



SSCU4N30GN4

N-Channel Enhancement Mode MOSFET

➤ Features

V _{DS}	V _{GS}	R _{DS(ON)} Typ.	I _D
30V	±20V	4mΩ@10V	50A
		6.5mΩ@4.5V	

➤ Description

The SSCU4N30GN4 is N-Channel enhancement mode MOSFET. Uses trench 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 + ΔVDS + R_g Tested!

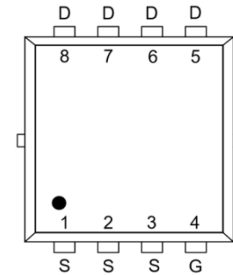
➤ Applications

- Inverter
- DC-DC Converter
- Half and Full Bridge Topology
- Motor Drive Control

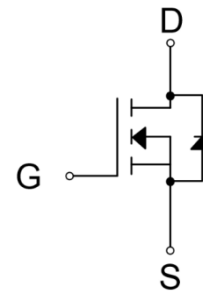
➤ Ordering Information

Device	Package	Shipping
SSCU4N30GN4	PDFN3.3X3.3-8L	5000/Reel

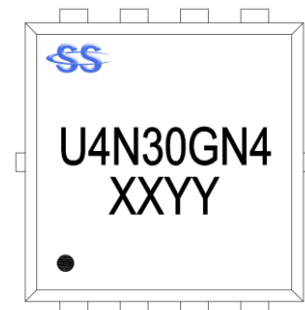
➤ Pin configuration



PDFN3.3x3.3-8L (Top View)



Pin Configuration



Marking

(XXYY: Internal Traceability Code)



➤ **Absolute Maximum Ratings (T_A=25°C 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°C	50 A
		T _C = 100°C	26 A
I _{DM}	Pulsed Drain Current ^b	200	A
I _{DSM}	Continuous Drain Current ^a	T _A = 25°C	18 A
		T _A = 70°C	12.8 A
P _D	Power Dissipation ^c	T _C = 25°C	22.7 W
		T _C = 100°C	9 W
P _{DSM}	Power Dissipation ^a	T _A = 25°C	3.1 W
		T _A = 70°C	2 W
I _{AS}	Avalanche Current ^b L = 0.5mH	20.5	A
E _{AS}	Avalanche Energy ^b L = 0.5mH	105	mJ
T _J	Operation junction temperature	-55 to 150	°C
T _{STG}	Storage temperature range	-55 to 150	°C

➤ **Thermal Resistance Ratings (T_A=25°C unless otherwise noted)**

Symbol	Parameter	Ratings	Unit
R _{θJA}	Junction-to-Ambient Thermal Resistance ^a	40	°C/W
R _{θJC}	Junction-to-Case Thermal Resistance	5.5	

Note:

- a. The value of R_{θJA} is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's 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.

