Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	120mΩ@10V	3A
	140mΩ@4.5V	
-100V	230mΩ@-10V	-2.5A
	240mΩ@-4.5V	

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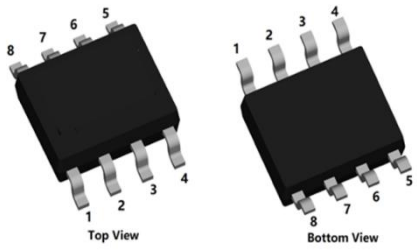
Feature

- High power and current handing capability
- Lead free product is acquired
- Surface mount package
- 100% Single Pluse avalanche energy Test

Applications

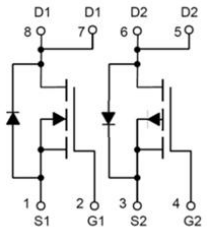
- Battery Protection
- Load Switch
- Power Management

Package

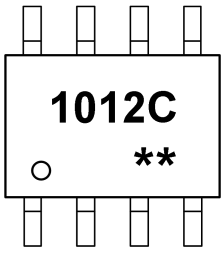


SOP-8L

Circuit diagram



Marking



1012C :Device Code
** :Week Code

Order Information

Device	Package	Unit/Tape
SP1012CP8	SOP-8L	4000

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

Parameter	Symbol	Value		Units
		N-Channel	P-Channel	
Drain-Source Voltage	V_{DS}	100	-100	V
Gate-Source Voltage	V_{GS}	±20	±20	V
Continuous Drain Current	I_D	3	-2.5	A
Pulsed Drain Current	I_{DM}	12	-10	A
Single Pulse Avalanche Energy[1]	E_{AS}	4	12	mJ
Power Dissipation	P_D	2		W
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	62.5		℃/W
Storage Temperature Range	T_{STG}	-55 to 150		℃
Operating Junction Temperature Range	T_J	-55 to 150		℃

N-Channel Electrical characteristics (Ta=25℃, 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	I_{DSS}	VDS=80V , 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	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	VGS=10V , ID=2A	-	120	150	mΩ
		VGS=4.5V , ID=1A	-	140	190	
Dynamic characteristics						
Input Capacitance	C_{iss}	VDS=50V , VGS=0V , f=1MHz	-	695	-	pF
Output Capacitance	C_{oss}		-	25	-	
Reverse Transfer Capacitance	C_{rss}		-	17	-	
Total Gate Charge	Q_g	VDS=50V , VGS=10V , ID=2A	-	13.6	-	nC
Gate-Source Charge	Q_{gs}		-	2.1	-	
Gate-Drain Charge	Q_{gd}		-	1.9	-	
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	VDD=50V, VGS=10V , RG=3Ω, ID=3A	-	7	-	nS
Rise Time	T_r		-	1.5	-	
Turn-Off Delay Time	$T_{d(off)}$		-	15.3	-	
Fall Time	T_f		-	2	-	
Diode Characteristics						
Diode Forward Voltage	V_{SD}	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	3	A
Reverse Recovery Time	T_{rr}	IS=3A, di/dt=100A/us, TJ=25℃	-	35	-	nS
Reverse Recovery Charge	Q_{rr}		-	26	-	nC

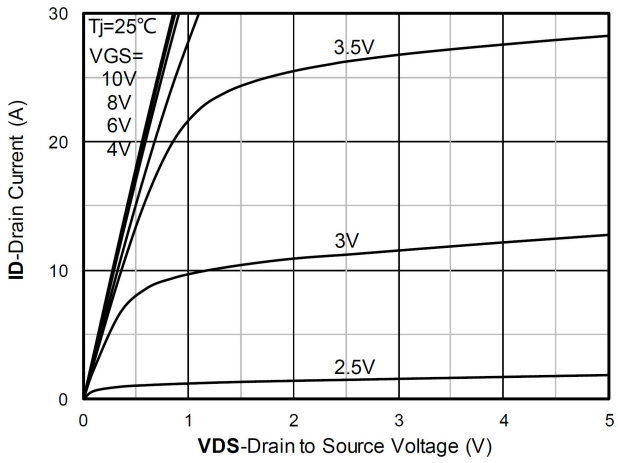
Note :
1.The EAS test condition is VDD=50V,VGS=10V,L=0.5mH,RG=25Ω

