



SSCL035N40TN4

N-Channel Enhancement Mode MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$	I_D
40V	$\pm 20V$	3.5m Ω @10V	85A
		6.5m 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!

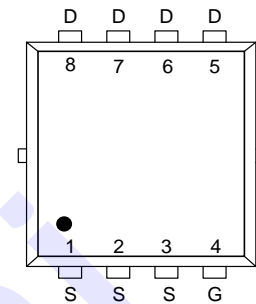
➤ Applications

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

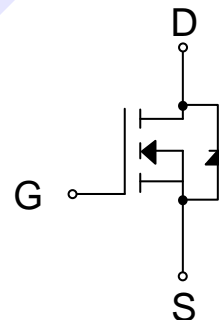
➤ Ordering Information

Device	Package	Shipping
SSCL035N40TN4	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	$T_C=25^\circ\text{C}$	85	A
		$T_C=100^\circ\text{C}$	47	
I_{DSM}	Continuous Drain Current ^a	$T_A=25^\circ\text{C}$	22	A
		$T_A=70^\circ\text{C}$	16	
I_{DM}	Pulsed Drain Current ^b	340	A	
P_D	Power Dissipation ^c	$T_C=25^\circ\text{C}$	40	W
		$T_C=100^\circ\text{C}$	16	
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=0.5mH Single Pulse	27	A	
E_{AS}	Avalanche Energy ^b L=0.5mH Single Pulse	182	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	60	°C/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	3.05	4.5	

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's 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.

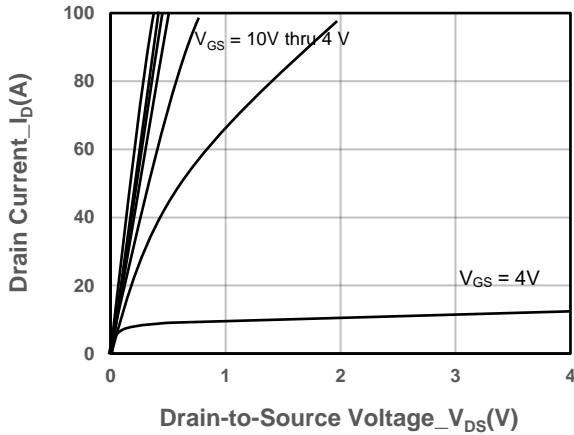


➤ **Electrical Characteristics (T_A=25°C unless otherwise noted)**

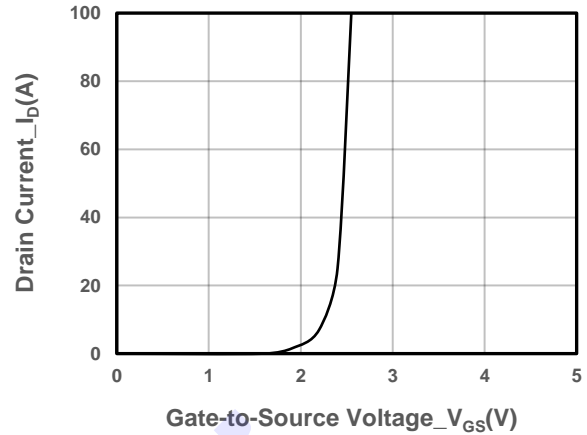
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	40			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1.0	1.6	2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 20A		3.5	4.6	mΩ
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 10A		6.5	8.5	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
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 10A			1.3	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		2.6		Ω
Input Capacitance	C _{ISS}	V _{DS} = 20V, V _{GS} = 0V, f = 1MHz		1900		pF
Output Capacitance	C _{OSS}			790		
Reverse Transfer Capacitance	C _{RSS}			45		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 20V, I _D = 20A		28		nC
Gate to Source Charge	Q _{GS}			6.7		
Gate to Drain Charge	Q _{GD}			5.6		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 10V, V _{DS} = 20V, R _L = 1Ω, R _G = 3Ω		4.9		ns
Rise Time	T _r			5.9		
Turn-off Delay Time	T _{D(OFF)}			24		
Fall Time	T _f			4		
Diode Recovery Time	T _{rr}	I _F =20A, di/dt=100A/us		17		ns
Diode Recovery Charge	Q _{rr}	I _F =20A, di/dt=100A/us		35		nC



