



SSC8L422TN4

N-Channel Enhancement Mode MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
40V	$\pm 20V$	4 m Ω @10V	80A
		5.1m Ω @6.5V	

➤ Description

This device is N-Channel enhancement MOSFET. Uses SGT technology and design to provide excellent R_{DS(ON)} 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!

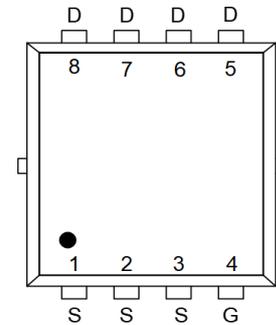
➤ Applications

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

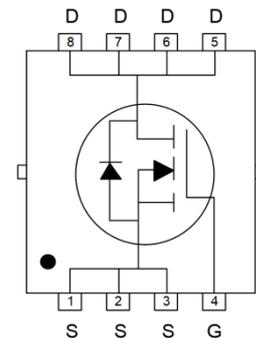
➤ Ordering Information

Device	Package	Shipping
SSC8L422TN4	PDFN3.3X3.3-8L	5000/Reel

➤ Pin Configuration



PDFN3.3X3.3-8L (Top View)



Pin Configuration



Marking

(XXYY: Internal Traceability Code)



➤ Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ 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	$T_C=25^\circ\text{C}$	80
		$T_C=100^\circ\text{C}$	51
I_{DSM}	Continuous Drain Current ^a	$T_A=25^\circ\text{C}$	18
		$T_A=70^\circ\text{C}$	14
I_{DM}	Pulsed Drain Current ^b	320	A
P_D	Power Dissipation ^c	$T_C=25^\circ\text{C}$	54
		$T_C=100^\circ\text{C}$	22
P_{DSM}	Power Dissipation ^a	$T_A=25^\circ\text{C}$	2.8
		$T_A=70^\circ\text{C}$	1.8
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	°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	45	55	°C/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	2.3	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.

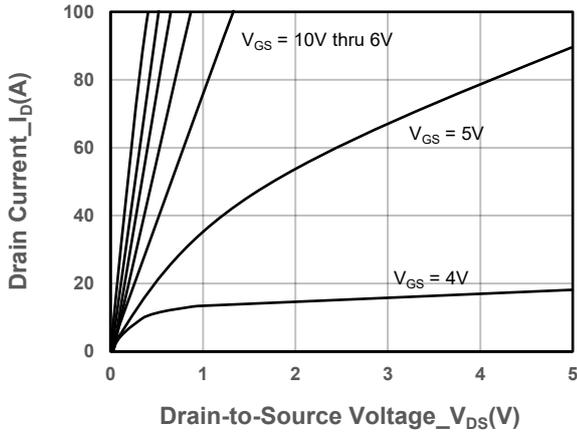


➤ **Electrical Characteristics (T_A=25°C unless otherwise noted)**

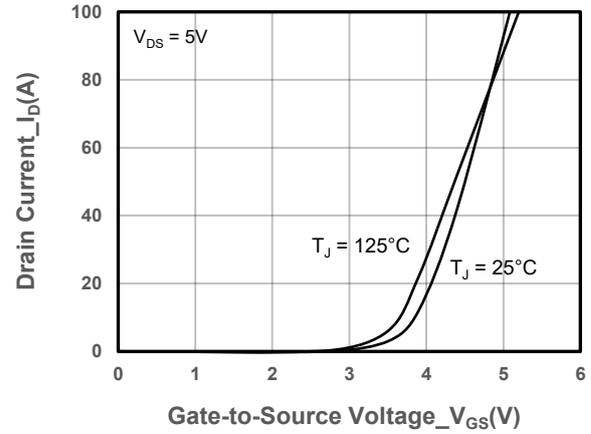
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	40			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1.5	2.7	3.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 20A		4	5.2	mΩ
		V _{GS} = 6.5V, I _D = 10A		5.1	6.6	
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
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 10A		0.7	1.3	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		1.8		Ω
Input Capacitance	C _{ISS}	V _{DS} = 20V, V _{GS} = 0V, f = 1MHz		1476		pF
Output Capacitance	C _{OSS}			513		
Reverse Transfer Capacitance	C _{RSS}			35		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 20V, I _D = 20A		25		nC
Gate to Source Charge	Q _{GS}			5		
Gate to Drain Charge	Q _{GD}			6		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 10V, V _{DS} = 20V, I _D = 20A, R _G = 3Ω		10		ns
Rise Time	T _r			9		
Turn-off Delay Time	T _{D(OFF)}			21		
Fall Time	T _f			8		
Diode Recovery Time	T _{rr}	I _F =20A, di/dt=100A/us		22		ns
Diode Recovery Charge	Q _{rr}	I _F =20A, di/dt=100A/us		23		nC



