



SSC8L38PN6

N-Channel Enhancement Mode MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
30V	$\pm 20V$	2.3 m Ω @10V	120A
		3.5 m Ω @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 + ΔV_{DS} + R_g Tested!

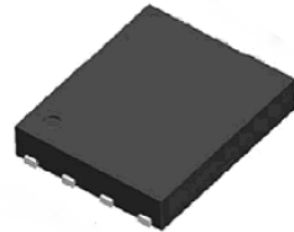
➤ Applications

- DC/DC converters
- Power supplies
- Motor Drive Control
- Synchronous rectification

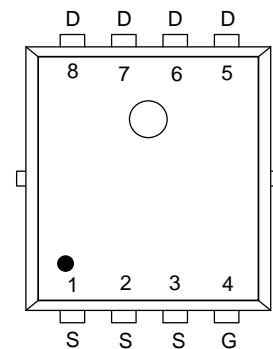
➤ Ordering Information

Device	Package	Shipping
SSC8L38PN6	PDFN5X6-8L	5000/Reel

➤ Pin Configuration



PDFN5X6-8L



Pin Configuration (Top View)



Marking

(XXYY: Internal Traceability Code)

**➤ Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)**

Symbol	Parameter		Ratings	Unit
V_{DSS}	Drain-to-Source Voltage		30	V
V_{GSS}	Gate-to-Source Voltage		± 20	V
I_D	Continuous Drain Current ^d	$T_C=25^{\circ}\text{C}$	120	A
		$T_C=100^{\circ}\text{C}$	66	
I_{DSM}	Continuous Drain Current ^a	$T_A=25^{\circ}\text{C}$	27	A
		$T_A=70^{\circ}\text{C}$	20	
I_{DM}	Pulsed Drain Current ^b		476	A
P_D	Power Dissipation ^c	$T_C=25^{\circ}\text{C}$	57	W
		$T_C=100^{\circ}\text{C}$	23	
P_{DSM}	Power Dissipation ^a	$T_A=25^{\circ}\text{C}$	2.8	W
		$T_A=70^{\circ}\text{C}$	1.8	
I_{AS}	Avalanche Current ^b $L=0.5\text{mH}$ Single Pulse		20	A
E_{AS}	Avalanche Energy ^b $L=0.5\text{mH}$ Single Pulse		100	mJ
T_J	Operation junction temperature		-55~150	$^{\circ}\text{C}$
T_{STG}	Storage temperature range		-55~150	

➤ Thermal Resistance Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Ratings	Max.	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance ^a	44	60	$^{\circ}\text{C/W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	2.2	3.0	

Note:

- The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user is specific board design. The power dissipation is based on the $t \leq 10\text{s}$ thermal resistance rating.
- Repetitive rating, pulse width limited by junction temperature.
- The power dissipation P_D is based on $T_{J(MAX)}=150^{\circ}\text{C}$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.
- The maximum current rating is package limited.

