

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-40V	18mΩ@-10V	-10A
	22mΩ@-4.5V	



合肥矽普半导体

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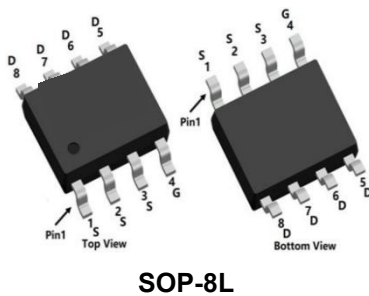
Feature

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

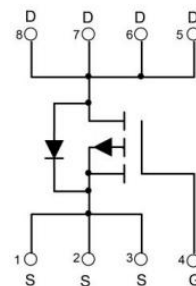
Applications

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

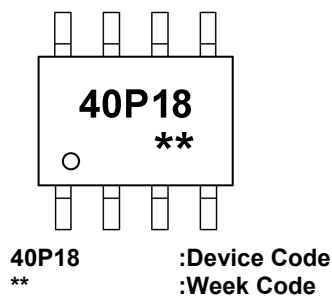
Package



Circuit Diagram



Marking



Order Information

Device	Package	Unit/Tape
SP40P18P8	SOP-8L	4000

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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-10	A
Pulsed Drain Current	I_{DM}	-40	A
Single Pulse Avalanche Energy ¹	E_{AS}	98	mJ
Power Dissipation	P_D	2	W
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	62.5	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

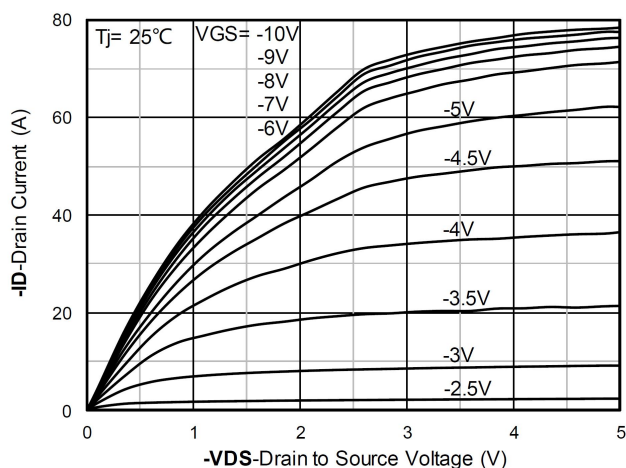
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$, $I_D=-250\mu A$	-40	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-32V$, $V_{GS}=0V$	-	-	-1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V$, $V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1.1	-1.7	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V$, $I_D=-5A$	-	18	25	m Ω
		$V_{GS}=-4.5V$, $I_D=-5A$	-	22	30	
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-20V$, $V_{GS}=0V$, $f=1MHz$	-	1750	-	pF
Output Capacitance	C_{oss}		-	215	-	
Reverse Transfer Capacitance	C_{rss}		-	180	-	
Total Gate Charge	Q_g	$V_{DS}=-20V$, $V_{GS}=-10V$, $I_D=-5A$	-	24	-	nC
Gate-Source Charge	Q_{gs}		-	3.5	-	
Gate-Drain Charge	Q_{gd}		-	6	-	
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=-20V$ $V_{GS}=-10V$, $R_G=2\Omega$, $I_D=-5A$	-	9	-	nS
Rise Time	T_r		-	8	-	
Turn-Off Delay Time	$T_{d(off)}$		-	28	-	
Fall Time	T_f		-	10	-	
Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V$, $I_S=-1A$	-	-	-1.2	V

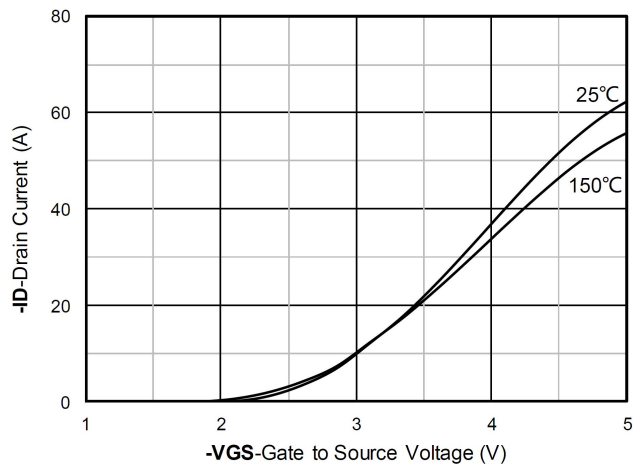
Note:

