SSCU4N30GN6

N-Channel Enhancement Mode MOSFET

➢ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
30V	±20V	4mΩ@10V	56A
		6.5mΩ@4.5V	

➢ Description

This device is N-Channel enhancement MOSFET. Uses advanced trench 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!

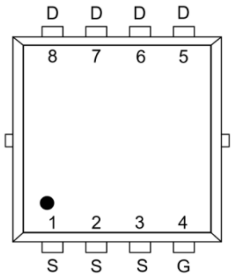
➢ Applications

- Power Supplies
- DC-DC Converter
- NB/PC

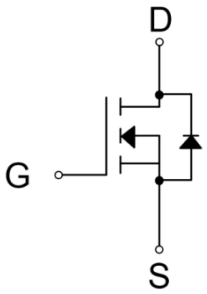
➢ Ordering Information

Device	Package	Shipping
SSCU4N30GN6	PDFN5X6-8L	5000/Reel

➢ Pin configuration



PDFN5x6-8L (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		30	V
V_{GSS}	Gate-to-Source Voltage		±20	V
I_D	Continuous Drain Current [d]	T_C = 25℃	56	A
		T_C = 100℃	36	A
I_{DM}	Pulsed Drain Current [b]		223	A
I_{DSM}	Continuous Drain Current [a]	T_A = 25℃	16	A
		T_A = 70℃	13	A
P_D	Power Dissipation [c]	T_C = 25℃	28	W
		T_C = 100℃	12	W
P_{DSM}	Power Dissipation [a]	T_A = 25℃	2.3	W
		T_A = 70℃	1.5	W
E_{AS}	Avalanche Energy [b] L = 0.5mH		105	mJ
T_J	Operation junction temperature		-55 to 150	℃
T_{STG}	Storage temperature range		-55 to 150	℃

➢ Thermal Resistance Ratings (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]	55	℃/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.

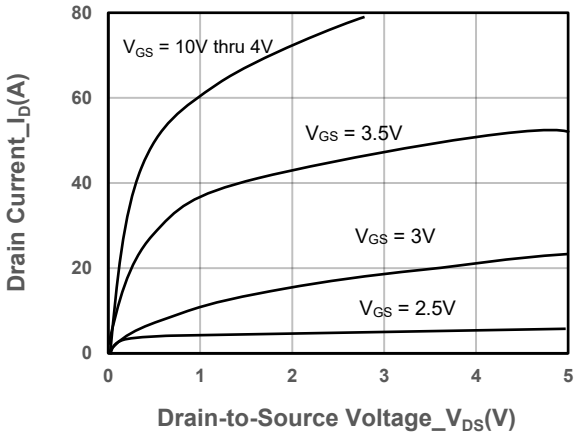
c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

d. The maximum current rating is package limited.

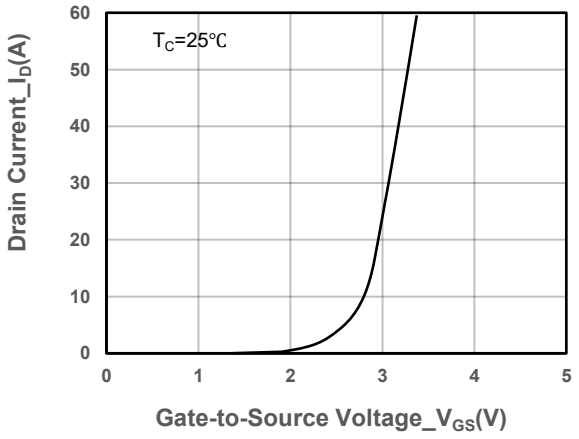
➢ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250uA	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	9.0	
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
Input Capacitance	C_{ISS}	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		2096		pF
Output Capacitance	C_{OSS}			193		
Reverse Transfer Capacitance	C_{RSS}			171		
Total Gate Charge	Q_G	V_{GS} = 10V, V_{DS} = 15V, I_D = 10A		28		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_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

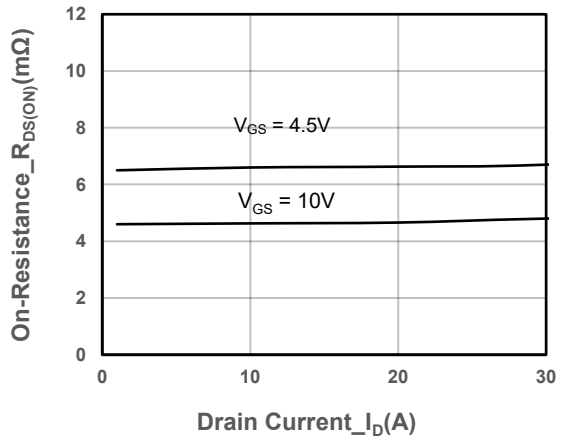
➢ Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



