SSC8L60PN6

N-Channel Enhancement Mode MOSFET

➢ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
60V	±20V	1.6mΩ@10V	160A
		2.4mΩ@4.5V	

➢ Description

This device is N-Channel enhancement MOSFET. Uses SGT technology and design to provide excellent RDSON with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit.

100% UIS + ΔVDS + Rg Tested!

➢ Applications

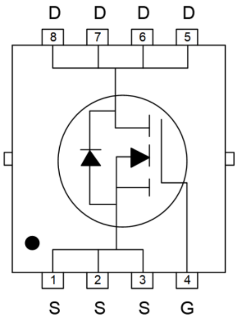
- DC/DC Conversion
- Power Supplies
- Motor Drive Control
- Synchronous Rectification

➢ Ordering Information

Device	Package	Shipping
SSC8L60PN6	PDFN5X6-8L	5000/Reel

➢ Pin Configuration

PDFN5X6-8L (Top View)



Pin Configuration

Marking

(XXYY: Internal Traceability Code)

➢ Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

Symbol	Parameter		Ratings	Unit
V_{DSS}	Drain-to-Source Voltage		60	V
V_{GSS}	Gate-to-Source Voltage		±20	V
I_D	Continuous Drain Current [d]	T_C=25℃	160	A
		T_C=100℃	85	
I_{DSM}	Continuous Drain Current [a]	T_A=25℃	43	A
		T_A=70℃	31	
I_{DM}	Pulsed Drain Current [b]		640	A
P_D	Power Dissipation [c]	T_C=25℃	83	W
		T_C=100℃	33	
P_{DSM}	Power Dissipation [a]	T_A=25℃	5.9	W
		T_A=70℃	3.8	
I_{AS}	Avalanche Current [b] L=0.5mH Single Pulse		40	A
E_{AS}	Avalanche Energy [b] L=0.5mH Single Pulse		400	mJ
T_J	Operation junction temperature		-55~150	℃
T_{STG}	Storage temperature range		-55~150	

➢ Thermal Resistance Ratings (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Unit
$R_{θJA}$	Junction-to-Ambient Thermal Resistance [a]	21	℃/W
$R_{θJC}$	Junction-to-Case Thermal Resistance	1.5	

Note:

a. The value of $R_{θJA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2oz.copper, in a still air environment with T_A=25℃.The value in any given application depends on the user is specific board design. The power dissipation is based on the t≤10s thermal resistance rating.

b. Repetitive rating, pulse width limited by junction temperature.

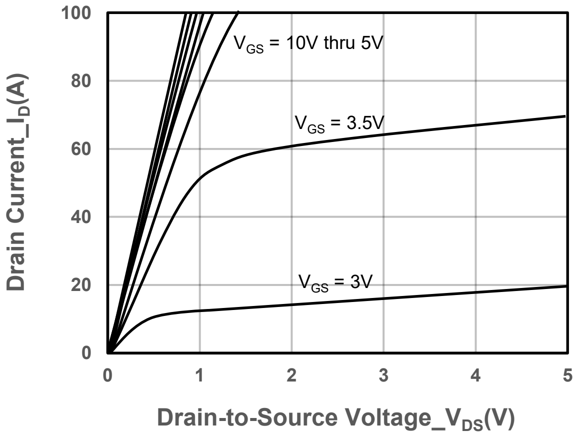
c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

d. The maximum current rating is package limited.

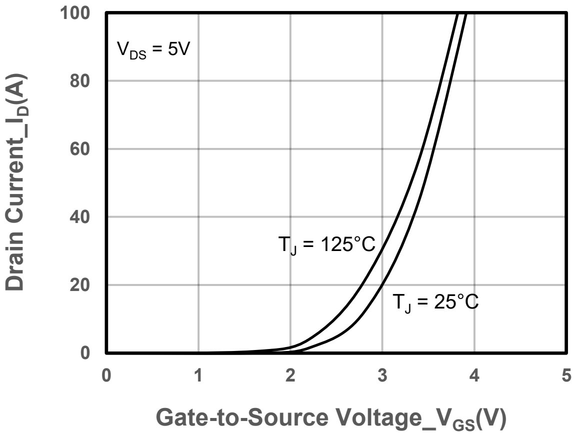
➢ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	60			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	1.0	1.5	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 30A		1.6	2.2	mΩ
		V_{GS} = 4.5V, I_D = 20A		2.4	3.2	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 60V, V_{GS} = 0V			1	μA
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
Transconductance	G_{FS}	V_{DS} = 5V, I_D = 20A		37		S
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 20A		0.8	1.3	V
Gate Resistance	R_G	V_{DS} = 0V, f = 1MHz		2.5		Ω
Input Capacitance	C_{ISS}	V_{DS} = 30V, V_{GS} = 0V, f = 1MHz		5029		pF
Output Capacitance	C_{OSS}			825		
Reverse Transfer Capacitance	C_{RSS}			56		
Total Gate Charge	Q_G	V_{GS} = 10V, V_{DS} = 30V, I_D = 20A		85		nC
Gate to Source Charge	Q_{GS}			19		
Gate to Drain Charge	Q_{GD}			15		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 10V, R_L = 2.5Ω V_{DS} = 30V, R_G = 3Ω		19		ns
Rise Time	T_r			31		
Turn-off Delay Time	$T_{D(OFF)}$			63		
Fall Time	T_f			23		
Diode Recovery Time	T_{rr}	I_F=20A, di/dt=500A/us		34		ns
Diode Recovery Charge	Q_{rr}	I_F=20A, di/dt=500A/us		70		nC