- The EAS test condition is $V_{DD}=-20V, V_G=-10V, L=1mH, R_g=25\Omega$

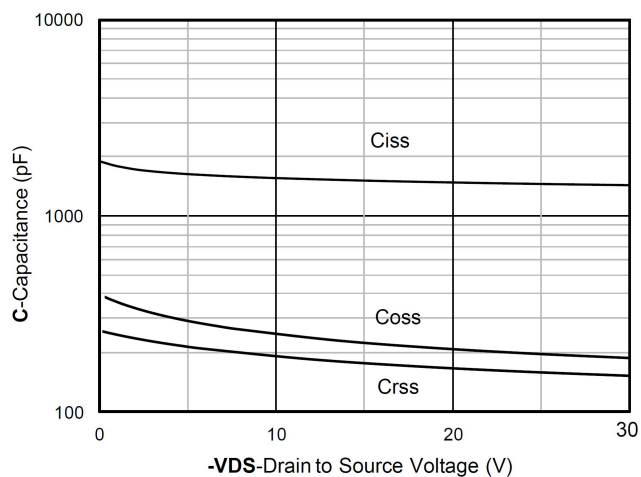
Typical Characteristics



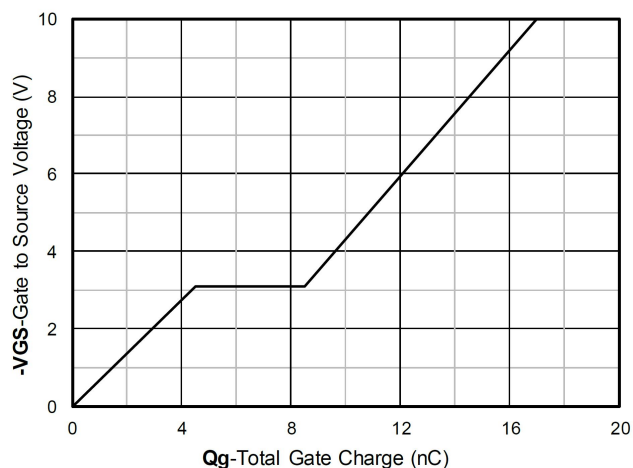
Output Characteristics



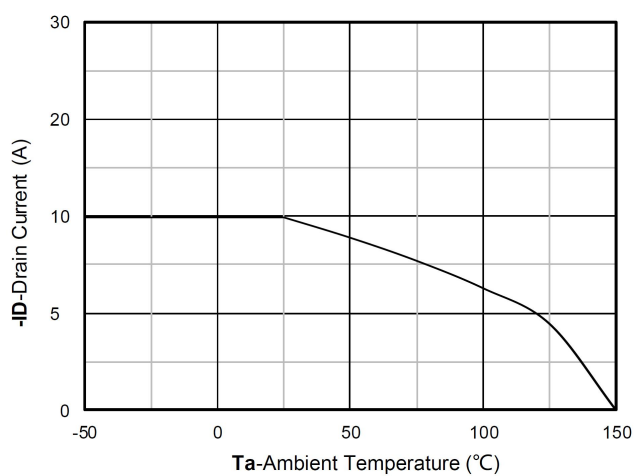
Transfer Characteristics



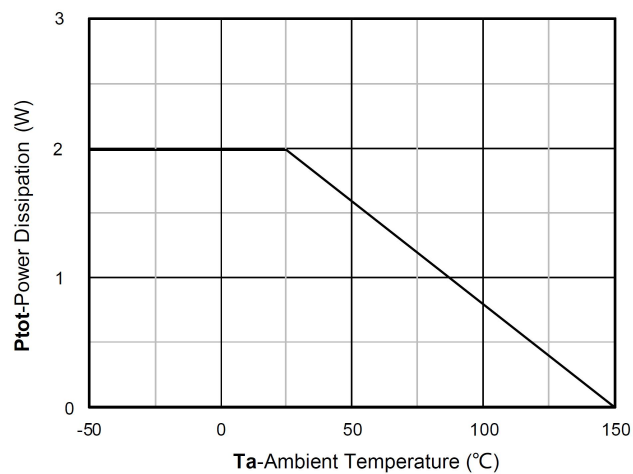
Capacitance Characteristics