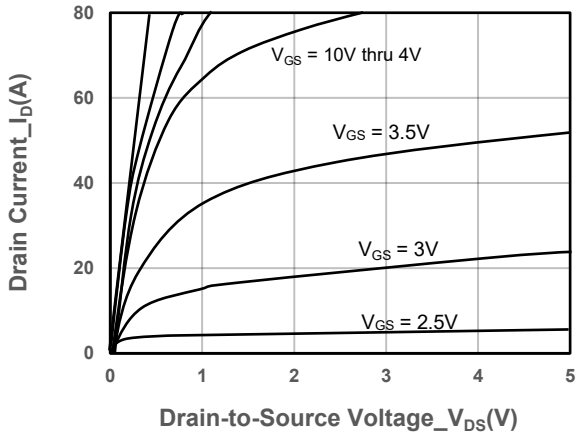


➤ **Electrical Characteristics (T_A=25°C unless otherwise noted)**

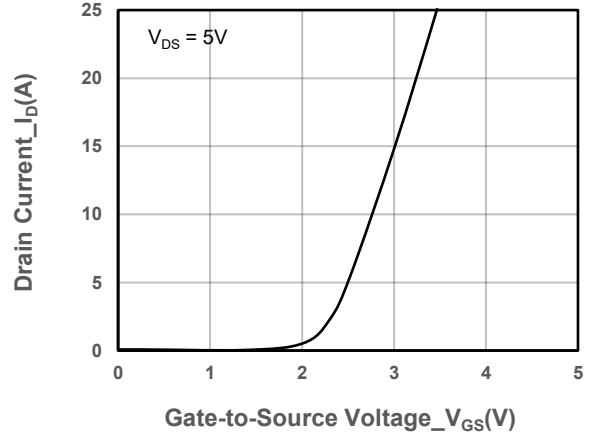
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250uA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1	1.5	2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 20A		4	5.5	mΩ
		V _{GS} = 4.5V, I _D = 10A		6.5	9	
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
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 10A		0.8	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		2015		pF
Output Capacitance	C _{OSS}			215		
Reverse Transfer Capacitance	C _{RSS}			190		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 15V, I _D = 10A		29		nC
Gate to Source Charge	Q _{GS}			4.2		
Gate to Drain Charge	Q _{GD}			7		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 10V, V _{DS} = 15V, R _L = 1Ω, R _G = 3Ω		9.5		ns
Rise Time	T _r			8.2		
Turn-off Delay Time	T _{D(OFF)}			28		
Fall Time	T _f			6		
Diode Recovery Time	T _{rr}	I _F =20A, di/dt=100A/us		28		ns
Diode Recovery Charge	Q _{rr}	I _F =20A, di/dt=100A/us		22		nC



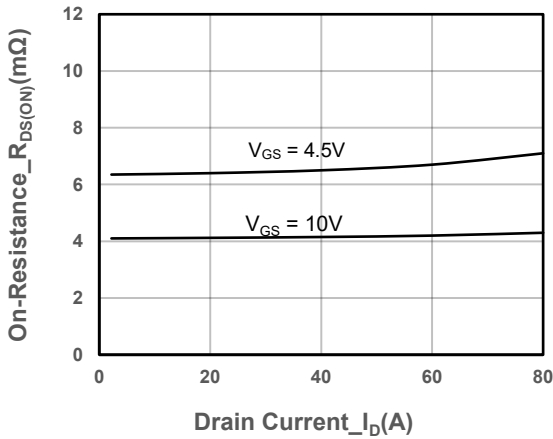
➤ **Typical Performance Characteristics (T_A=25°C unless otherwise noted)**