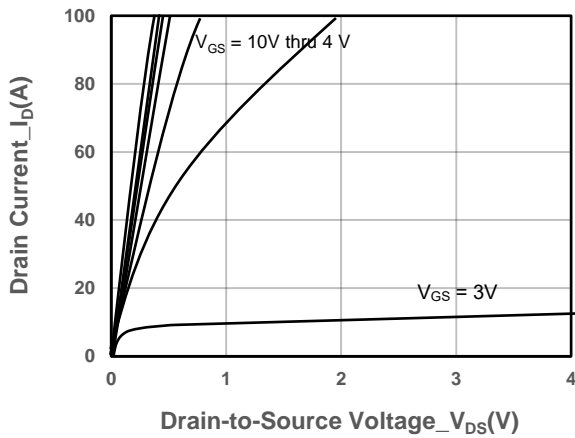


➤ **Electrical Characteristics (T_A=25°C unless otherwise noted)**

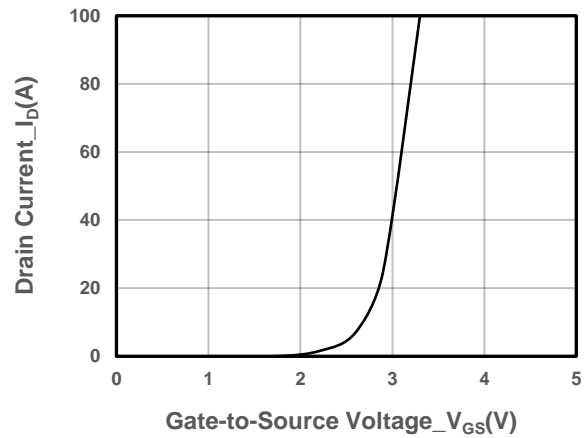
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1.0	1.7	2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 20A		2.3	3.3	mΩ
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 10A		3.5	5.3	mΩ
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30V, V _{GS} = 0V			1	μA
Gate-Source Leak Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 20A		0.7	1.3	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		2.0		Ω
Input Capacitance	C _{ISS}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz		1448		pF
Output Capacitance	C _{OSS}			937		
Reverse Transfer Capacitance	C _{RSS}			48		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 15V, I _D = 20A		46		nC
Gate to Source Charge	Q _{GS}			9.1		
Gate to Drain Charge	Q _{GD}			5.2		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 10V, V _{DS} = 20V, R _L = 1Ω, R _G = 3Ω		5.1		ns
Rise Time	T _r			5.6		
Turn-off Delay Time	T _{D(OFF)}			25		
Fall Time	T _f			20		
Diode Recovery Time	T _{rr}	I _F =20A, di/dt=100A/us		34		ns
Diode Recovery Charge	Q _{rr}	I _F =20A, di/dt=100A/us		18		nC



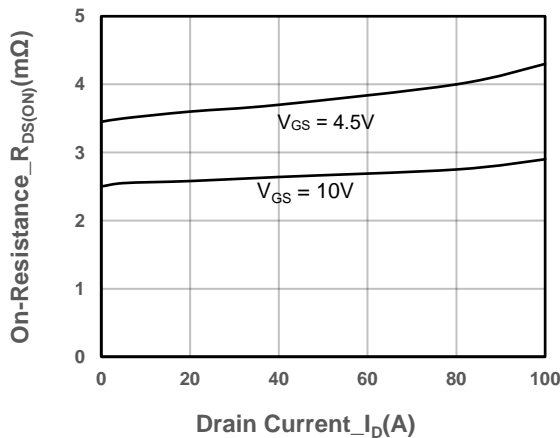
➤ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



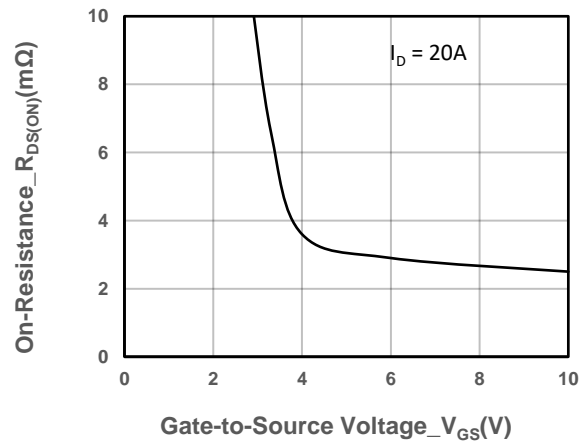
Output Characteristics



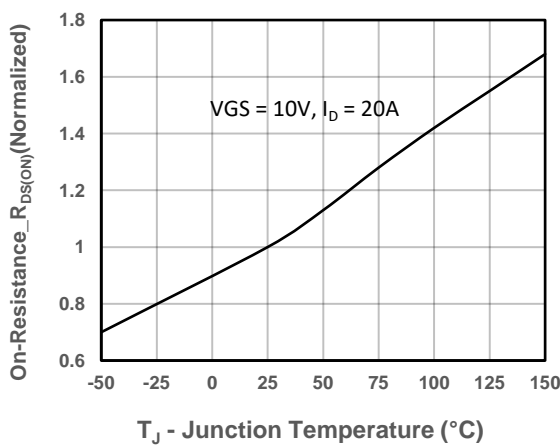
Transfer Characteristics



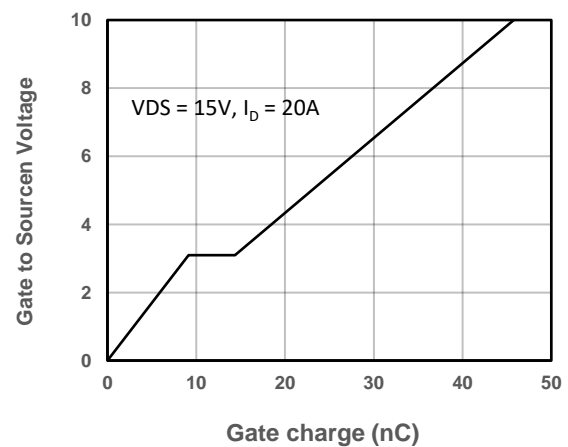
On-Resistance vs. Drain Current and Gate Voltage