P-Channel Electrical characteristics (Ta=25℃, unless otherwise noted)

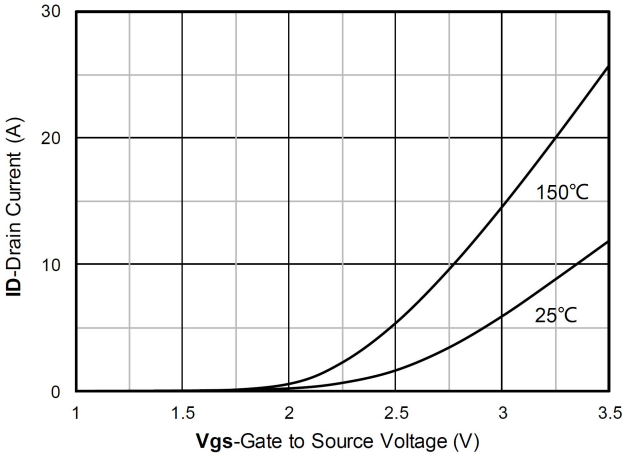
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V , ID=-250uA	-100	-	-	V
Drain-Source Leakage Current	I_{DSS}	VDS=-80V , VGS=0V , TJ=25℃	-	-	-1	uA
Gate-Source Leakage Current	I_{GSS}	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VGS=VDS , ID =-250uA	-1.0	-1.8	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	VGS=-10V , ID=-2A	-	230	290	mΩ
		VGS=-4.5V , ID=-1A	-	240	320	
Dynamic characteristics						
Input Capacitance	C_{iss}	VDS=-50V , VGS=0V , f=1MHz	-	721	-	pF
Output Capacitance	C_{oss}		-	30	-	
Reverse Transfer Capacitance	C_{rss}		-	18	-	
Total Gate Charge	Q_g	VDS=-50V , VGS=-10V , ID=-2A	-	16	-	nC
Gate-Source Charge	Q_{gs}		-	3	-	
Gate-Drain Charge	Q_{gd}		-	2.5	-	
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	VDD=-50V VGS=-10V , RG=3Ω, ID=-2A	-	9	-	nS
Rise Time	T_r		-	6.5	-	
Turn-Off Delay Time	$T_{d(off)}$		-	28	-	
Fall Time	T_f		-	7.5	-	
Diode Characteristics						
Diode Forward Voltage	V_{SD}	VGS=0V , IS=-1A , TJ=25℃	-	-	-1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	-2.5	A
Reverse Recovery Time	T_{rr}	I_S=-2.5A, di/dt=-100A/us, Tj=25℃	-	35	-	nS
Reverse Recovery Charge	Q_{rr}		-	45		nC