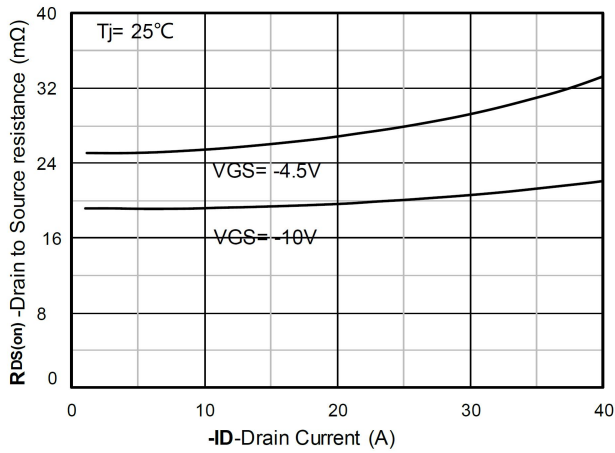
Gate Charge



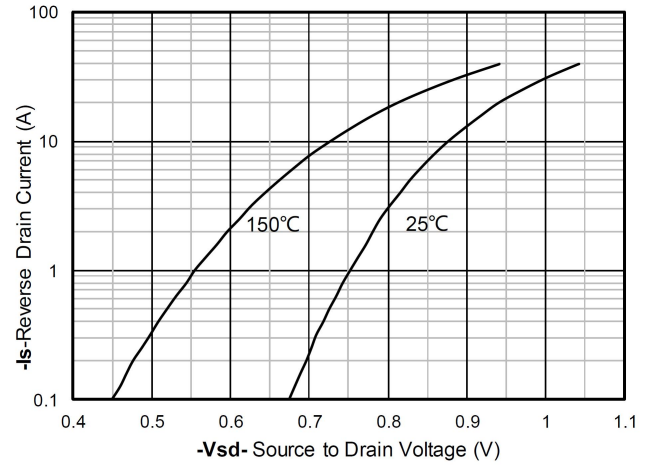
Current dissipation



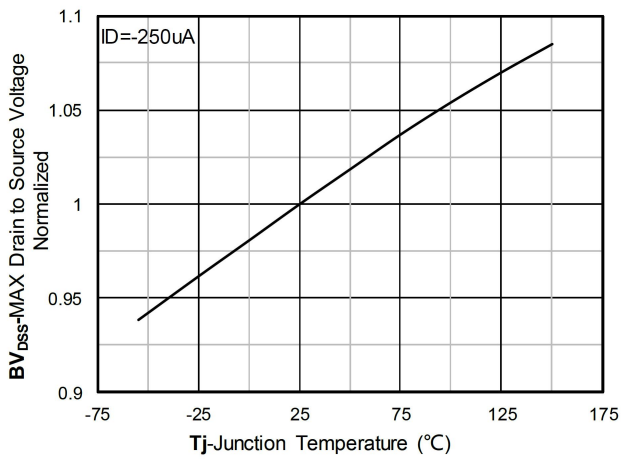
Power dissipation



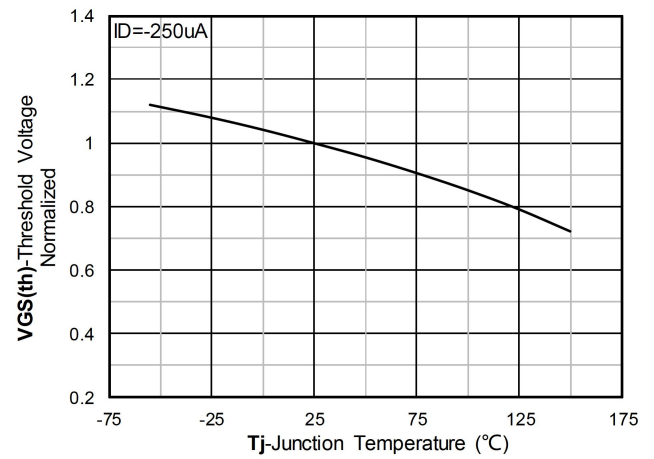
RDS(on) VS Drain Current



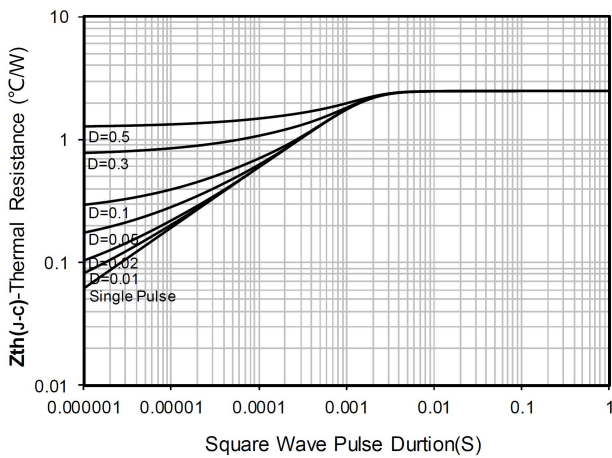
Forward characteristics of reverse diode



