

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	10m Ω @10V	12A
	13m Ω @4.5V	



合肥矽普半导体

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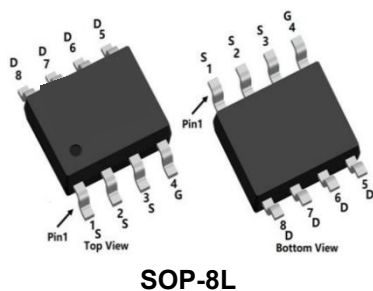
Feature

- Fast Switching
- Low Gate Charge and Rdson
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

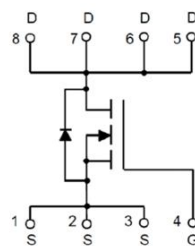
Applications

- Power switching application
- Battery management
- Uninterruptible power supply

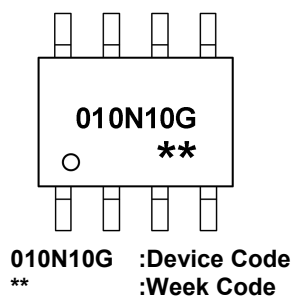
Package



Circuit Diagram



Marking



Order Information

Device	Package	Unit/Tape
SP010N10GP8	SOP-8L	4000

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	12	A
Continuous Drain Current (Ta=100°C)	I_D	8	A
Pulse Drain Current Tested	I_{DM}	48	A
Single Pulse Avalanche Energy ¹	E_{AS}	30	mJ
Power Dissipation	P_D	3.5	W
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	35.71	°C/W
Storage Temperature Range	T_{STG}	55 to 150	°C
Operating Junction Temperature Range	T_J	55 to 150	°C

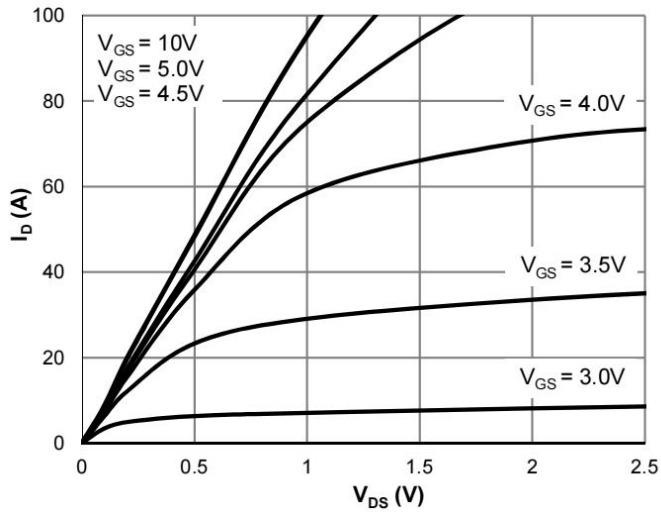
Electrical characteristics (Ta=25°C, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = 250μA, V _{GS} = 0V	100	-	-	V
Drain Cut-Off Current	I _{DSS}	V _{DS} = 80V, V _{GS} = 0V	-	-	1	uA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±0.1	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.2	1.9	2.5	V
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 20A	-	10	14	mΩ
		V _{GS} = 4.5V, I _D = 10A	-	13	18	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} = 0V, f = 1.0MHz	-	1635	-	pF
Output Capacitance	C _{oss}		-	339	-	
Reverse Transfer Capacitance	C _{rss}		-	22	-	
Total Gate Charge	Q _g	V _{DS} =50V , V _{GS} =10V , I _D =10A	-	29	-	nC
Gate-Source Charge	Q _{gs}		-	8	-	
Gate-Drain Charge	Q _{gd}		-	5	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V, V _{DS} =50V, I _D =10A R _G = 3Ω	-	11	-	nS
Rise Time	t _r		-	32	-	
Turn-Off Delay Time	t _{d(off)}		-	27	-	
Fall Time	t _f		-	9	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V _{SD}	V _{GS} =0V , I _S =1A , T _J =25℃	-	-	1.2	V
Maximum Body-Diode Continuous Current	I _S		-	-	12	A
Reverse Recovery Time	T _{rr}	I _S =10A, di/dt=100A/us, T _J =25℃	-	43	-	nS
Reverse Recovery Charge	Q _{rr}		-	32	-	nC

