SSC8L38PN4

N-Channel Enhancement Mode MOSFET

➢ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
30V	±20V	2.3mΩ@10V	98A
		3.5mΩ@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!

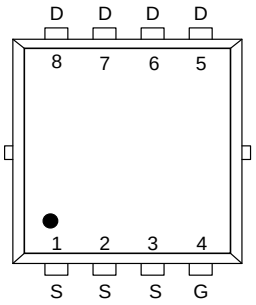
➢ Applications

- Motor Drive Control
- Portable Devices
- DCDC Conversion
- Power Supplies
- Synchronous Rectification

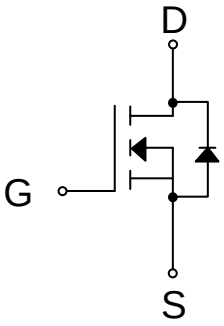
➢ Ordering Information

Device	Package	Shipping
SSC8L38PN4	PDFN3.3X3.3-8L	5000/Reel

➢ Pin Configuration



PDFN3.3X3.3-8L (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		30	V
V_{GSS}	Gate-to-Source Voltage		±20	V
I_D	Continuous Drain Current [d]	T_C=25℃	98	A
		T_C=100℃	54	
I_{DSM}	Continuous Drain Current [a]	T_A=25℃	27	A
		T_A=70℃	19	
I_{DM}	Pulsed Drain Current [b]		395	A
P_D	Power Dissipation [c]	T_C=25℃	39	W
		T_C=100℃	15	
P_{DSM}	Power Dissipation [a]	T_A=25℃	3.0	W
		T_A=70℃	1.9	
I_{AS}	Avalanche Current [b] L=0.5mH Single Pulse		22	A
E_{AS}	Avalanche Energy [b] L=0.5mH Single Pulse		121	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	Max.	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]	42	60	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	3.2	4.0	

Note:

a. The value of $R_{\theta JA}$ 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.

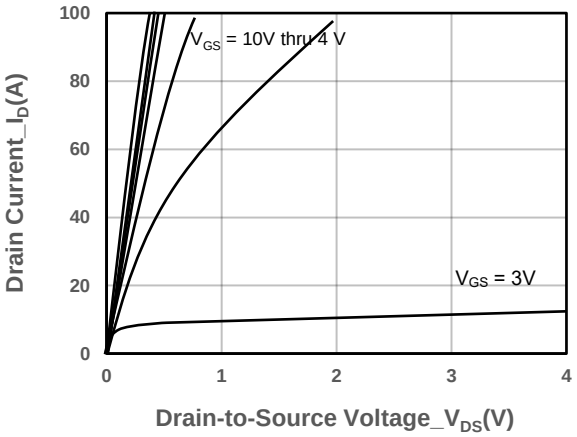
c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

d. The maximum current rating is package limited.

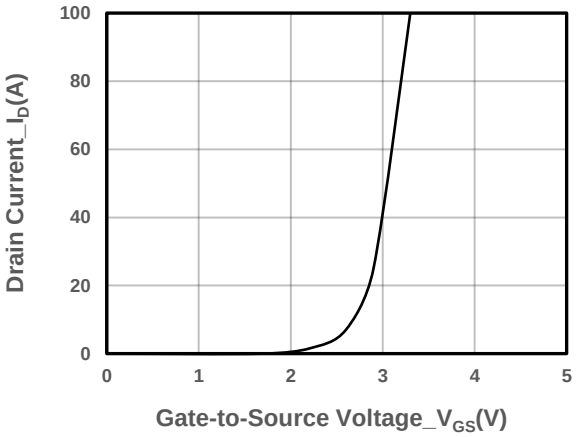
➢ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	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
Transconductance	G_{FS}	V_{DS} = 5V, I_D = 10A		27		S
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 20A		0.7	1.3	V
Gate Resistance	R_G	V_{DS} = 0V, f = 1MHz		2.5		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

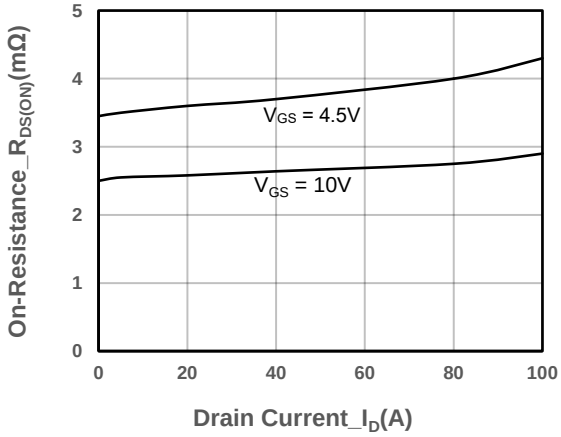
➢ Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



