

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	6.5mΩ@10V	16A
	8.0mΩ@4.5V	



合肥矽普半导体

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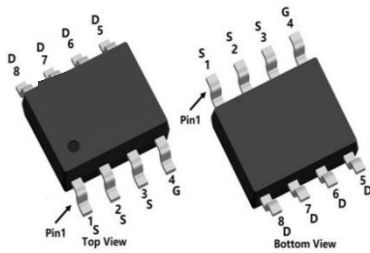
Feature

- Fast Switching
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Application

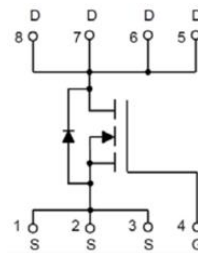
- Power Management
- Switched mode power supply

Package

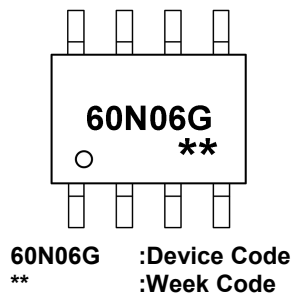


SOP-8L

Circuit Diagram



Marking



Order Information

Device	Package	Unit/Tape
SP60N06GP8	SOP-8L	4000

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current	I_D	16	A
Continuous Drain Current (Ta=100°C)	I_D	11	A
Pulse Drain Current Tested	I_{DM}	64	A
Single Pulse Avalanche Energy ¹	E_{AS}	156	mJ
Power Dissipation	P_D	3	W
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	41.67	°C/W
Storage Temperature Range	T_J	-55 to 150	°C
Operating Junction Temperature Range	T_{STG}	-55 to 150	°C

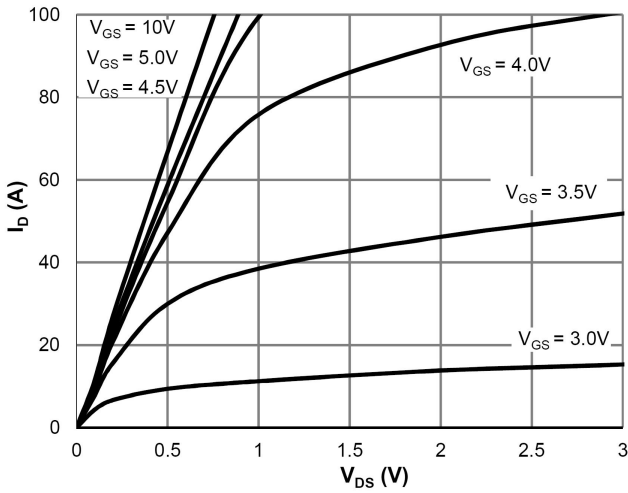
Electrical characteristics (Ta=25°C, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250mA$	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=48V, V_{GS}=0V$	-	-	1	uA
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.8	2.5	V
Drain-Source On-state Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=6A$	-	6.5	8	mΩ
		$V_{GS}=4.5V, I_D=4A$	-	8	11	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=30V, F=1MHz$	-	1982	-	pF
Output Capacitance	C_{oss}		-	390	-	
Reverse Transfer Capacitance	C_{rss}		-	13	-	
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=6A$	-	35	-	nC
Gate-Source Charge	Q_{gs}		-	7.2	-	
Gate-Drain Charge	Q_{gd}		-	5	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V, I_D=6A, V_{GS}=10V, R_G=4.7\Omega$	-	10	-	nS
Rise Time	t_r		-	35	-	
Turn-Off Delay Time	$t_{d(off)}$		-	31.8	-	
Fall Time	t_f		-	56.4	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	-	-	1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	16	A
Reverse Recovery Time	T_{rr}	$I_S=12A, di/dt=100A/\mu s, T_J=25^\circ C$	-	24	-	nS
Reverse Recovery Charge	Q_{rr}		-	36	-	nC