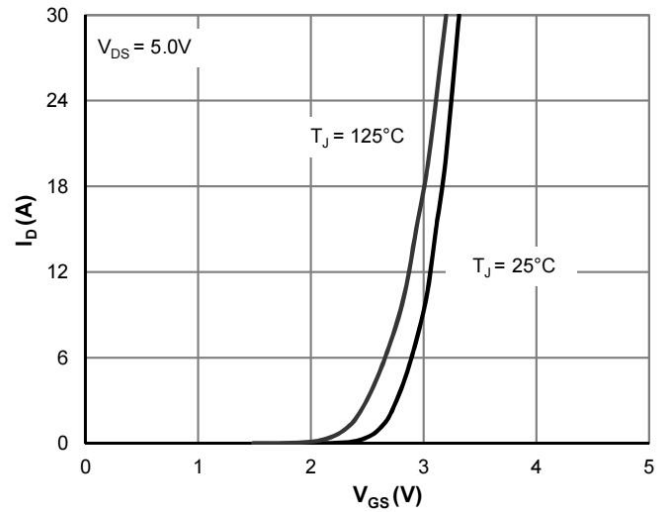
Note:

- The EAS test condition is $V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$

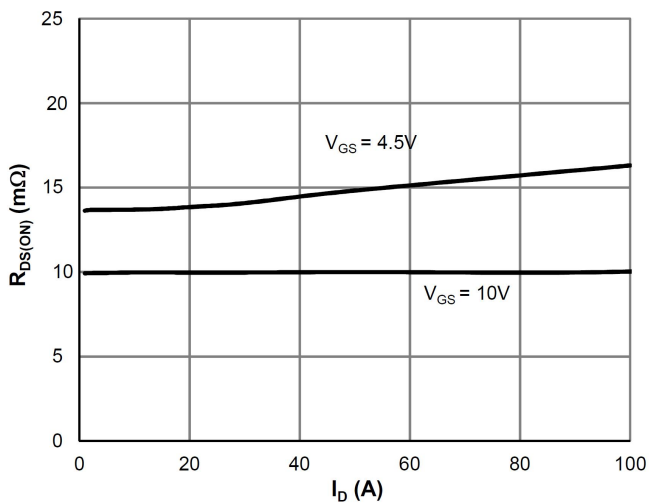
Typical Characteristics



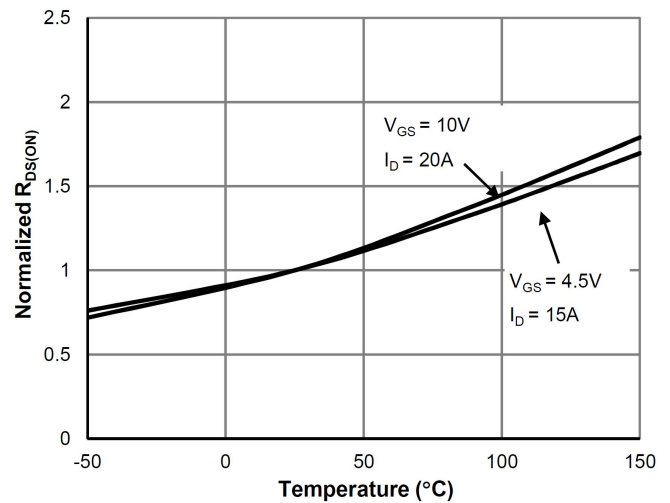