Note :
1.The EAS test condition is VDD=-50V,VGS=-10V,L=0.5mH,RG=25Ω

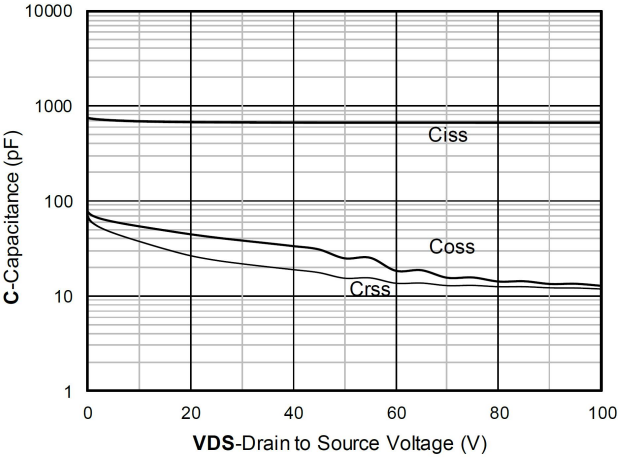
N-Channel Typical Characteristics



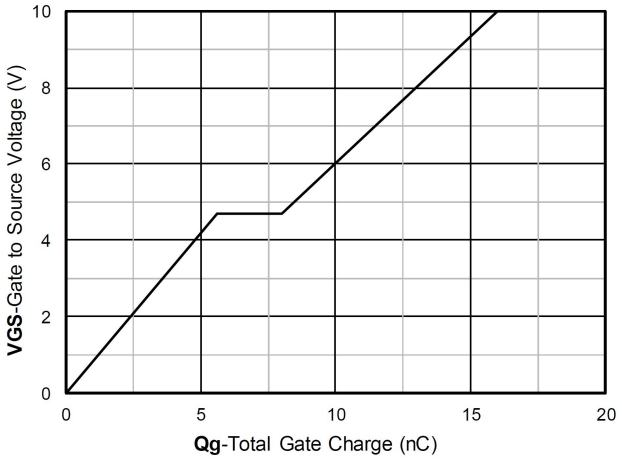
Output Characteristics



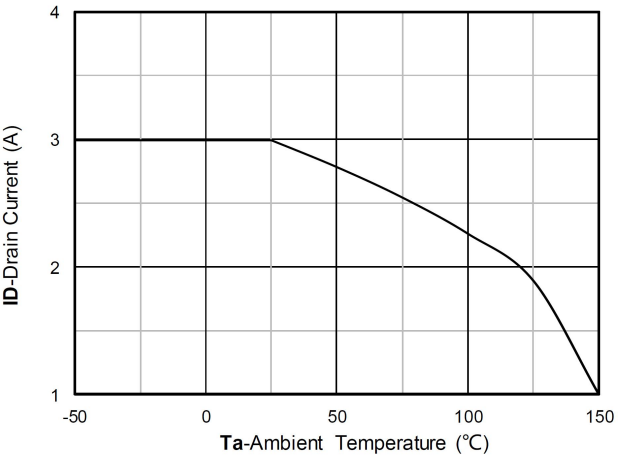
Transfer Characteristics



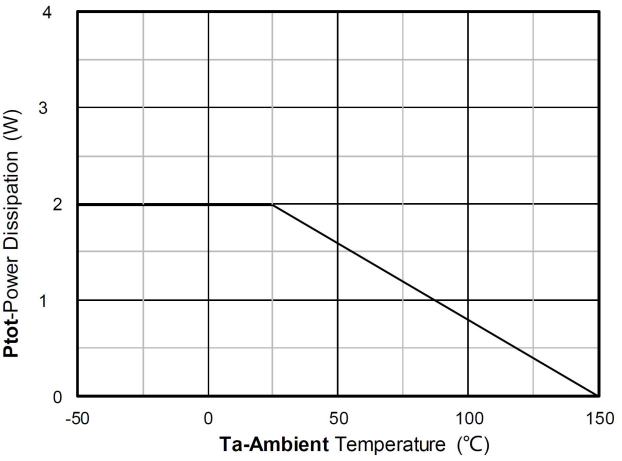
Capacitance Characteristics