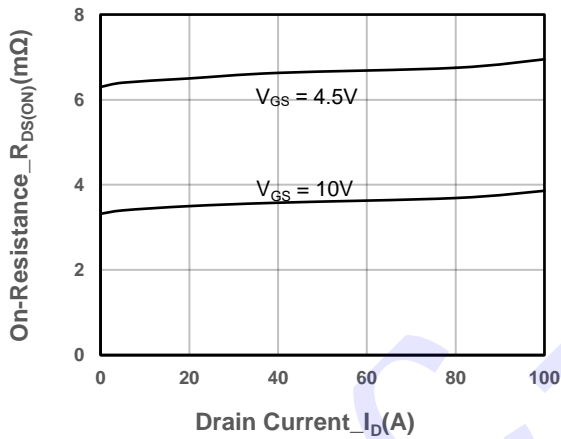
Typical Performance Characteristics (T_A=25°C unless otherwise noted)



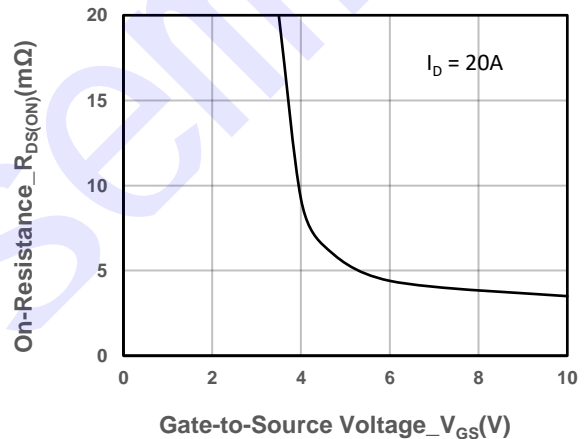
Output Characteristics



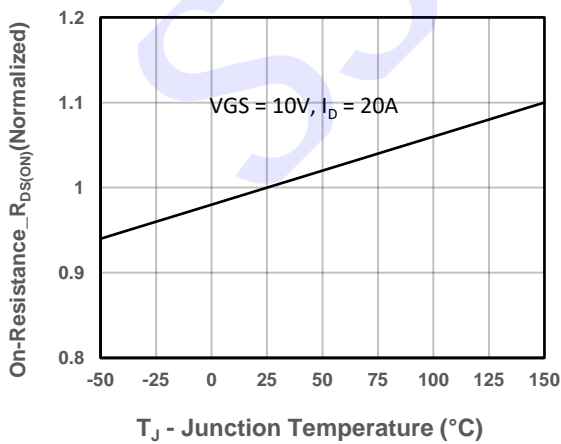
Transfer Characteristics



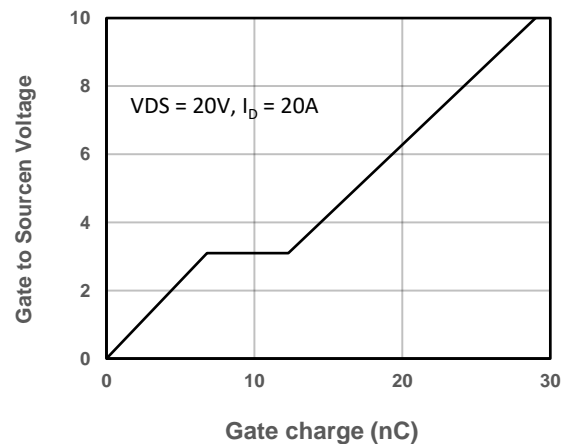
On-Resistance vs. Drain Current and Gate Volt



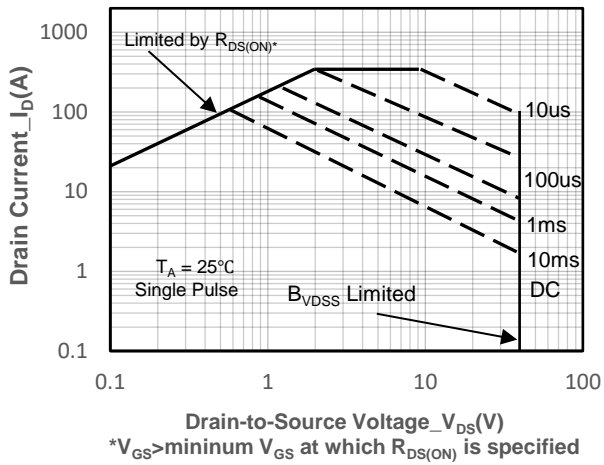
On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Junction Temperature