Typical Output Characteristics



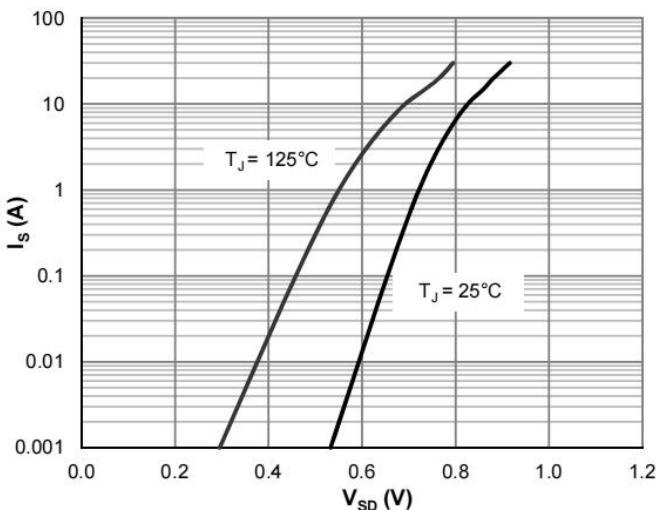
Transfer Characteristics



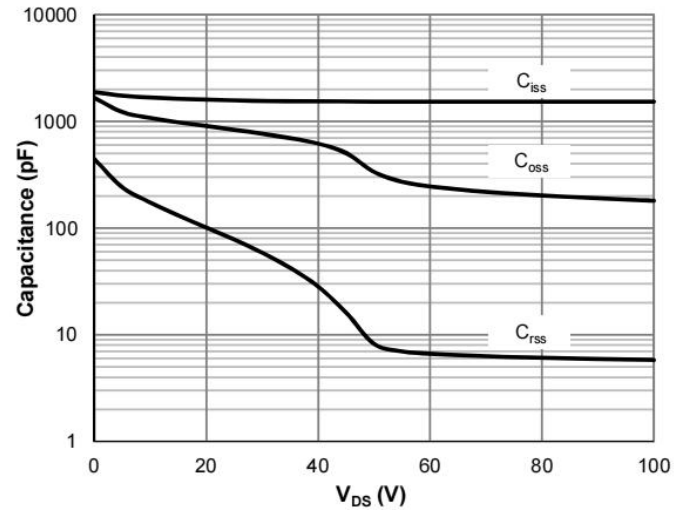
On-Resistance vs. Drain Current



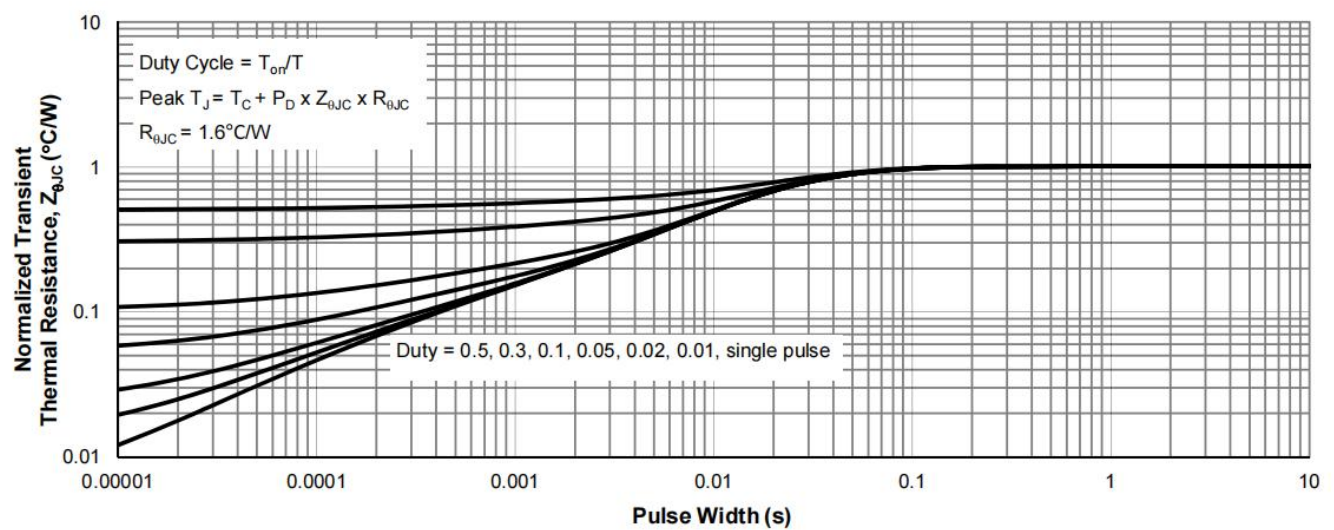