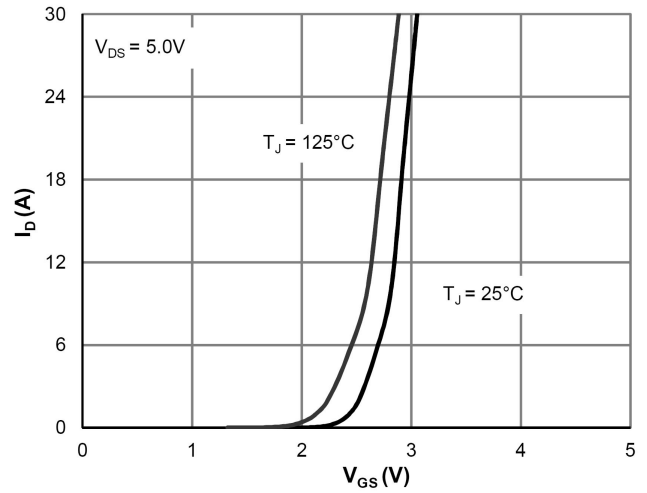
Note :

The test condition is $V_{DD}=30V, V_{GS}=10V, L=0.5mH, R_G=25\Omega$

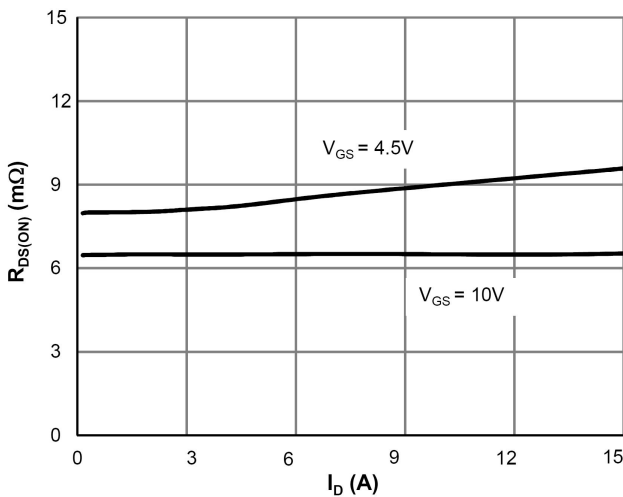
Typical Characteristics



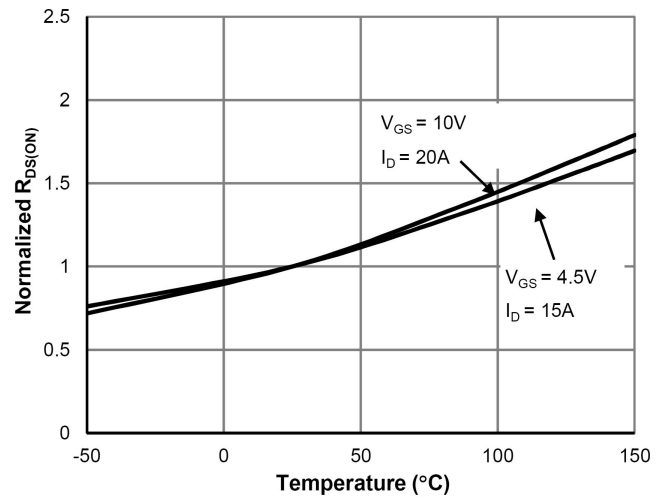
