SSCU3DN18GQ4

Dual N-Channel Enhancement Mode MOSFET with ESD Protection

➢ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D	ESD
18V	±10V	3mΩ@4.5V	66A	2kV
		3.8mΩ@2.5V		

➢ Description

This SSCU3DN18GQ4 uses advanced trench technology to provide excellent RDSON 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.

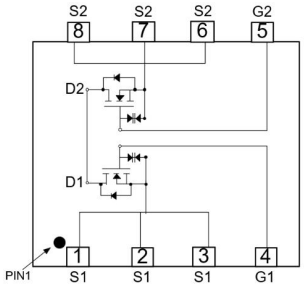
➢ Applications

- DC/DC conversion
- Low Gate Charge

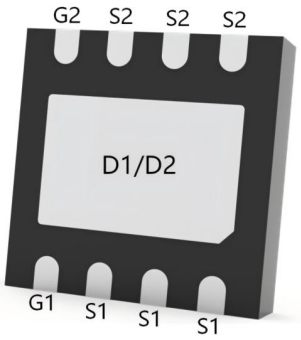
➢ Ordering Information

Device	Package	Shipping
SSCU3DN18GQ4	DFN3X3-8LD	5000/Reel

➢ Pin configuration



DFN3X3-8LD (Top View)



Bottom View

Marking

(XXYY: Internal Traceability Code)

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

Symbol	Parameter		Ratings	Unit
V_{DSS}	Drain-to-Source Voltage		18	V
V_{GSS}	Gate-to-Source Voltage		±10	V
I_D	Continuous Drain Current [d]	T_C=25℃	66	A
		T_C=100℃	36	
I_{DSM}	Continuous Drain Current [a]	T_A=25℃	23	A
		T_A=70℃	17	
I_{DM}	Pulsed Drain Current [b]		264	A
P_D	Power Dissipation [c]	T_C=25℃	20	W
		T_C=100℃	8	
P_{DSM}	Power Dissipation [a]	T_A=25℃	2.6	W
		T_A=70℃	1.7	
I_{AS}	Avalanche Current [b] L=0.5mH Single Pulse		21	A
E_{AS}	Avalanche Energy [b] L=0.5mH Single Pulse		110	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]	47	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	6.3	

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

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

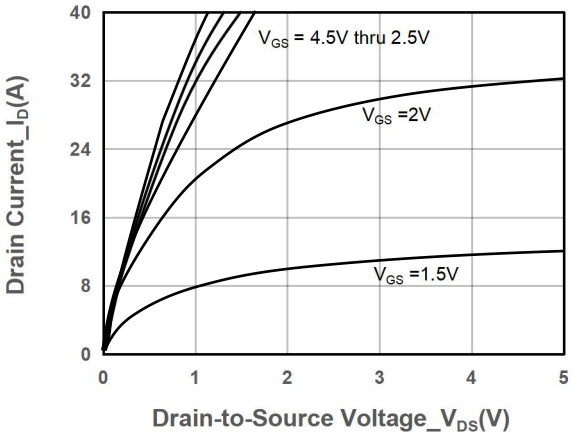
c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

d. The maximum current rating is package limited.

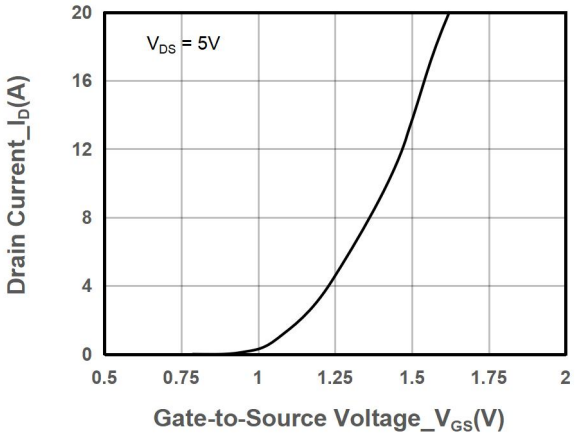
➢ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250uA	18			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	0.5		1	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 5A		3	4	mΩ
		V_{GS} = 2.5V, I_D = 4A		3.8	5	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 18V, V_{GS} = 0V			1	μA
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±10V, V_{DS} = 0V			±10	uA
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 5A			1.3	V
Input Capacitance	C_{ISS}	V_{DS} = 9V, V_{GS} = 0V, f = 1MHz		2715		pF
Output Capacitance	C_{OSS}			320		
Reverse Transfer Capacitance	C_{RSS}			308		
Total Gate Charge	Q_G	V_{GS} = 4.5V, V_{DS} = 9V, I_D = 5A		35.5		nC
Gate to Source Charge	Q_{GS}			5.6		
Gate to Drain Charge	Q_{GD}			11		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 4.5V, V_{DS} = 9V, R_L = 2Ω, R_G = 3Ω,		11.5		ns
Rise Time	T_r			37.2		
Turn-off Delay Time	$T_{D(OFF)}$			70		
Fall Time	T_f			96		