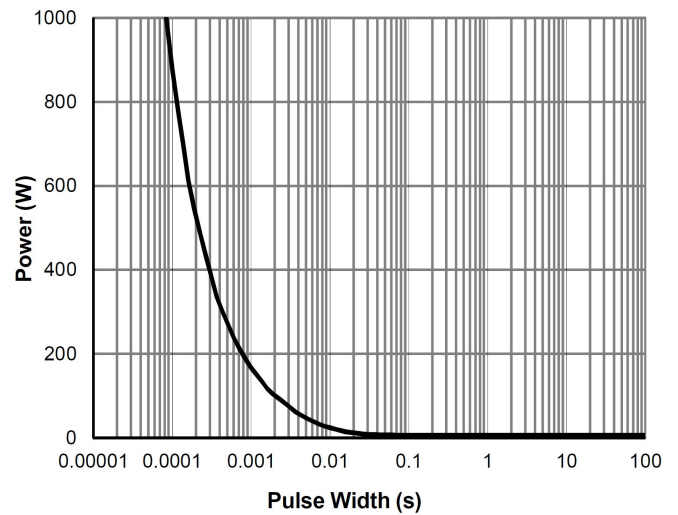
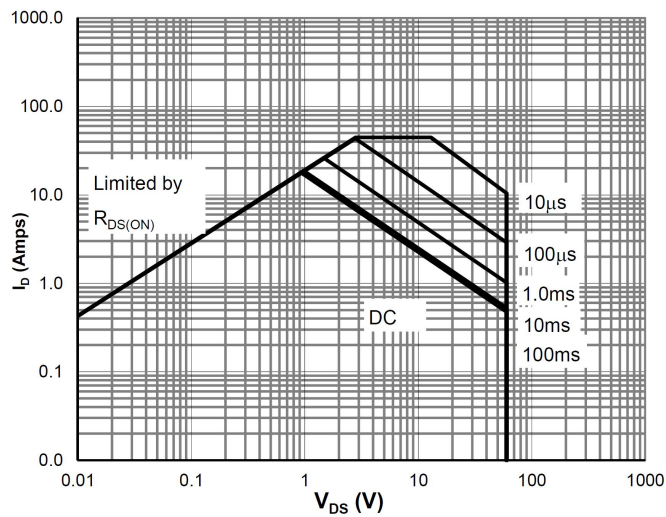
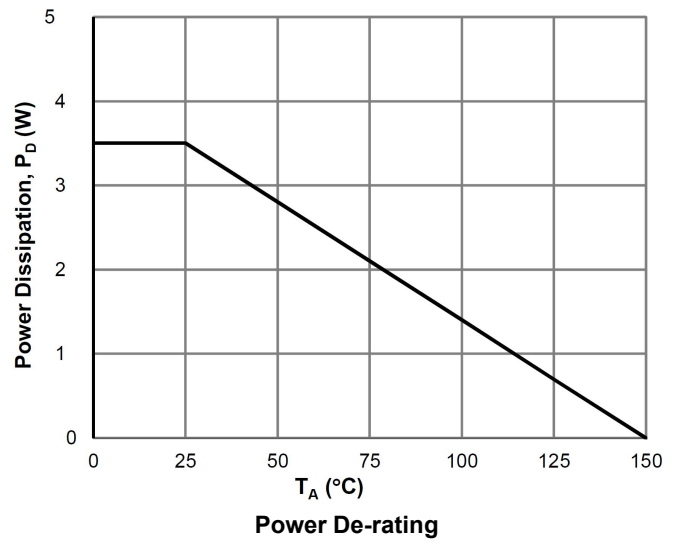
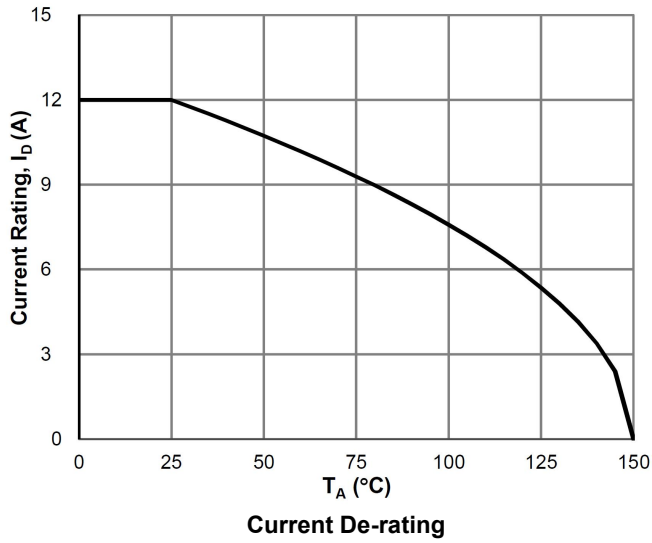
On-Resistance vs. Junction Temperature