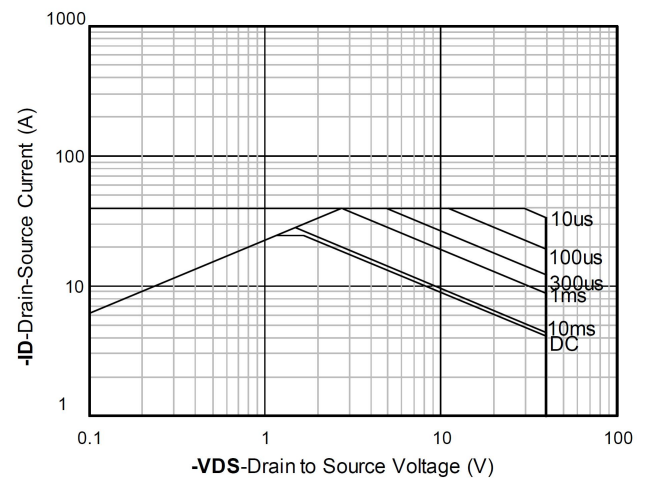
Normalized breakdown voltage



Normalized Threshold voltage

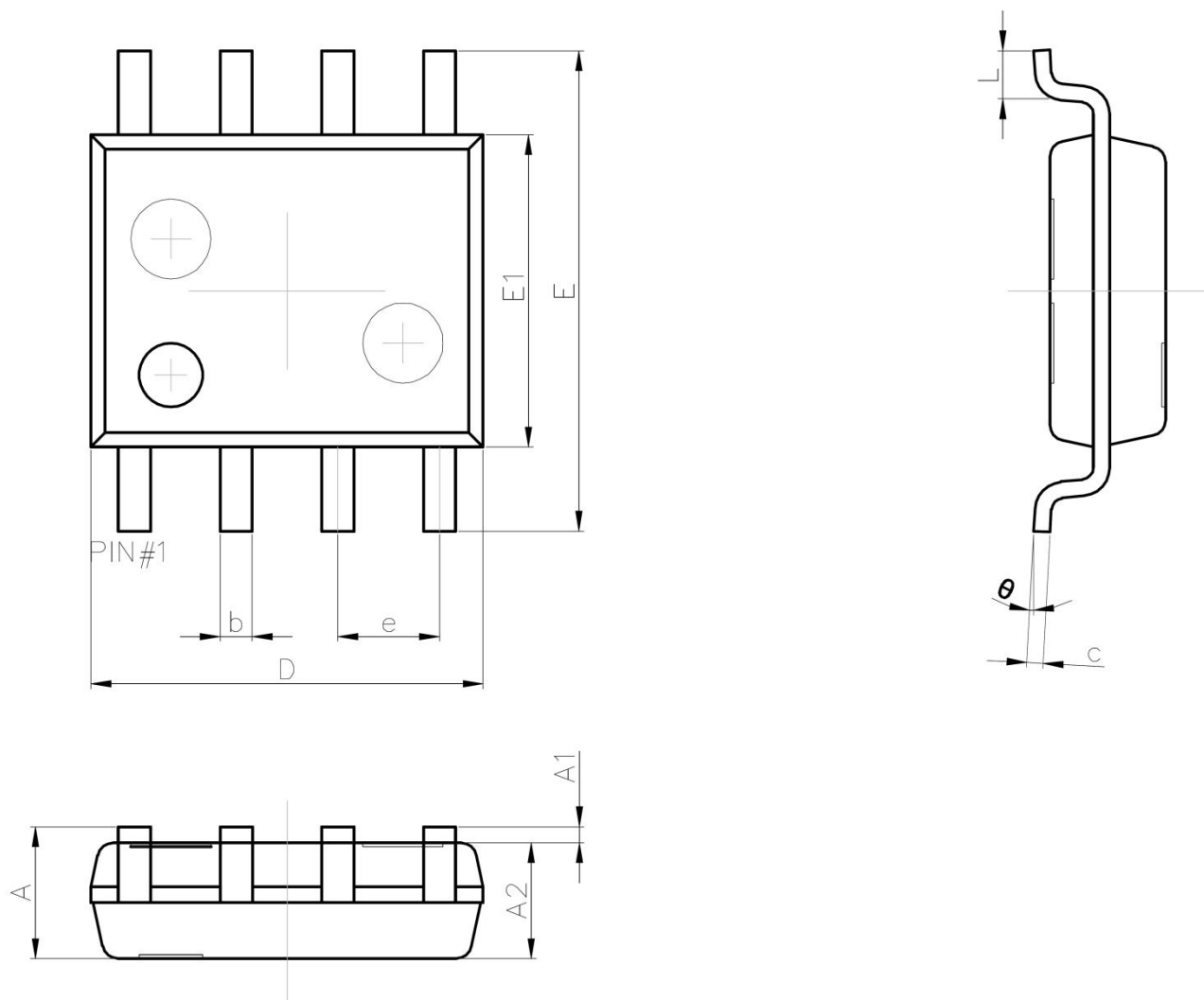


Maximum Transient Thermal Impedance



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°