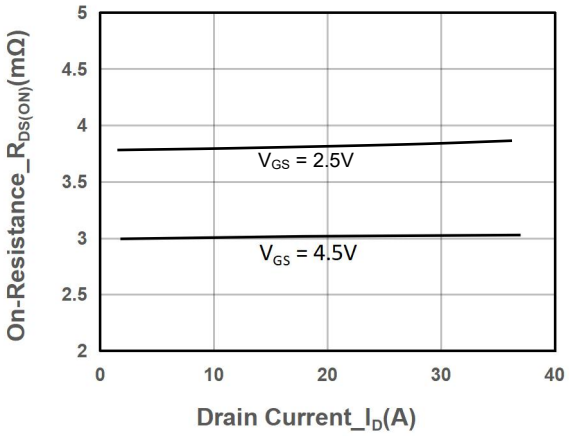
➢ Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



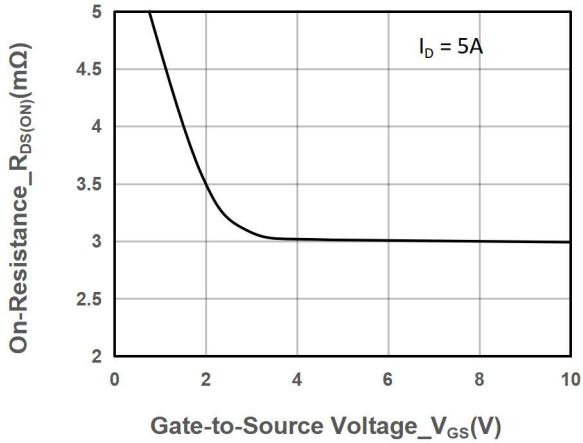
Output Characteristics



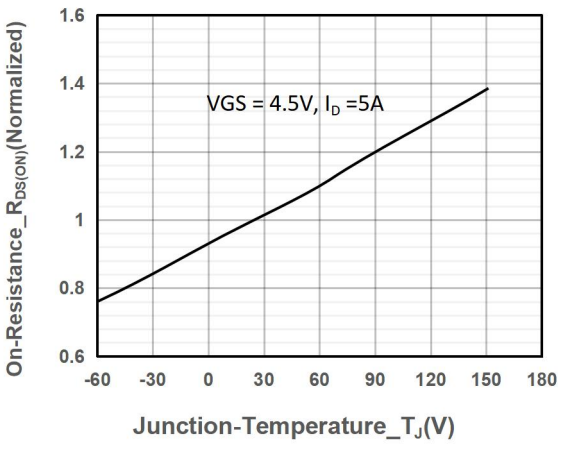
Transfer Characteristics



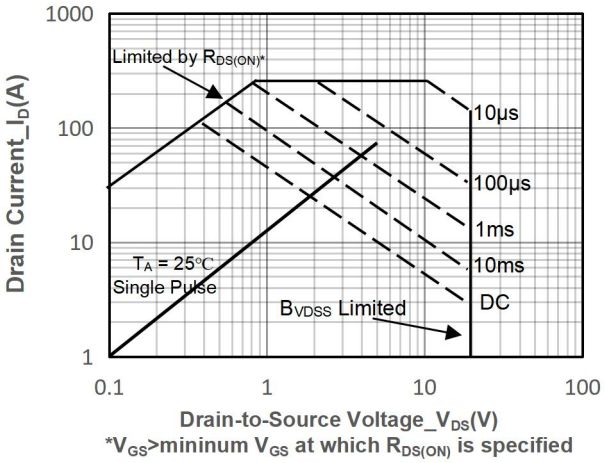
On-Resistance vs. Drain Current and Gate Voltag