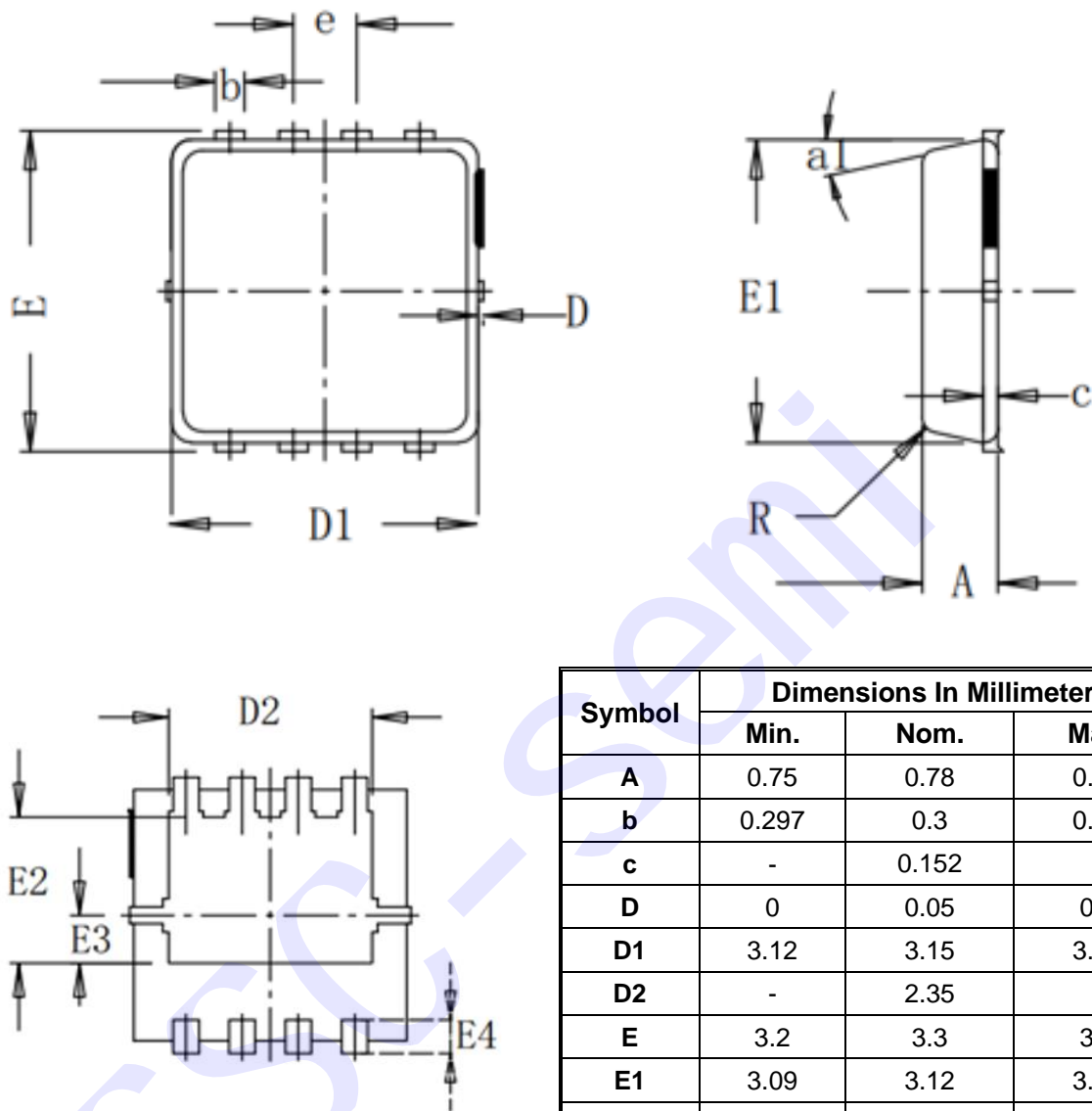
Gate-Source Voltage vs. Gate charge



Safe Operating Area vs. Junction-to-Ambient

SSC-semi

➤ 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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