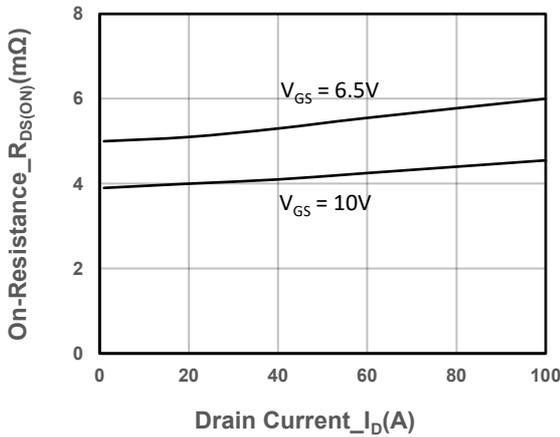
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



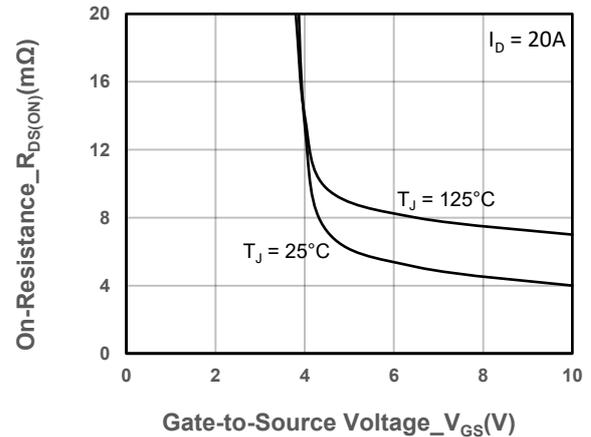
Output Characteristics



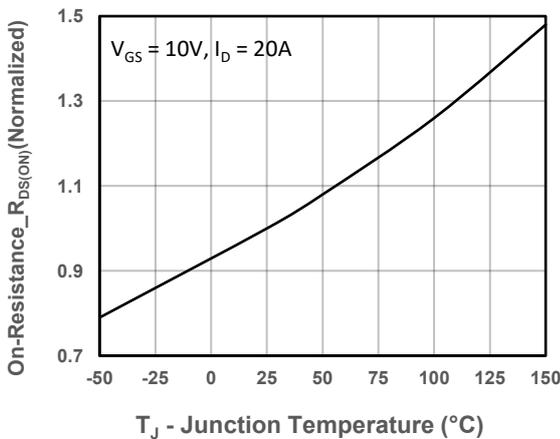
Transfer Characteristics



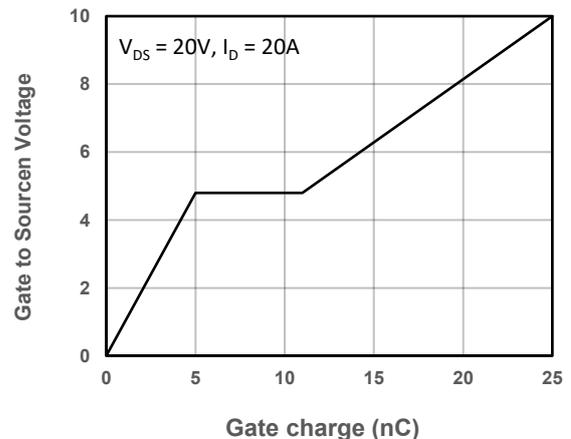
On-Resistance vs. Drain Current and Gate Voltage