On-Resistance vs. Gate-to-Source Voltage

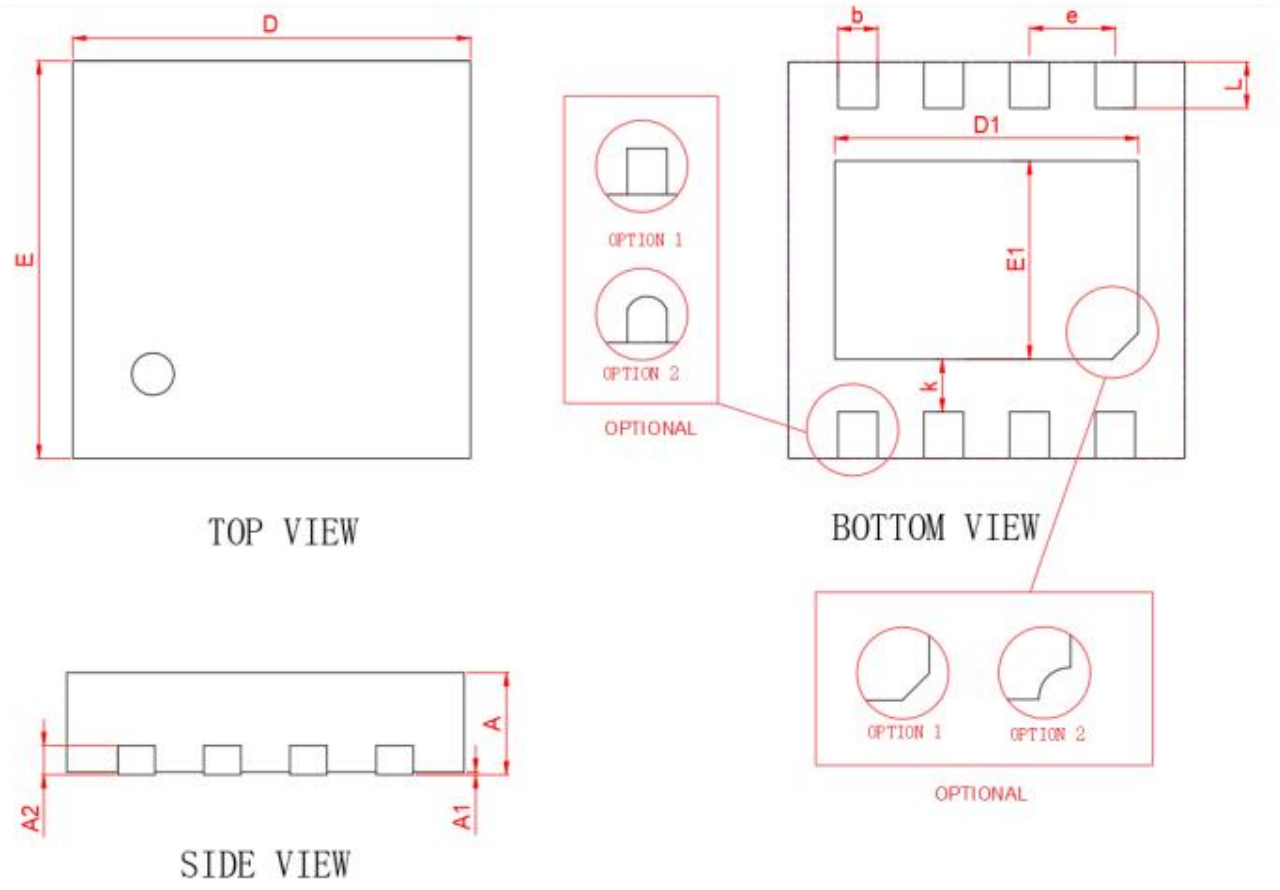


On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

➢ Package Information



Symbol	MILL IMETER		
	Min	Nom	Max
A	0.70	0.75	0.80
A1	0.00	/	0.05
b	0.25	0.30	0.35
A2		0.203 BSC	
D	2.90	3.00	3.10
E	2.90	3.00	3.10
E1	1.40	1.60	1.75
D1	2.20	2.30	2.55
e		0.65 BSC	
L	0.25	0.30	0.45
k	0.20	0.30	0.40

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