Body-Diode Characteristics

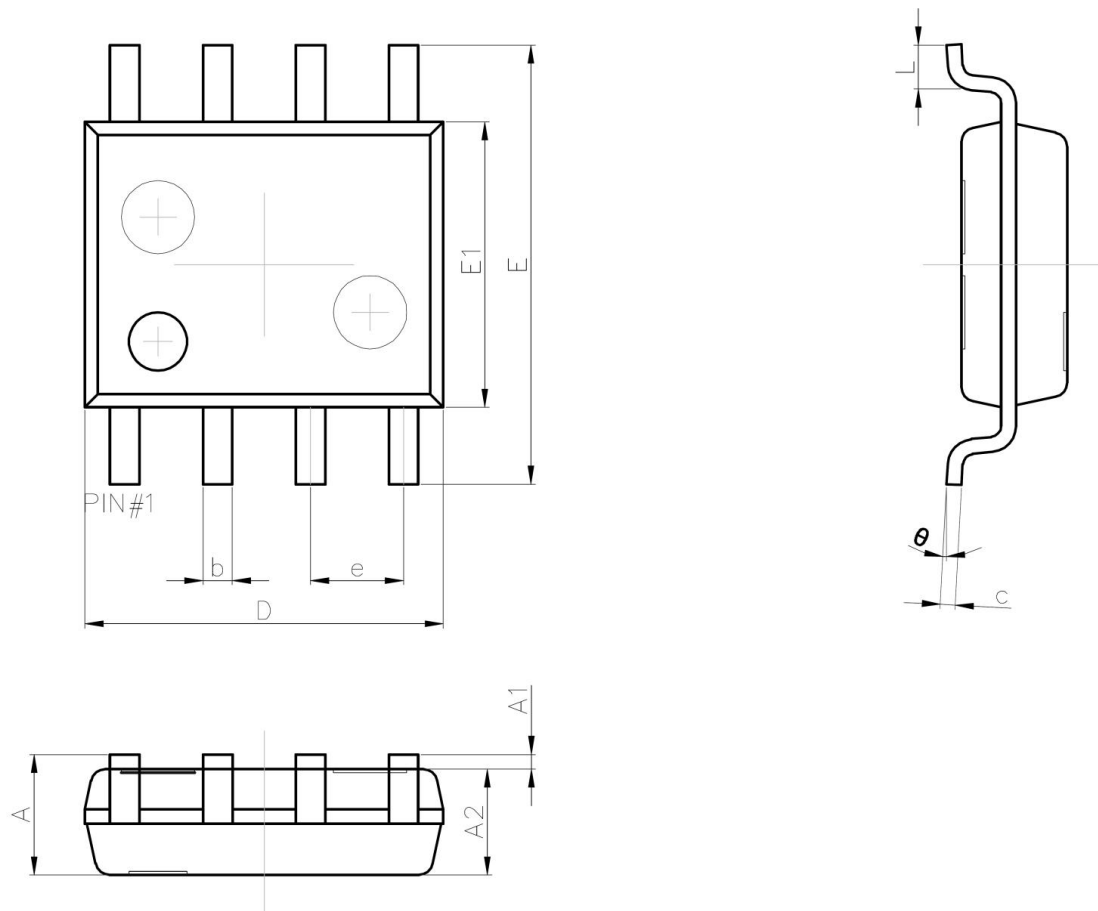


Capacitance Characteristics





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°