SSCU4N20TN4

N-Channel Enhancement Mode MOSFET

➢ Features

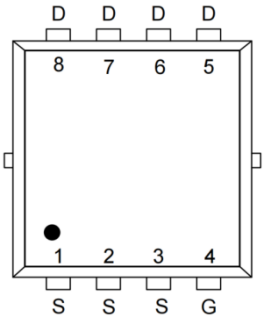
V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
20V	±12V	4mΩ@4V5	65A
		5.5mΩ@2V5	

➢ Description

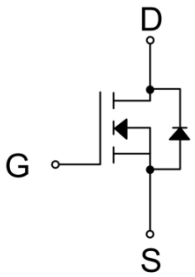
The SSCU4N20TN4 uses advanced trench technology to provide excellent RDS(ON) and low gate charge. The complementary MOSFETs may be used to form a level shifted high side switch, and for a host of other applications.

100% UIS + ΔVDS + Rg Tested!

➢ Pin configuration



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



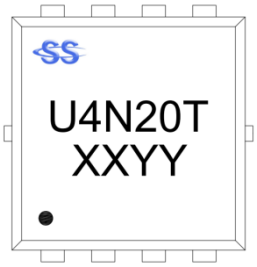
Pin Configuration

➢ Applications

- PWM Applications
- Load Switch
- DC-DC Converters
- Wireless Chargers

➢ Ordering Information

Device	Package	Shipping
SSCU4N20TN4	PDFN3.3X3.3-8L	5000/Reel



Marking

(XXYY: Internal Traceability Code)

➢ Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

Symbol	Parameter		Ratings	Unit
V_{DSS}	Drain-to-Source Voltage		20	V
V_{GSS}	Gate-to-Source Voltage		±12	V
I_D	Continuous Drain Current [d]	T_C=25℃	65	A
		T_C=100℃	35	
I_{DSM}	Continuous Drain Current [a]	T_A=25℃	23	A
		T_A=70℃	16	
I_{DM}	Pulsed Drain Current [b]		260	A
P_D	Power Dissipation [c]	T_C=25℃	28	W
		T_C=100℃	11.2	
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		19	A
E_{AS}	Avalanche Energy [b] L=0.5mH Single Pulse		90	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	4.5	

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 current rating is based on the t≤10s thermal resistance rating.

b. Repetitive rating, pulse width limited by junction temperature.

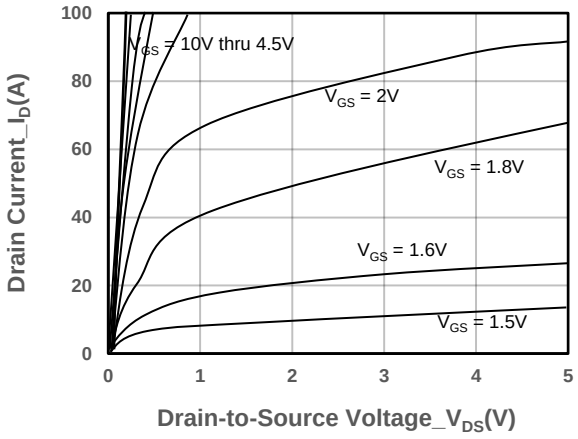
c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

d. The maximum current rating is package limited.

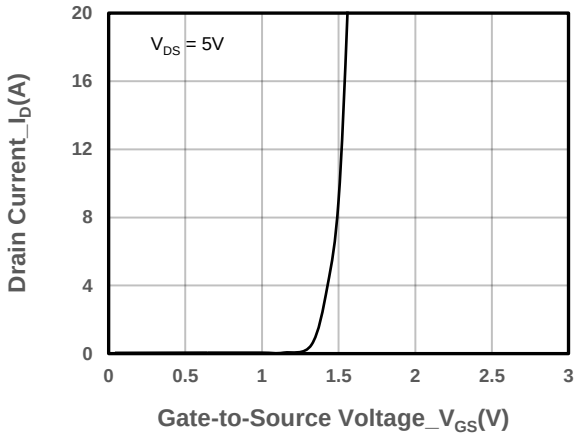
➢ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250uA	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	0.45	0.7	1.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 20A		4	6	mΩ
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 2.5V, I_D = 15A		5.5	8	mΩ
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V			1	uA
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±12V, 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		1.2		Ω
Input Capacitance	C_{ISS}	V_{DS} = 10V, V_{GS} = 0V, f = 1MHz		3174		pF
Output Capacitance	C_{OSS}			398		
Reverse Transfer Capacitance	C_{RSS}			345		
Total Gate Charge	Q_G	V_{GS} = 4.5V, V_{DS} =10V, I_D = 15A		32		nC
Gate to Source Charge	Q_{GS}			7		
Gate to Drain Charge	Q_{GD}			10		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 4.5V, V_{DS} = 10V, I_D =15A, R_G = 3Ω		12		ns
Rise Time	T_r			34		
Turn-off Delay Time	$T_{D(OFF)}$			75		
Fall Time	T_f			91		
Diode Recovery Time	T_{rr}	I_F=20A, di/dt=100A/us		13.8		ns
Diode Recovery Charge	Q_{rr}	I_F=20A, di/dt=100A/us		4		nC

