SSC8L412GT8

N-Channel Enhancement Mode MOSFET

➢ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
40V	±20V	1.7 mΩ@10V	204A
		2.5 mΩ@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!

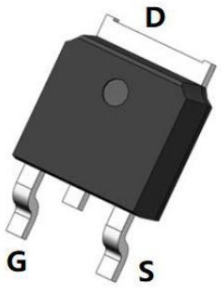
➢ Applications

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

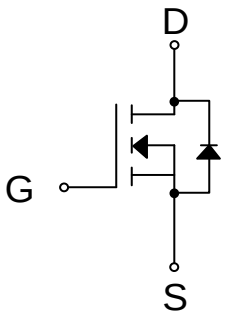
➢ Ordering Information

Device	Package	Shipping
SSC8L412GT8	TO-252-2L	2500/Reel

➢ Pin Configuration



TO-252-2L (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		40	V
V_{GSS}	Gate-to-Source Voltage		±20	V
I_D	Continuous Drain Current [d]	T_C=25℃	204	A
		T_C=100℃	113	
I_{DSM}	Continuous Drain Current [a]	T_A=25℃	34	A
		T_A=70℃	25	
I_{DM}	Pulsed Drain Current [b]		816	A
P_D	Power Dissipation [c]	T_C=25℃	113	W
		T_C=100℃	45	
P_{DSM}	Power Dissipation [a]	T_A=25℃	3.3	W
		T_A=70℃	2.1	
I_{AS}	Avalanche Current [b] L=0.5mH Single Pulse		35	A
E_{AS}	Avalanche Energy [b] L=0.5mH Single Pulse		306	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
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]	38	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	1.1	

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.

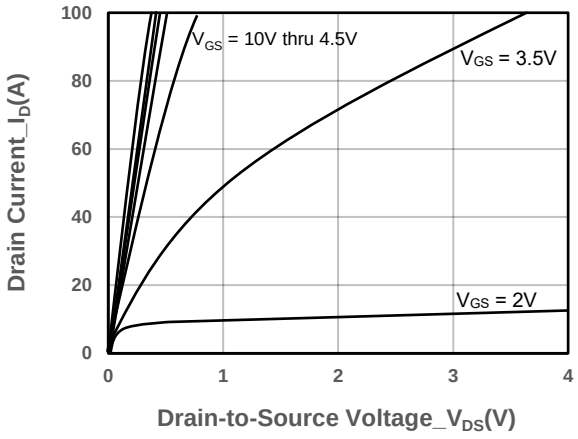
c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

d. The maximum current rating is package limited.

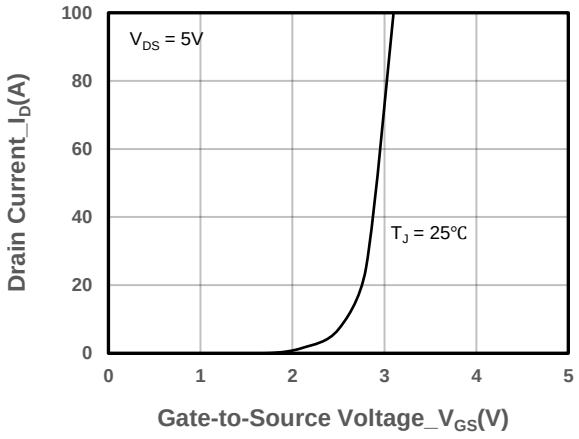
➢ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	1.0	1.8	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A		1.7	2.5	mΩ
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 10A		2.5	3.5	mΩ
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 40V, 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		30		S
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 10A		0.7	1.3	V
Gate Resistance	R_G	V_{DS} = 0V, f = 1MHz		2.4		Ω
Input Capacitance	C_{ISS}	V_{DS} = 20V, V_{GS} = 0V, f = 1MHz		3243		pF
Output Capacitance	C_{OSS}			1304		
Reverse Transfer Capacitance	C_{RSS}			94		
Total Gate Charge	Q_G	V_{GS} = 10V, V_{DS} = 20V, I_D = 20A		49		nC
Gate to Source Charge	Q_{GS}			11		
Gate to Drain Charge	Q_{GD}			7.5		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 10V, V_{DS} = 20V, I_D = 20A, R_G = 3Ω		8.4		ns
Rise Time	T_r			8.7		
Turn-off Delay Time	$T_{D(OFF)}$			44		
Fall Time	T_f			26		
Diode Recovery Time	T_{rr}	I_F=20A, di/dt=100A/us		53		ns
Diode Recovery Charge	Q_{rr}	I_F=20A, di/dt=100A/us		39		nC

