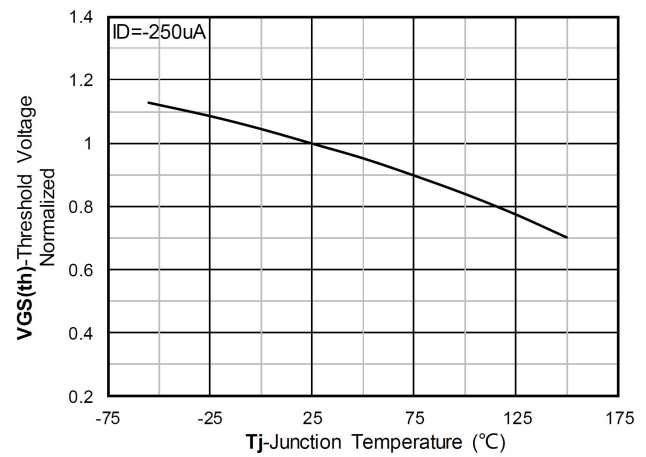
RDS(on) VS Drain Current



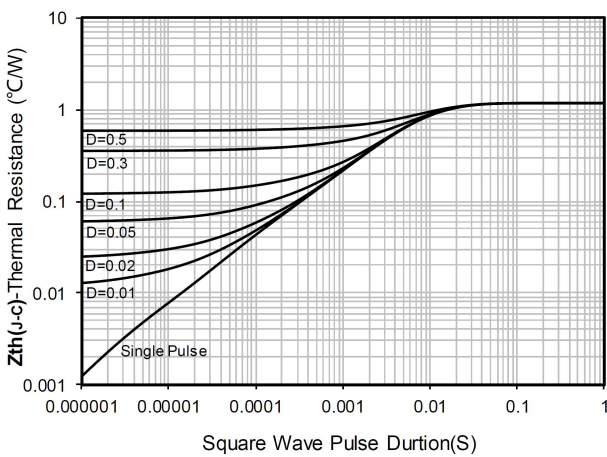
Forward characteristics of reverse diode



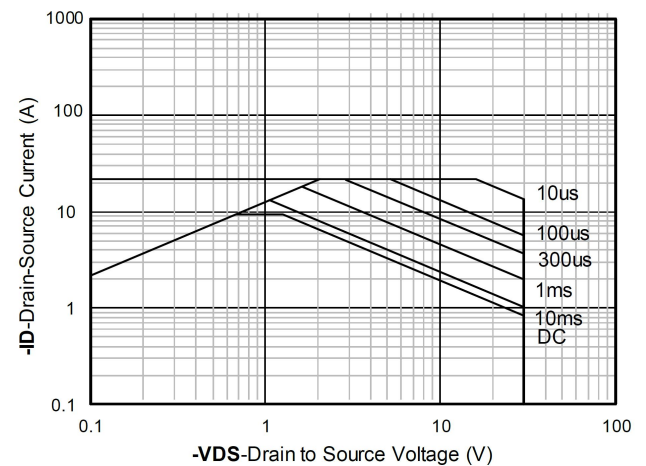
Normalized breakdown voltage



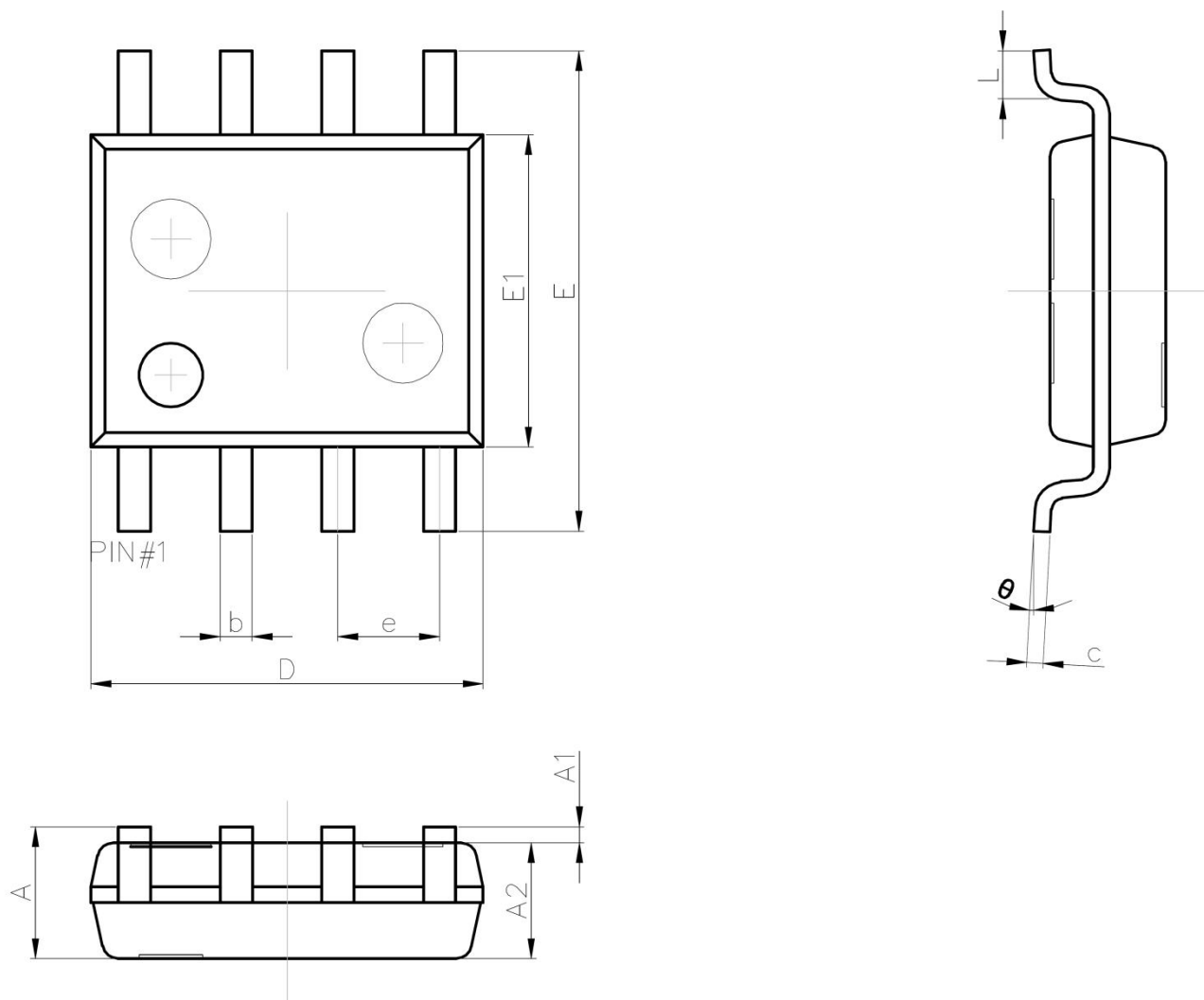
Normalized Threshold voltage



Maximum Transient Thermal Impedance



Safe Operation Area

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°

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