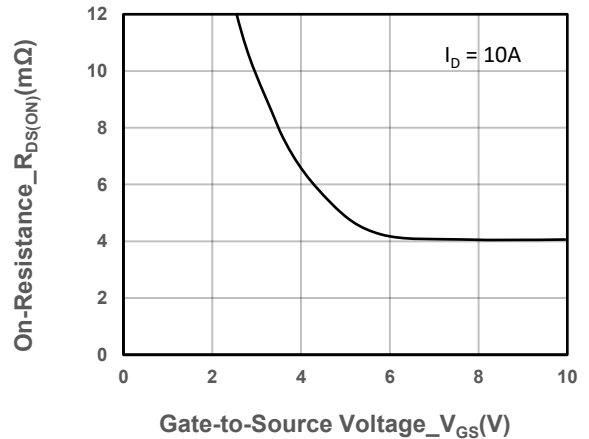
Output Characteristics



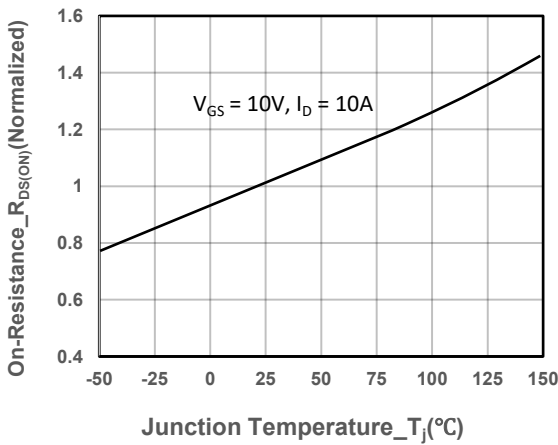
Transfer Characteristics



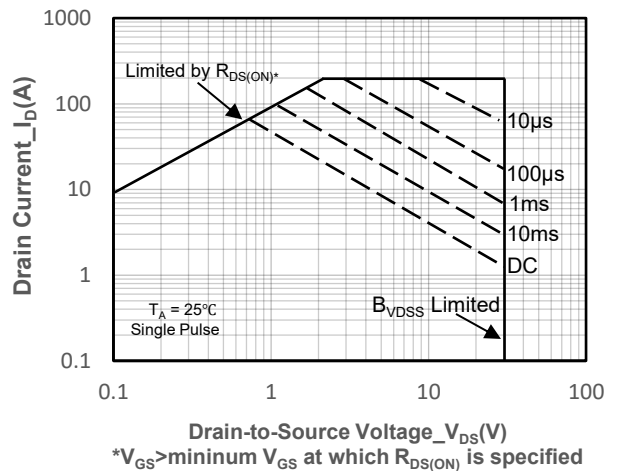
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage

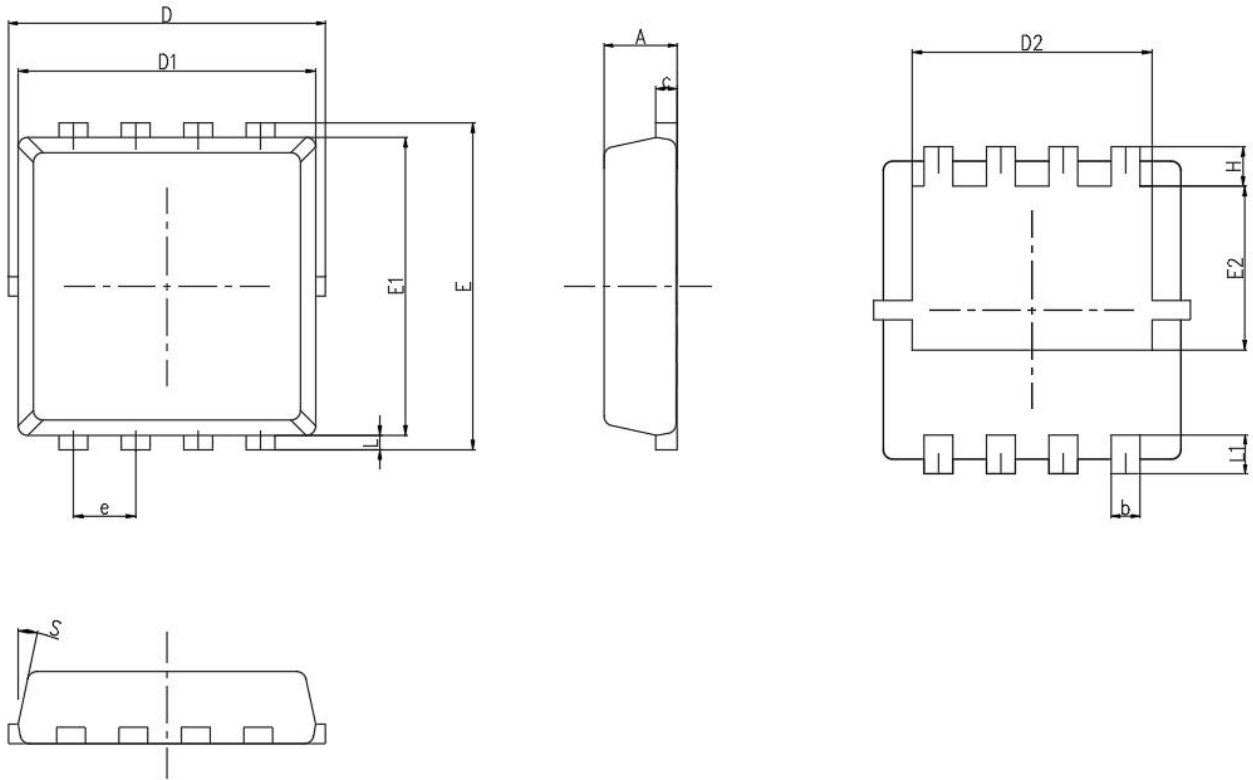


On-Resistance vs. Junction Temperature



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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