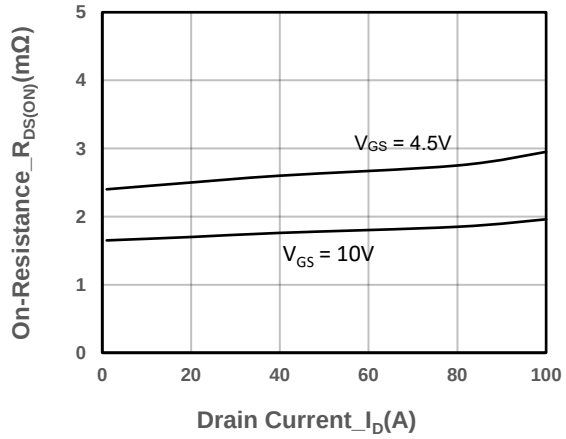
➢ Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



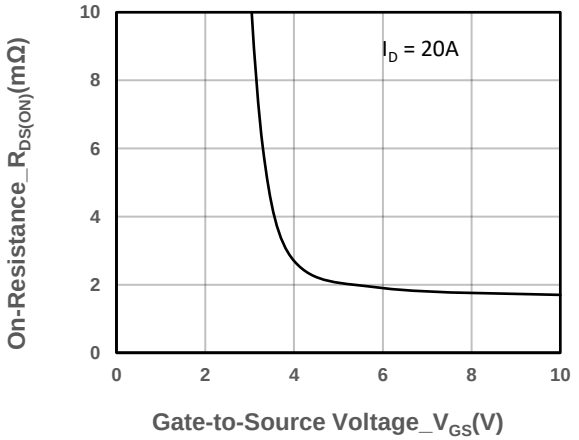
Output Characteristics



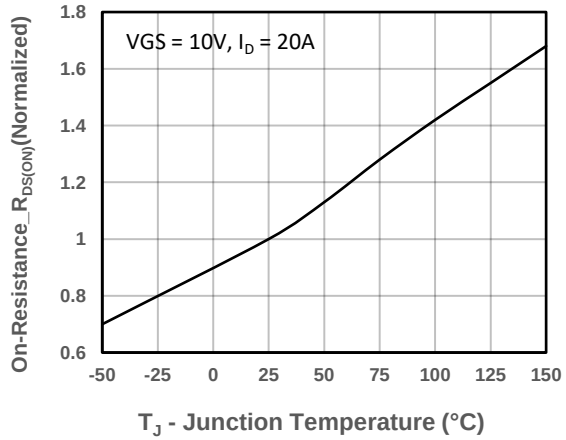
Transfer Characteristics



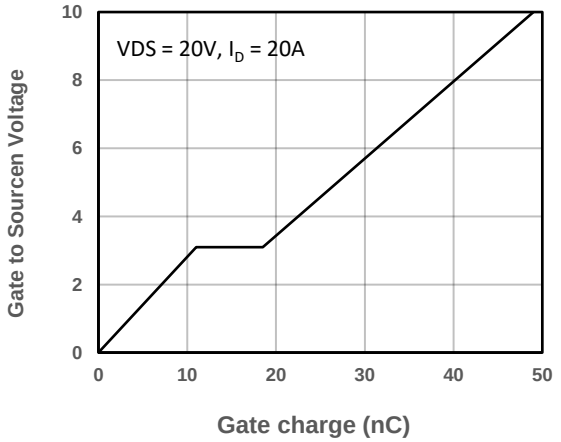
On-Resistance vs. Drain Current and Gate Voltag