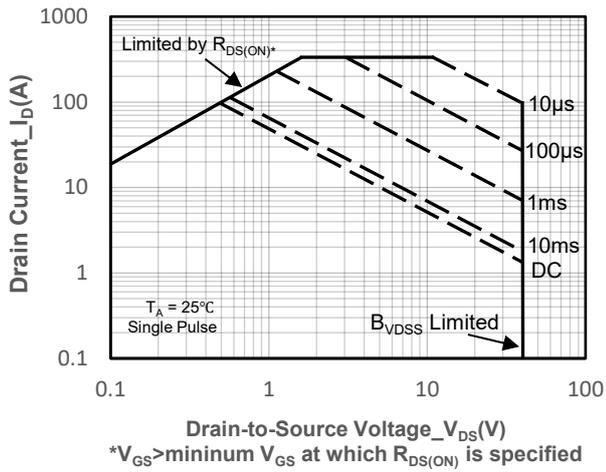
On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Junction Temperature

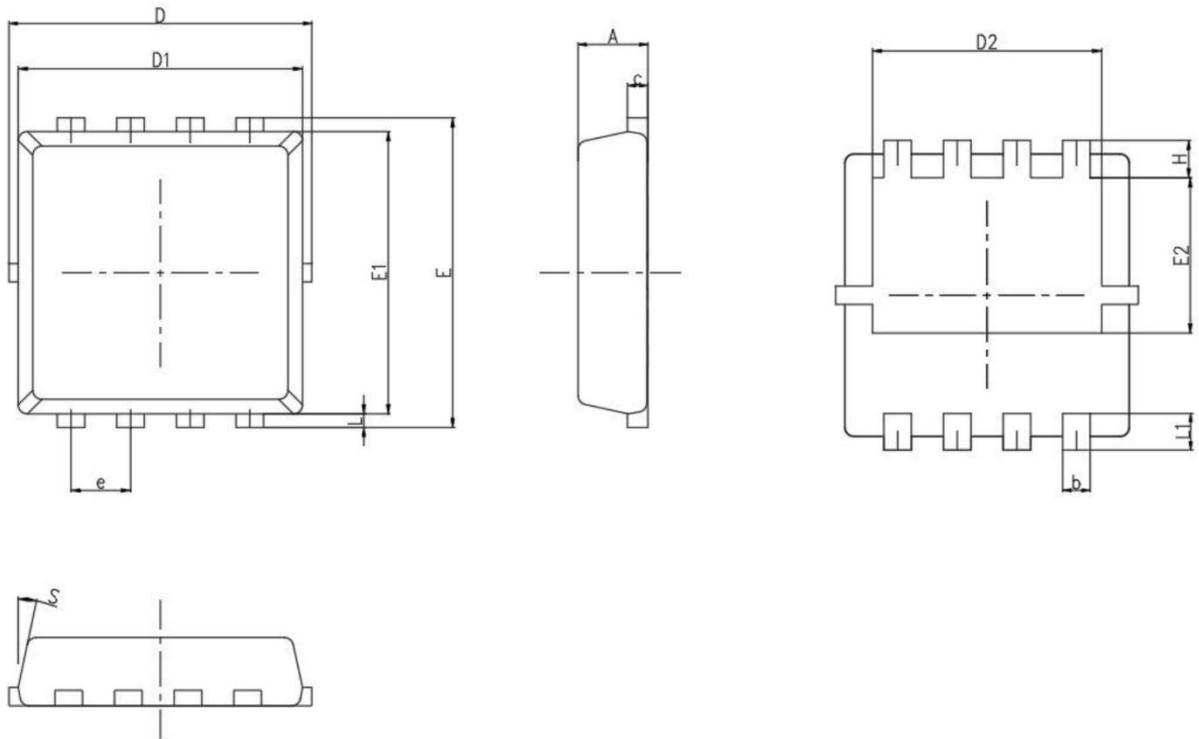


Gate-Source Voltage vs. Gate charge



Safe Operating Area vs. Junction-to-Ambient

➤ Package Information



Symbol	MILL IMETER		
	Min	Nom	Max
A	0.65	0.75	0.9
b	0.20	0.3	0.40
c	0.1	/	0.22
D	3.1	3.3	3.45
D1	3	3.15	3.2
D2	2.55	2.5	2.75
E	3.15	3.3	3.45
E1	2.9	3.05	3.2
E2	1.55	1.75	1.95
e	0.65BSC		
L	0.06	0.15	0.2
L1	0.25	0.4	0.55
H	0.31	0.35	0.6
S	10°	12°	14°



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