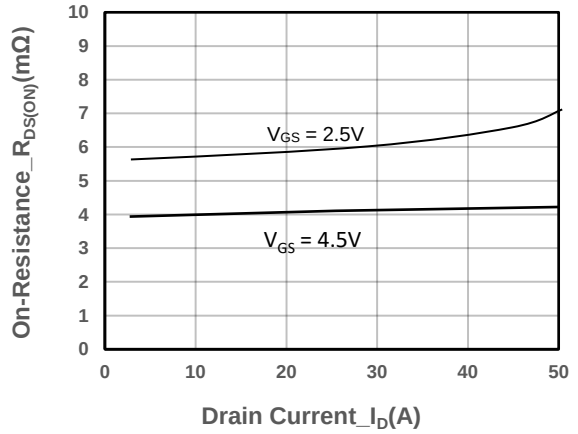
➢ Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



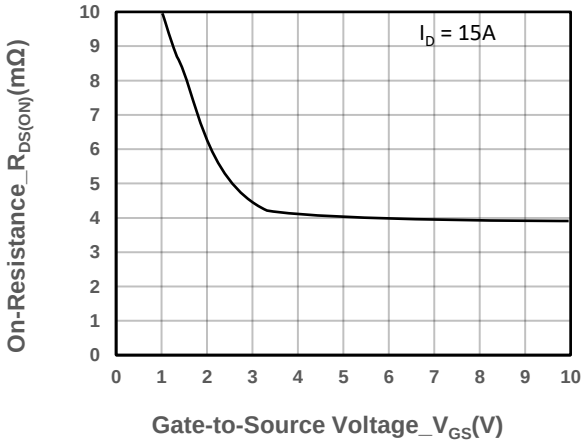
Output Characteristics



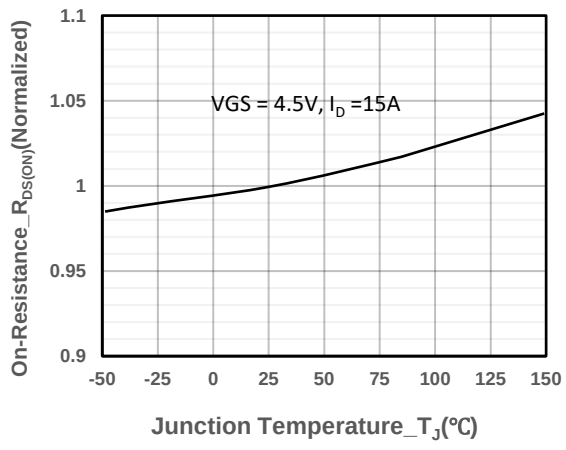
Transfer Characteristics



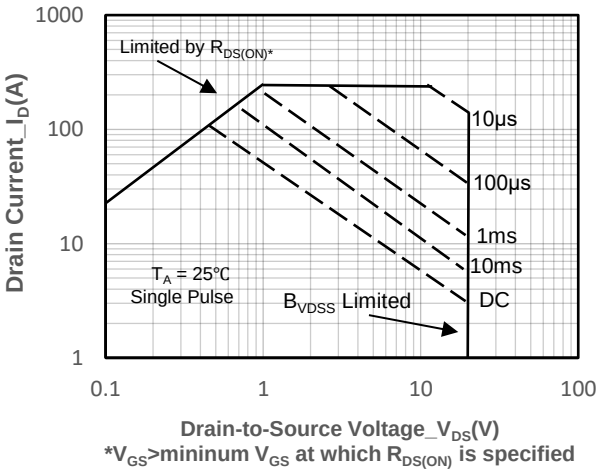
On-Resistance vs. Drain Current and Gate Voltag