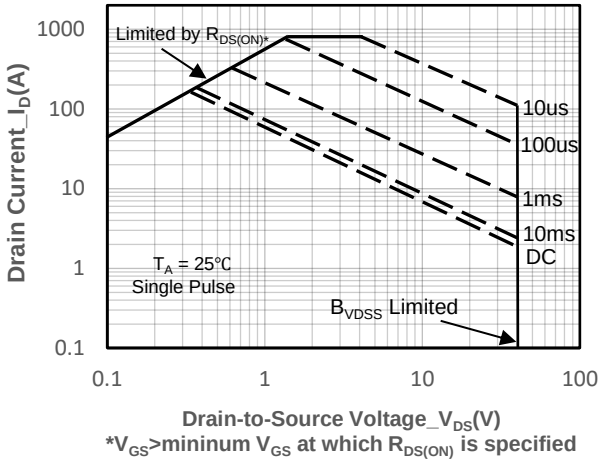
On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Junction Temperature

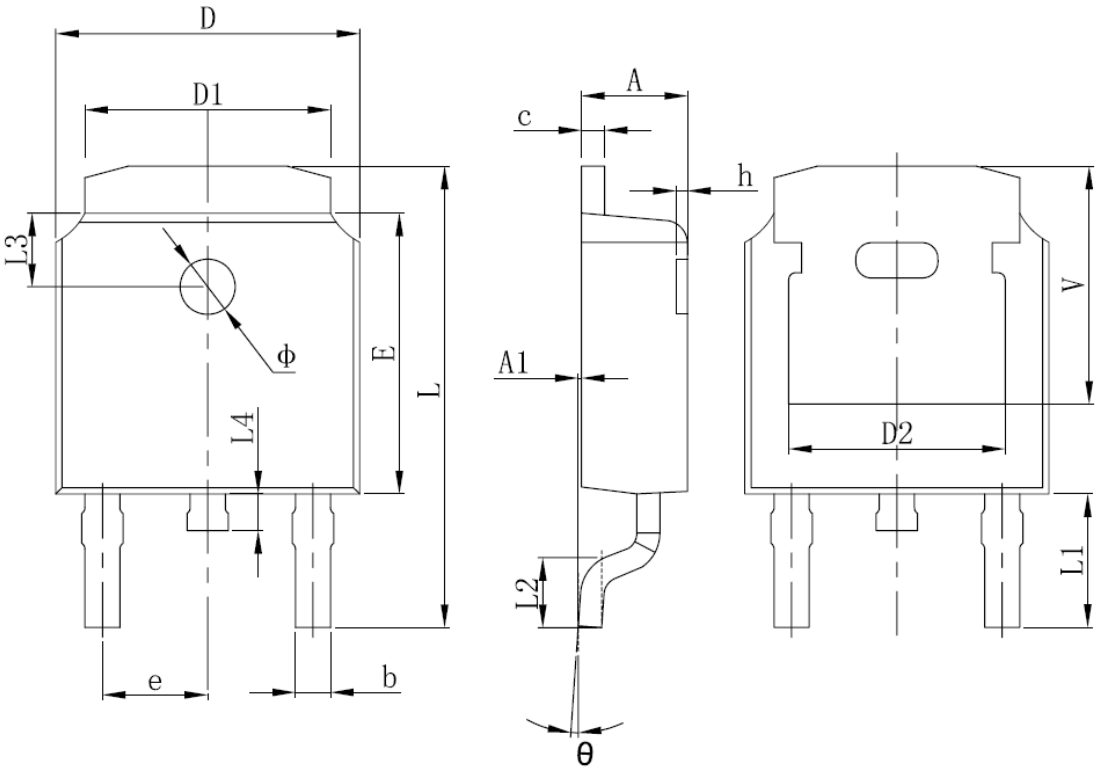


Gate-Source Voltage vs. Gate charge



Safe Operating Area vs. Junction-to-Ambient

➢ Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	

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