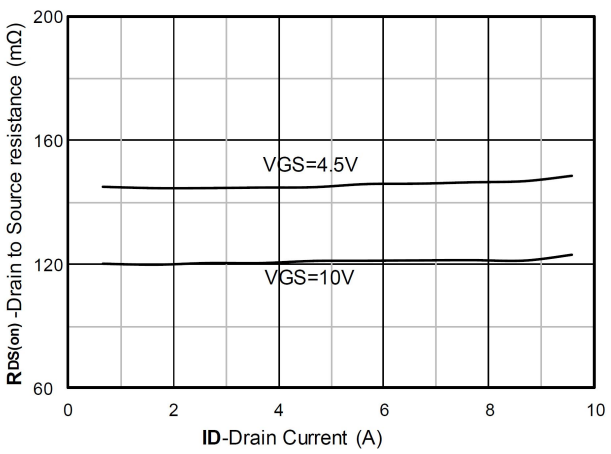
Gate Charge



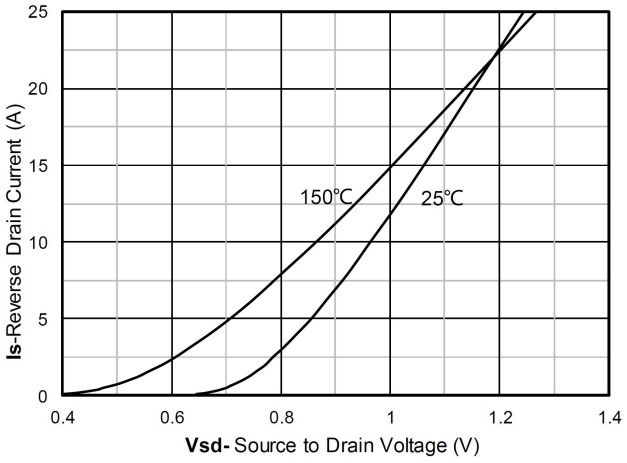
Current dissipation



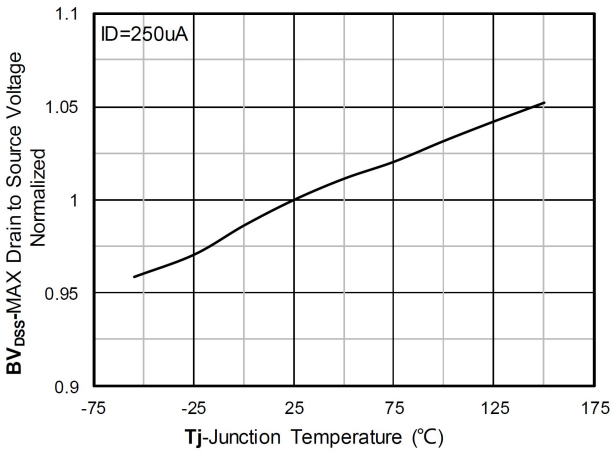
Power dissipation



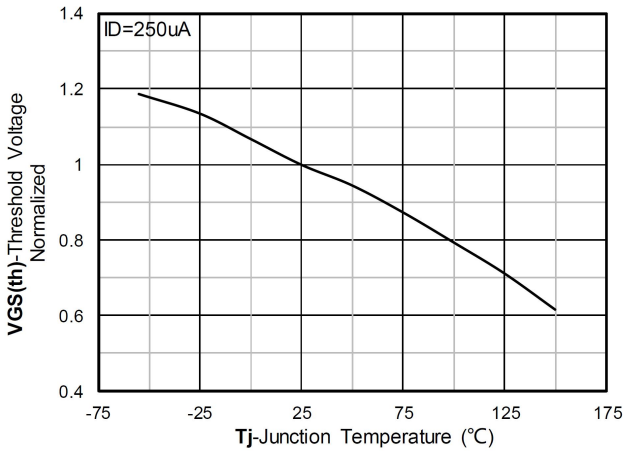
RDS(on) VS Drain Current



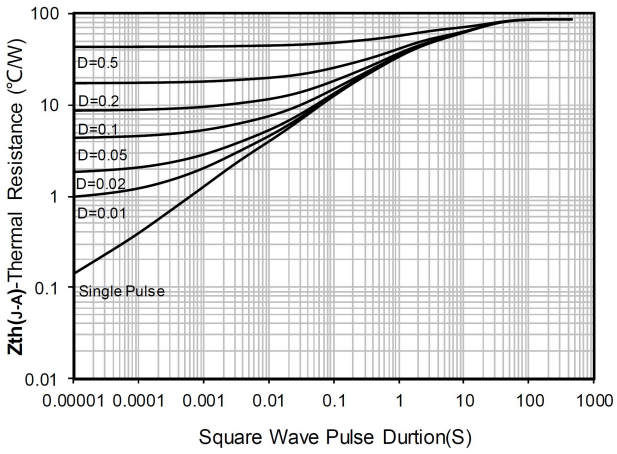
Forward characteristics of reverse diode