On-Resistance vs. Gate-to-Source Voltage

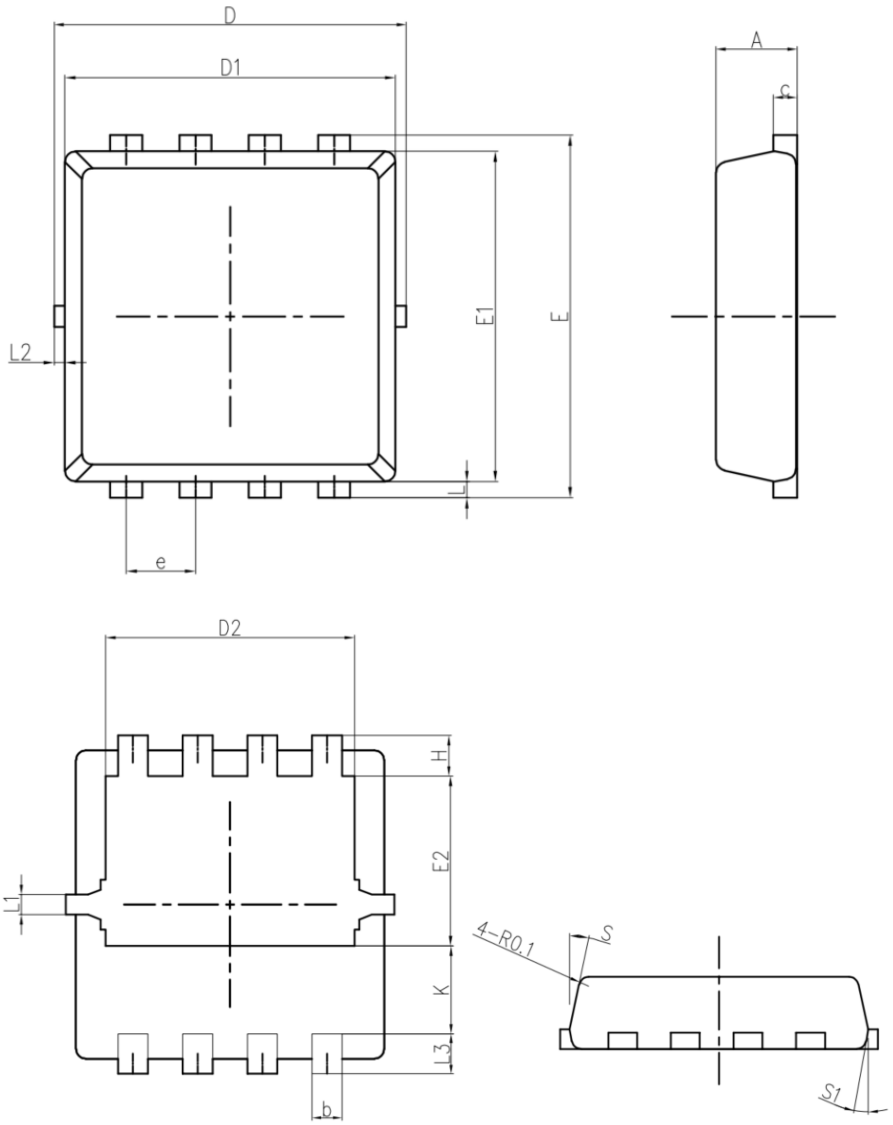


On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

➢ Package Information



COMMON DIMENSIONS (UNIT of MEASURE=MILLIMETER)											
SYMBOL	MIN	NOM	MAX	SYMBOL	MIN	NOM	MAX	SYMBOL	MIN	NOM	MAX
A	0.66	0.76	0.86	e	0.55	0.65	0.75	L	0.06	0.15	0.20
b	0.25	0.30	0.35	E	3.15	3.30	3.45	L1	0.10	0.20	0.30
c	0.19	0.20	0.22	E1	3.00	3.10	3.20	L2	0	0.10	0.15
D	3.15	3.30	3.45	E2	1.60	1.70	1.80	L3	0.30	0.40	0.50
D1	3.00	3.10	3.20	H	0.31	0.41	0.51	S	10°	12°	14°
D2	2.40	2.50	2.60	K	0.79	0.89	0.99	S1	8°	10°	12°

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