Saturation Characteristics



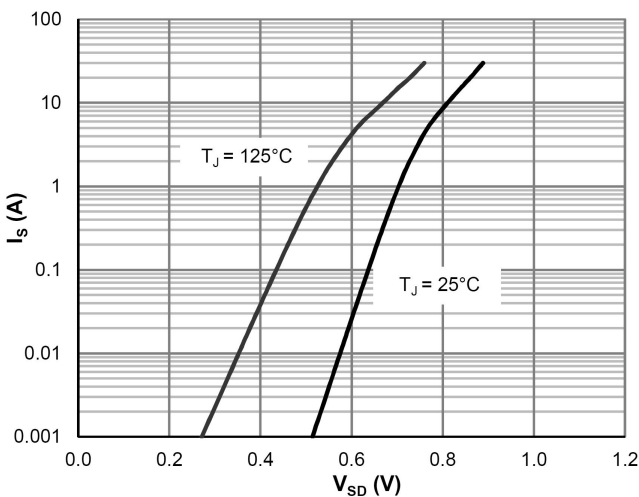
Transfer Characteristics



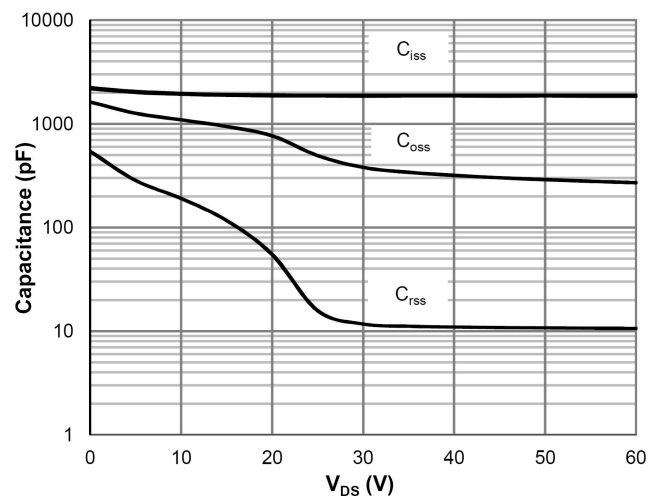
$R_{DS(ON)}$ vs. Drain Current



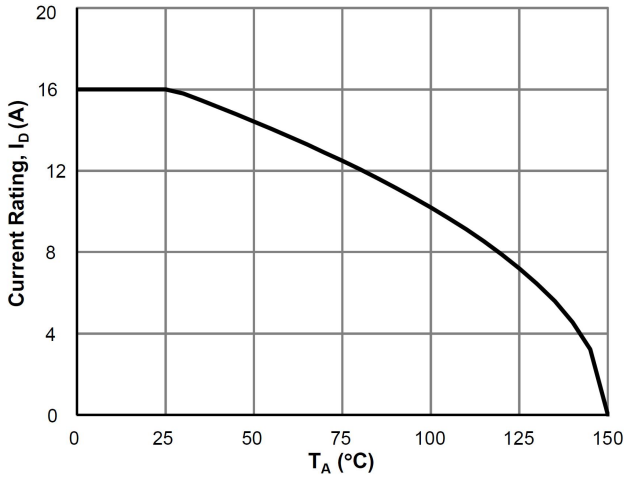
$R_{DS(ON)}$ vs. Junction Temperature