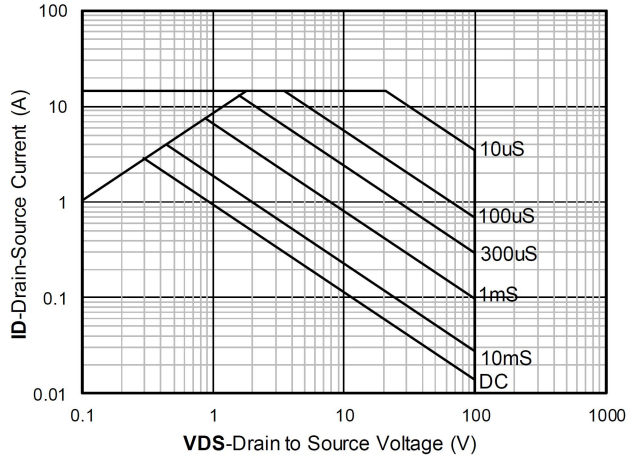
Normalized breakdown voltage



Normalized Threshold voltage

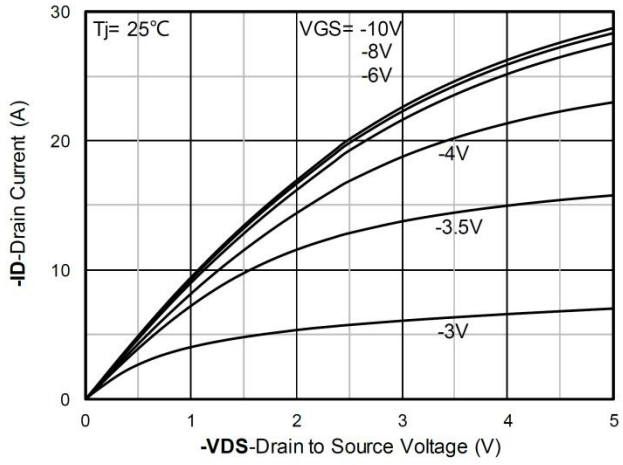


Maximum Transient Thermal Impedance

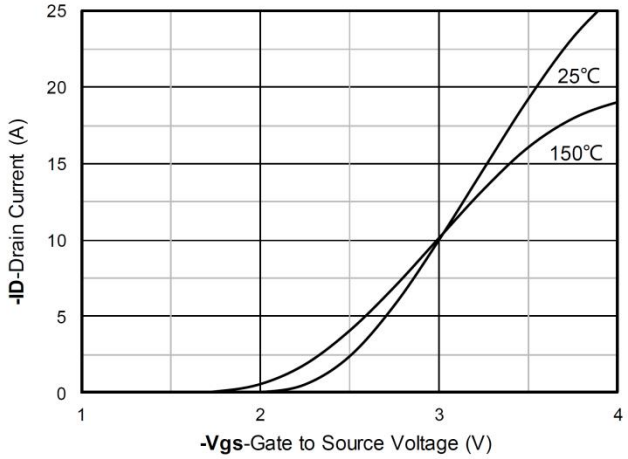


Safe Operation Area

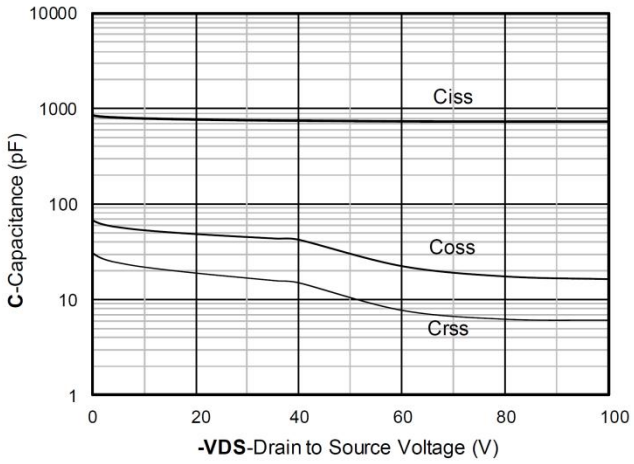