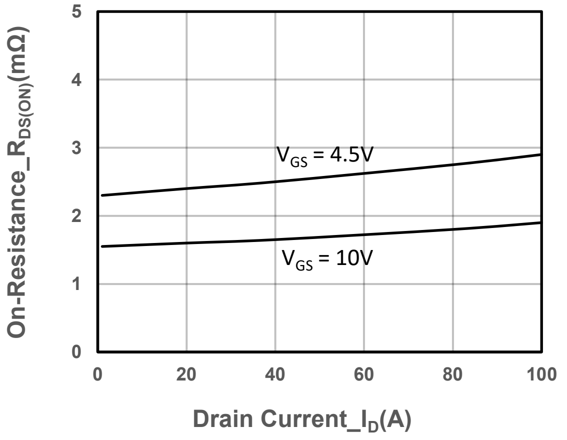
➢ Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



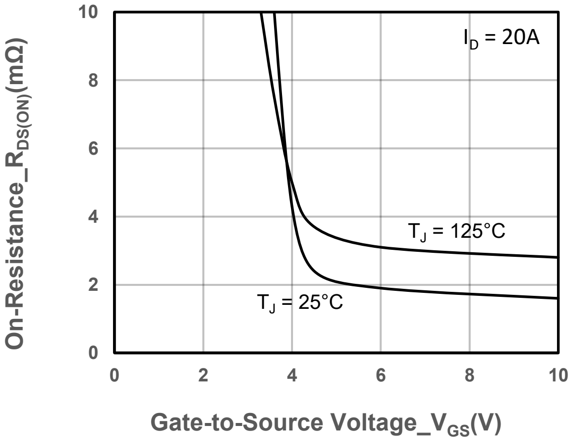
Output Characteristics



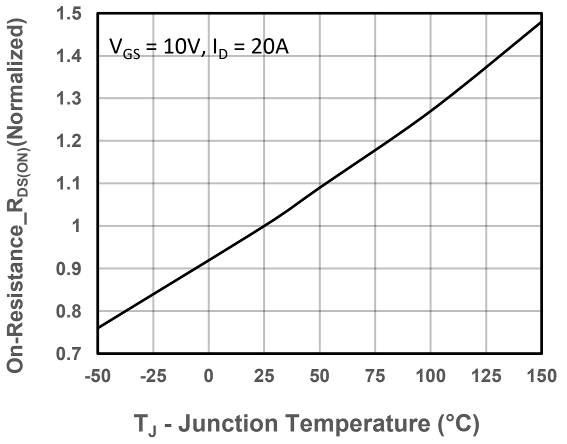
Transfer Characteristics



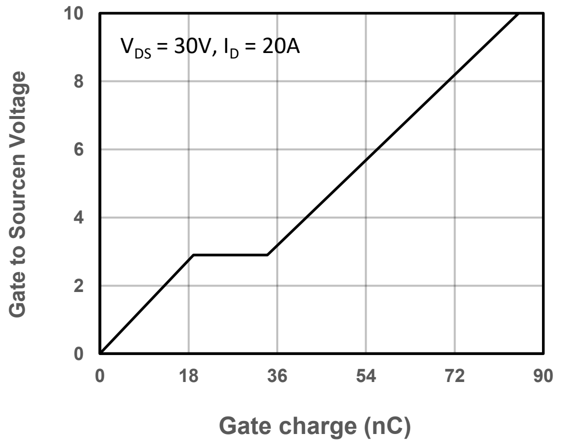
On-Resistance vs. Drain Current and Gate Voltage