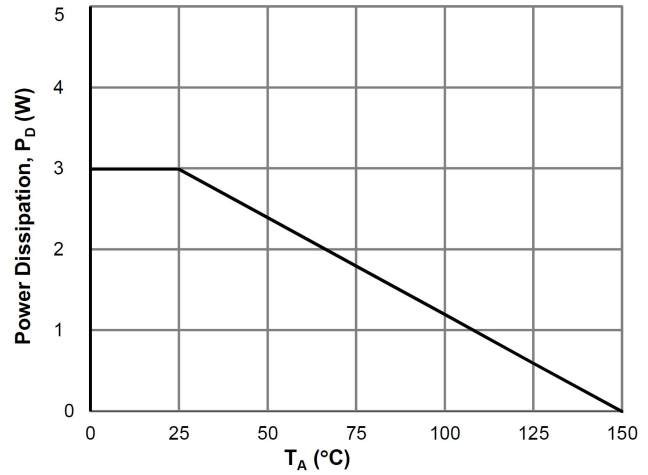
Body-Diode Characteristics



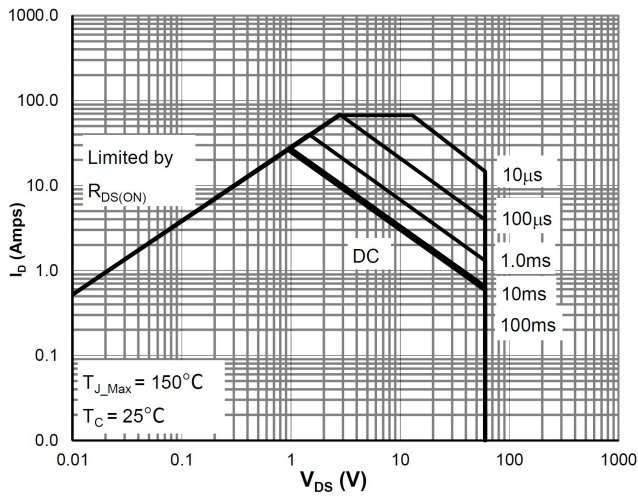
Capacitance Characteristics



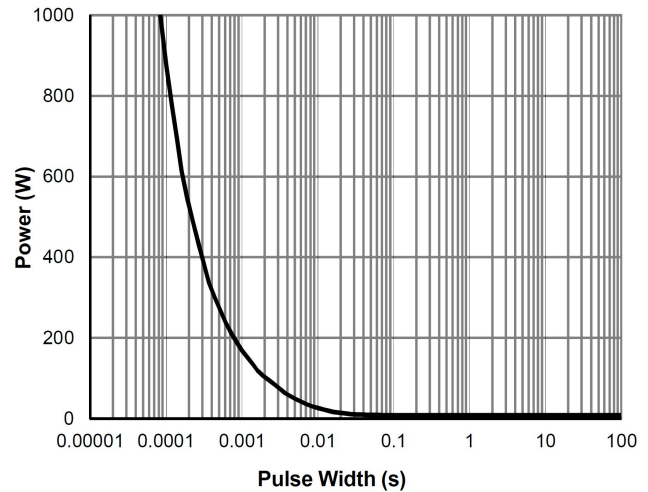
Current De-rating



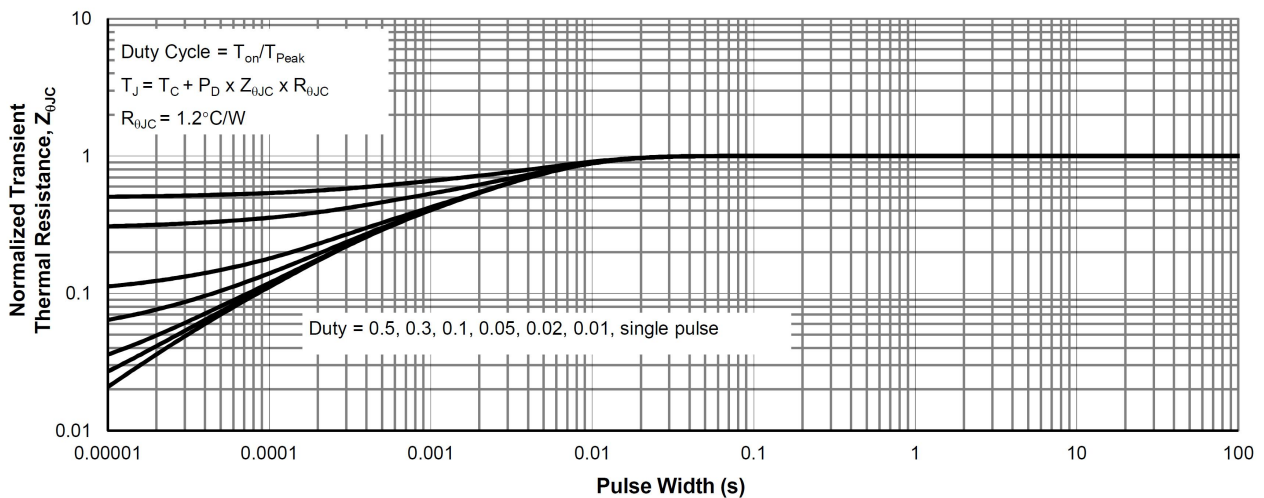