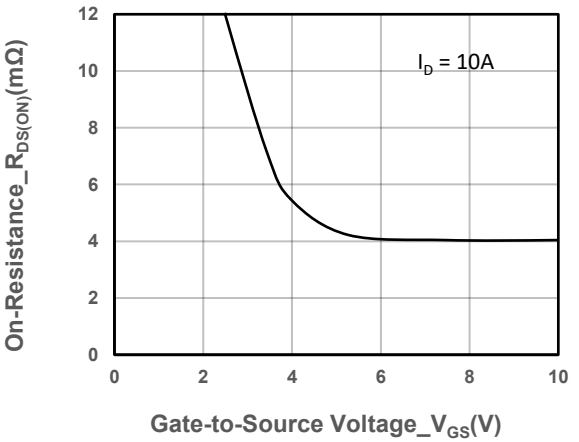
Output Characteristics



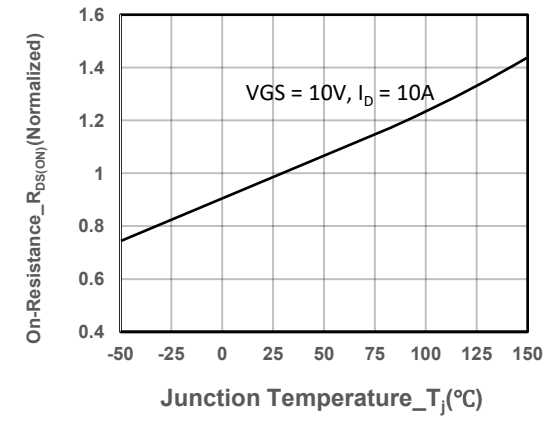
Gate-Charge Characteristics



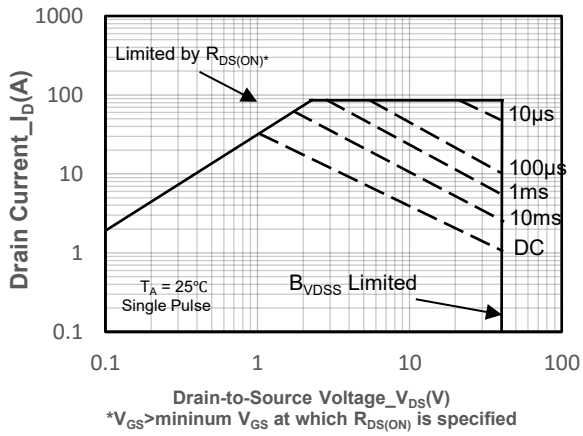
On-Resistance vs. Drain Current and Gate Voltag



On-Resistance vs. Gate-to-Source Voltage

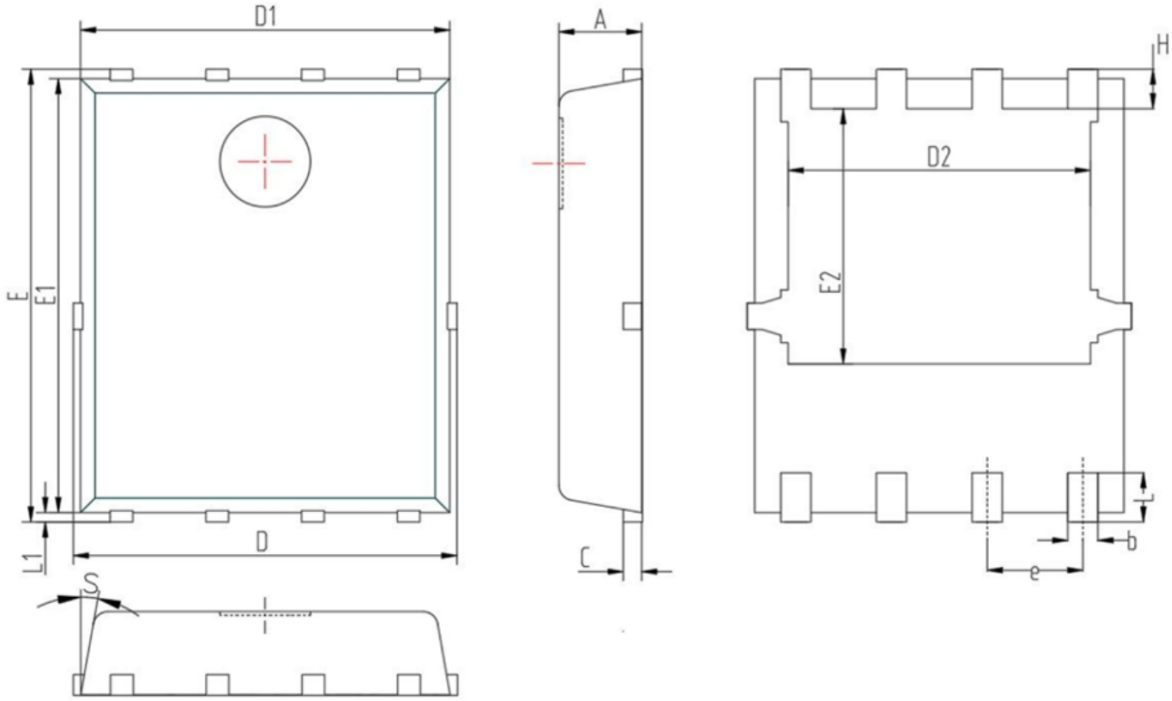


Typical Capacitance vs. Drain-to-Source Voltage



Safe Operating Area vs. Junction-to-Ambient

➢ Package Information



Symbol	MILL IMETER		
	Min	Nom	Max
A	0.90	1.05	1.20
b	0.25	0.30	0.51
c	0.15	0.25	0.35
D	4.80	5.10	5.40
D1	4.80	5.00	5.20
D2	3.70	4.00	4.30
E	5.80	6.15	6.50
E1	5.50	5.75	5.95
E2	3.30	3.45	3.67
e	1.27BSC		
H	0.40	0.60	0.93
L	0.45	0.65	0.85
L1	0.00	0.10	0.25
S	0°	--	12°

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