P-Channel Typical Characteristics



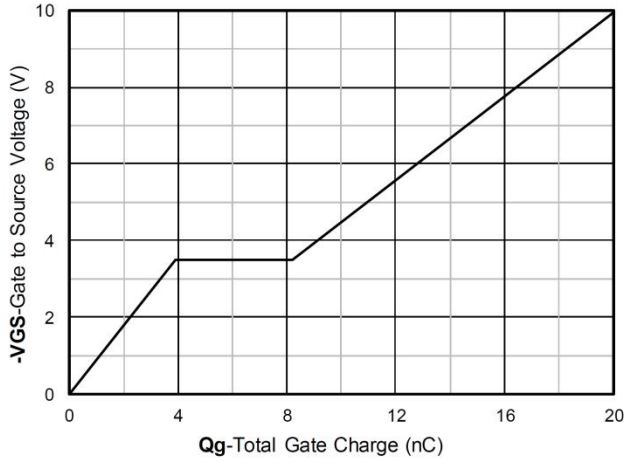
Output Characteristics



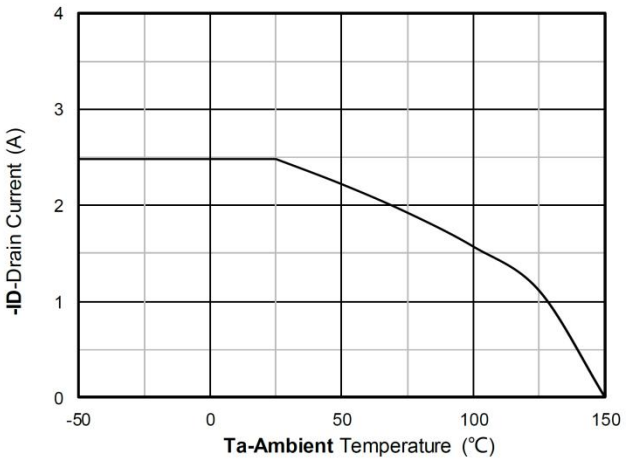
Transfer Characteristics



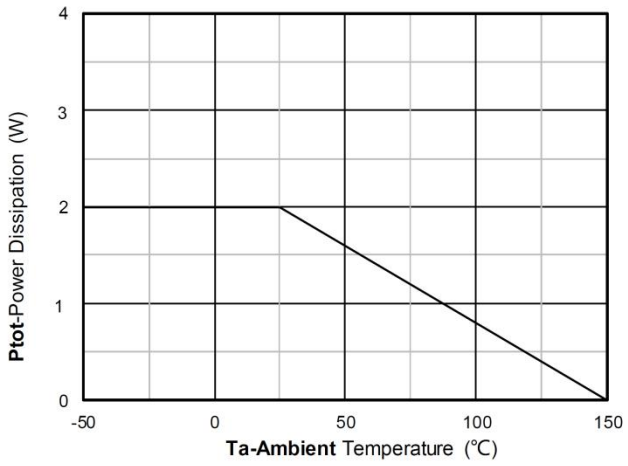
Capacitance Characteristics



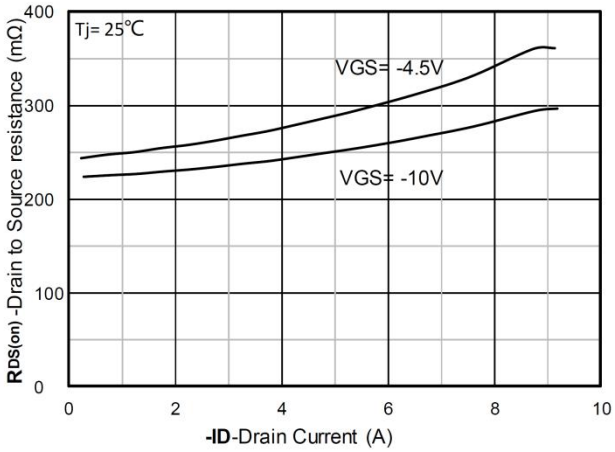