Power De-rating



Maximum Safe Operating Area

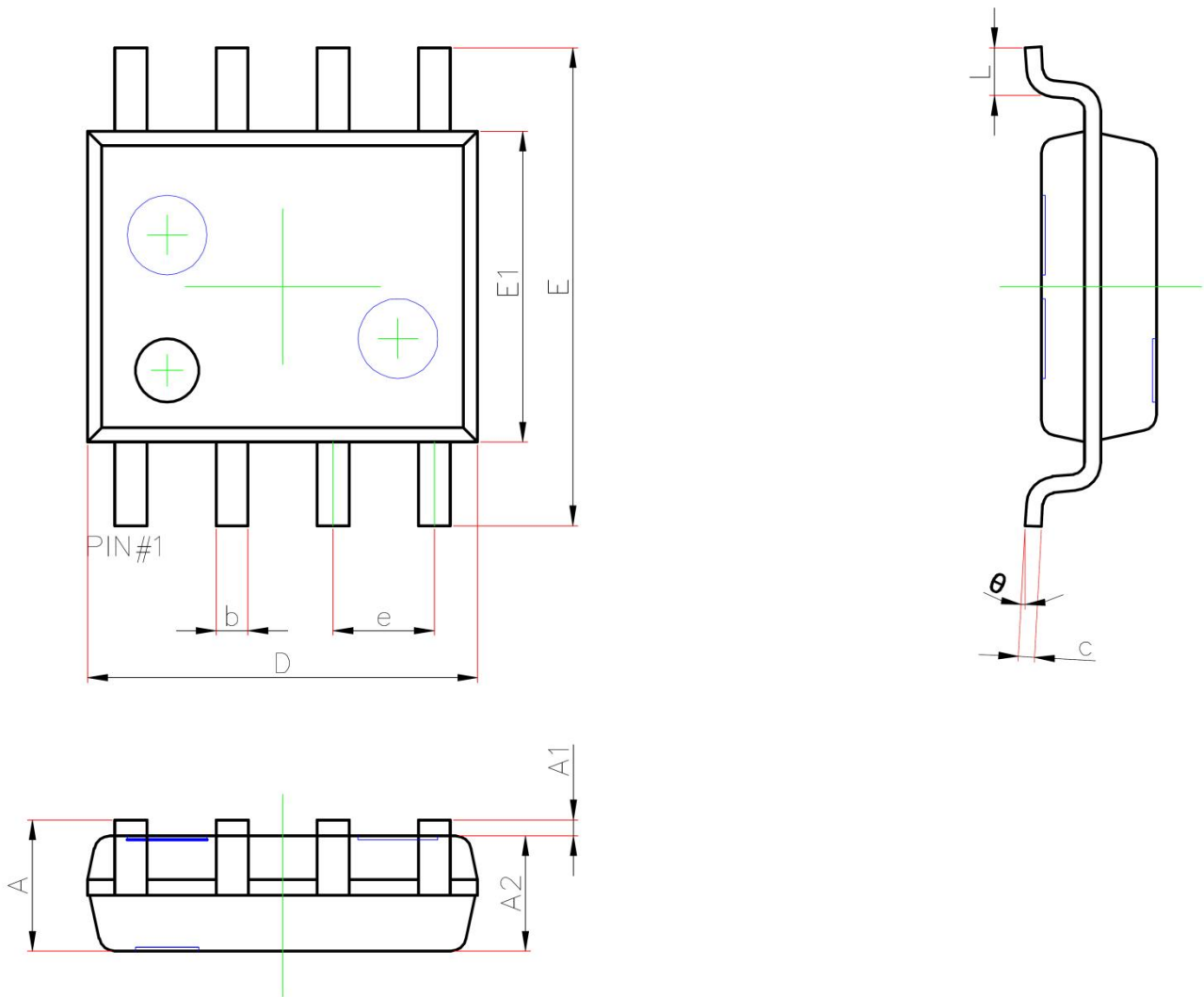


Single Pulse Power Rating, Junction-to-Case



Normalized Maximum Transient Thermal Impedance

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°