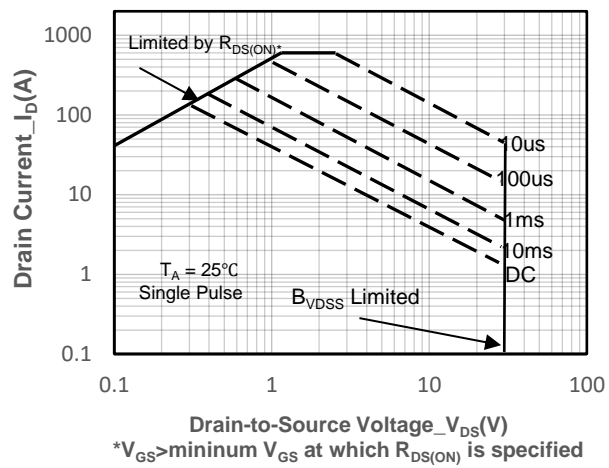
On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Junction Temperature

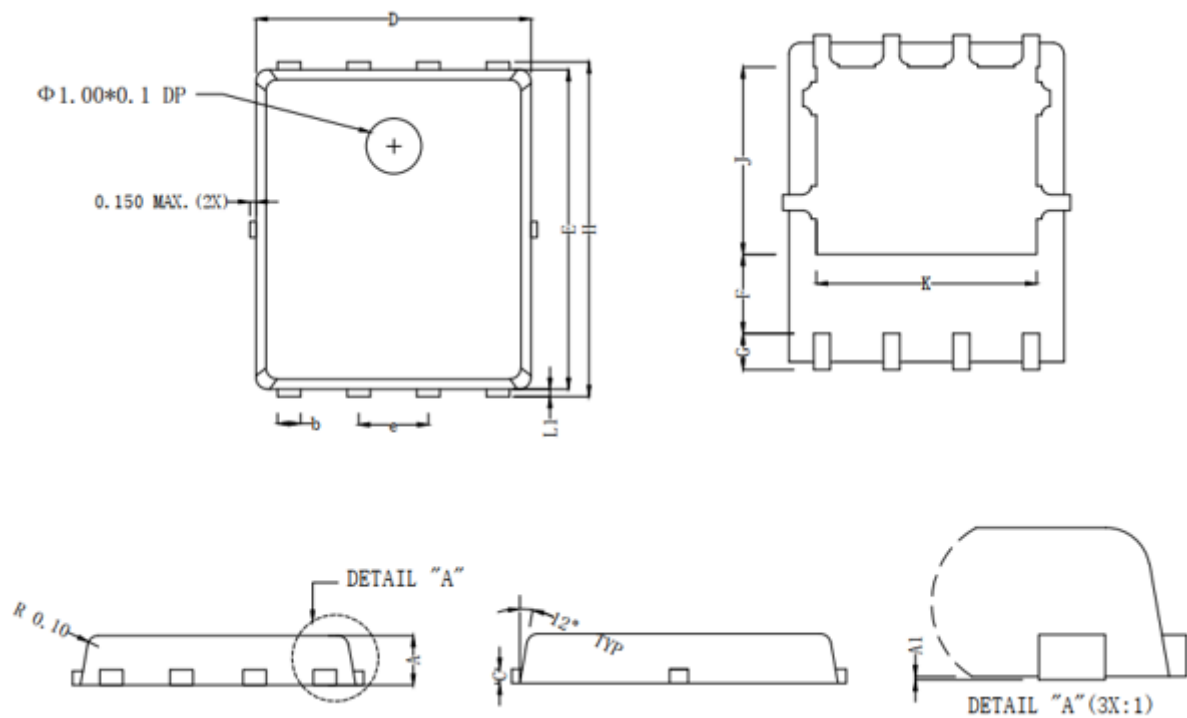


Gate-Source Voltage vs. Gate charge



Safe Operating Area vs. Junction-to-Ambient

➤ Package Information



Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	0.90	1.00	1.10
A1	0.00	0.03	0.05
b	0.25	0.03	0.35
c	0.254 REF		
D	4.80	4.90	5.00
F	1.35 REF		
E	5.65	5.75	5.85
e	1.27 BSC		
H	5.90	6.00	6.10
L1	0.10	0.13	0.16
G	0.55 REF		
K	4.00 REF		
J	3.45 REF		



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