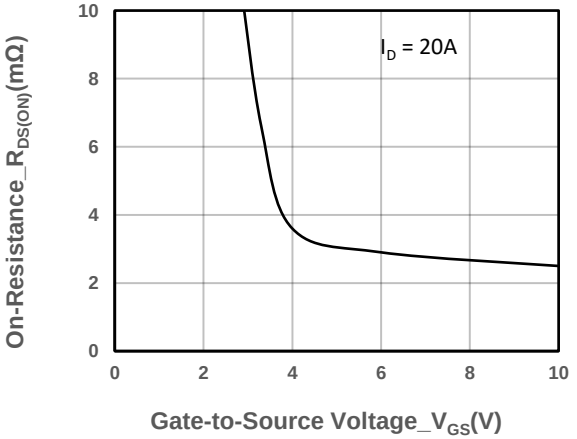
Output Characteristics



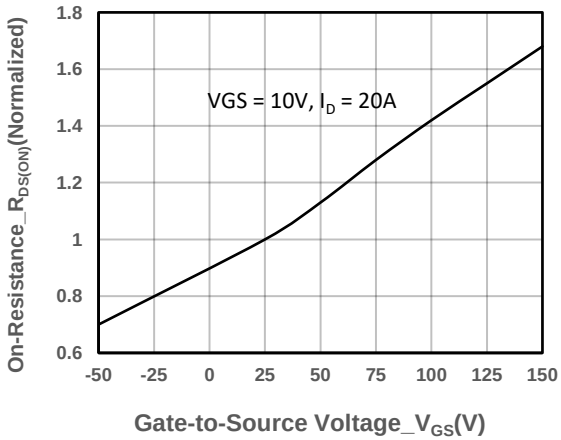
Transfer Characteristics



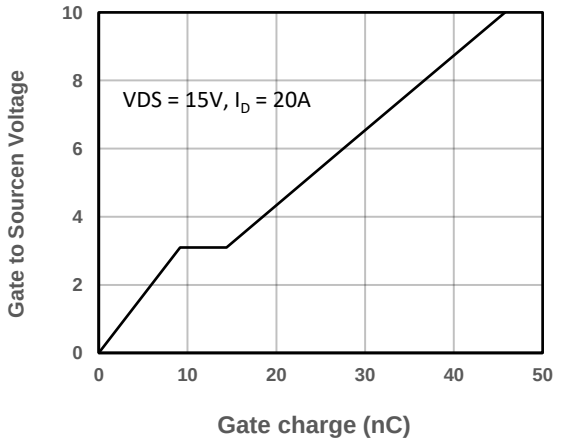
On-Resistance vs. Drain Current and Gate Voltag



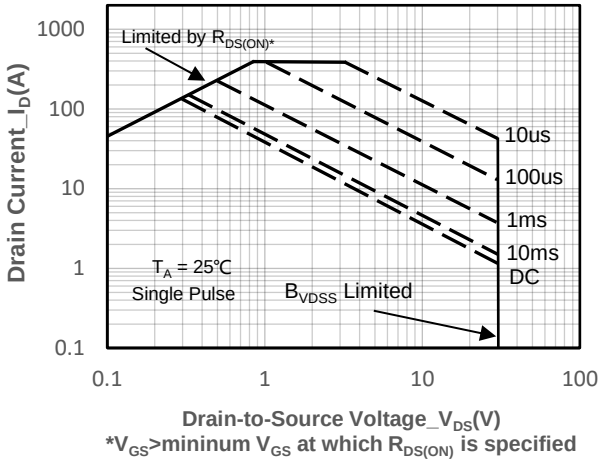
On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Junction Temperature

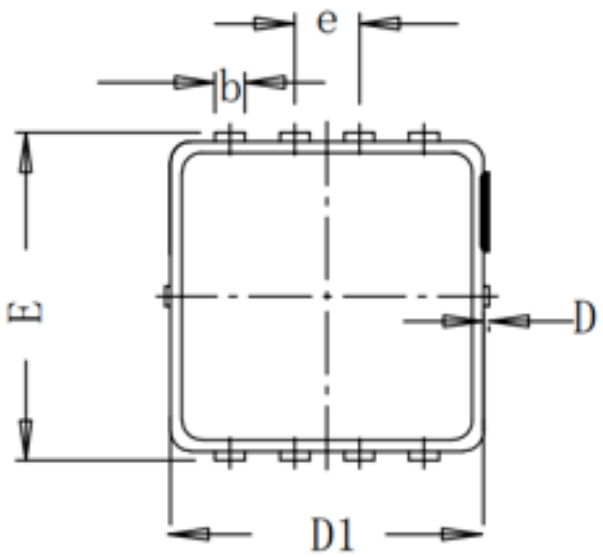


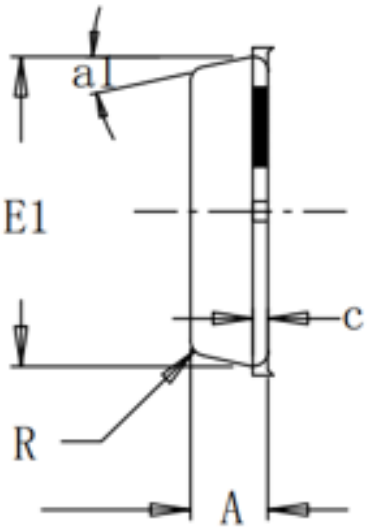
Gate-Source Voltage vs. Gate charge

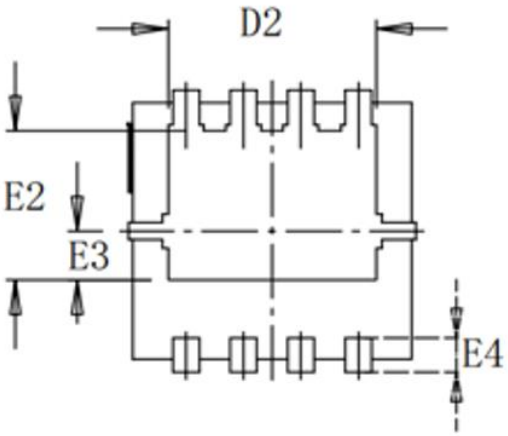


Safe Operating Area vs. Junction-to-Ambient

➢ Package Information







Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	0.75	0.78	0.81
b	0.297	0.3	0.35
c	-	0.152	-
D	0	0.05	0.1
D1	3.12	3.15	3.18
D2	-	2.35	-
E	3.2	3.3	3.4
E1	3.09	3.12	3.15
E2	-	1.75	-
E3	-	0.575	-
E4	-	0.4	-
R	-	0.15	-
e	0.65BSC		
a1°	-	12°	-

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