Gate Charge



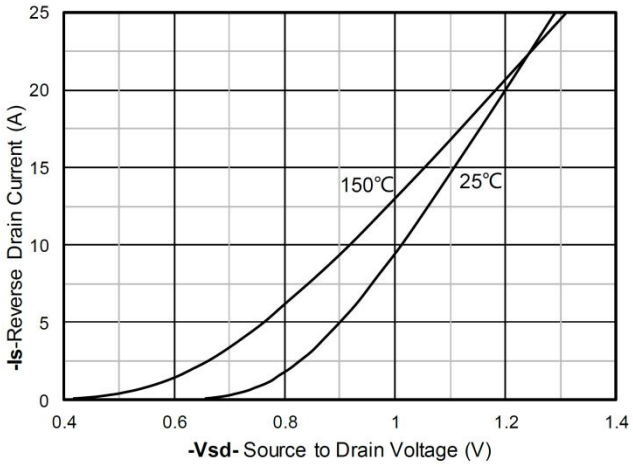
Current dissipation



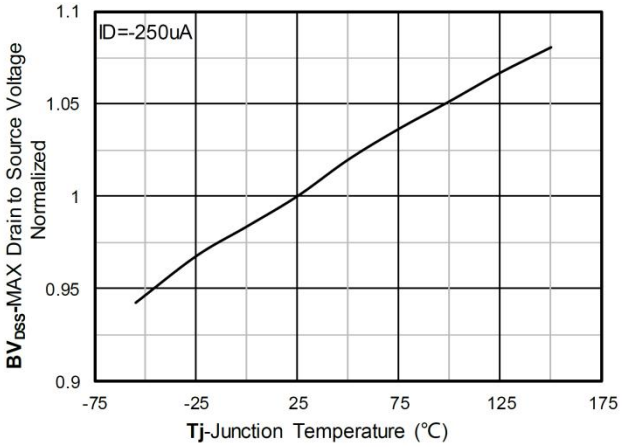
Power dissipation



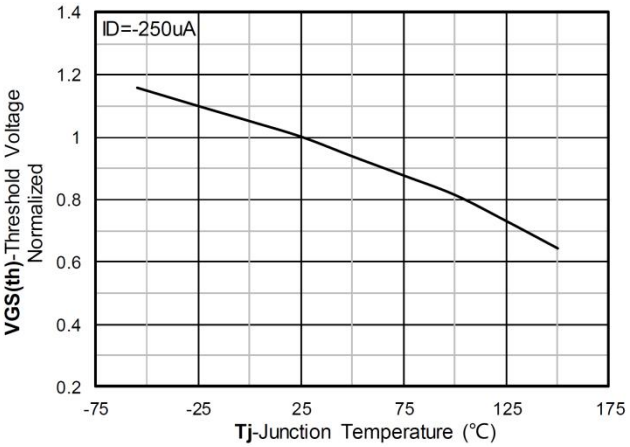
RDS(on) VS Drain Current



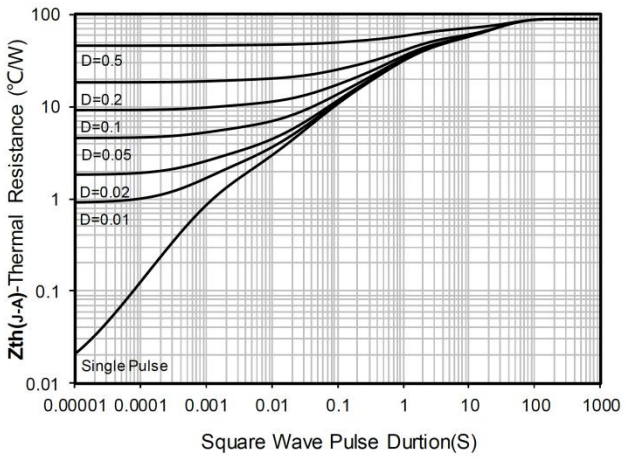
Forward characteristics of reverse diode