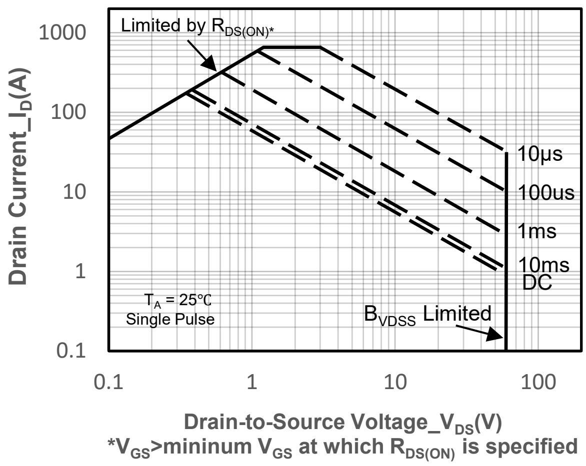
On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Junction Temperature

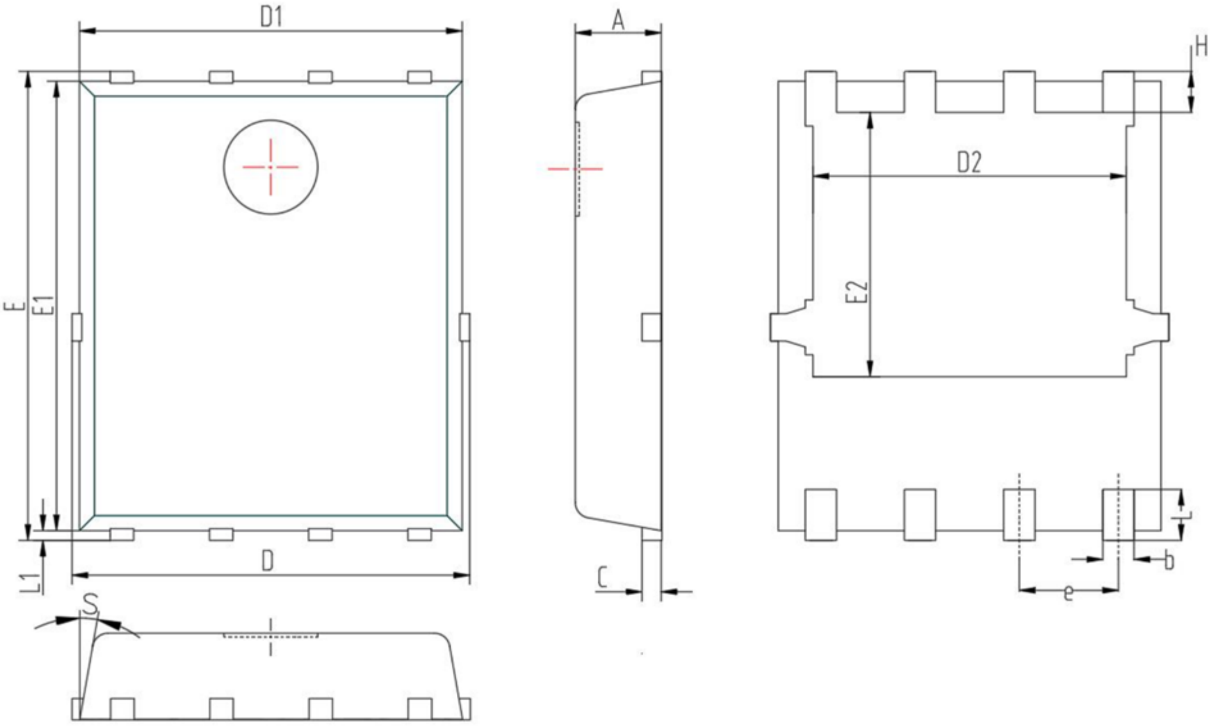


Gate-Source Voltage vs. Gate charge



Safe Operating Area vs. Junction-to-Ambient

Package Information



Symbol	MILL IMETER		
	Min	Nom	Max
A	0.90	1.05	1.20
b	0.25	0.30	0.51
c	0.15	0.25	0.35
D	4.80	5.10	5.40
D1	4.80	5.00	5.20
D2	3.70	4.00	4.30
E	5.80	6.15	6.50
E1	5.50	5.75	5.95
E2	3.30	3.45	3.67
e	1.27BSC		
H	0.40	0.60	0.93
L	0.45	0.65	0.85
L1	0.00	0.10	0.25
S	0°	--	12°

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