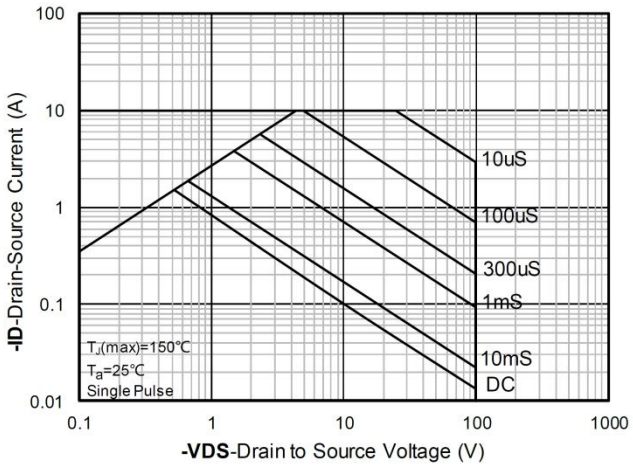
Normalized breakdown voltage



Normalized Threshold voltage

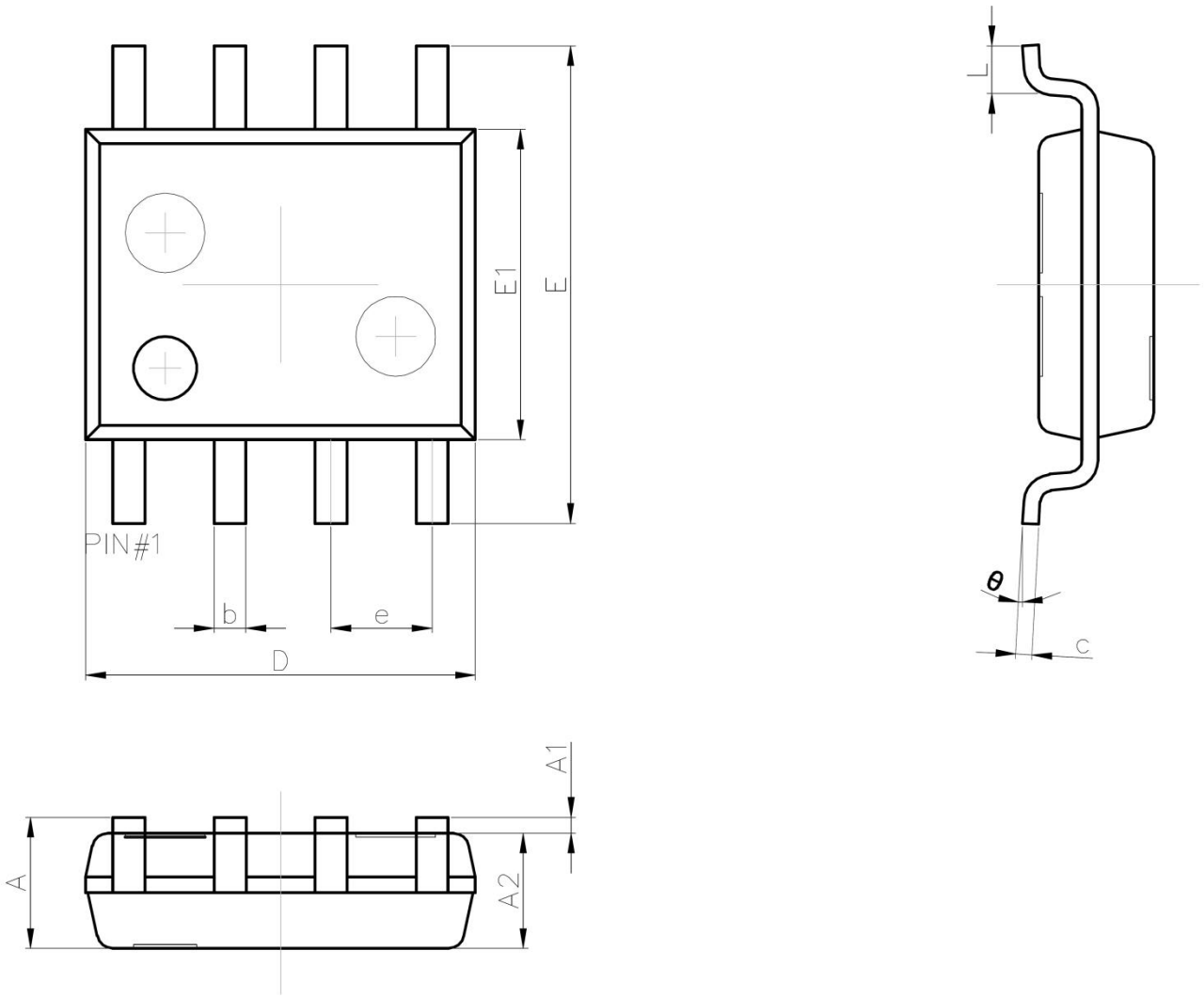


Maximum Transient Thermal Impedance



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°