



SSCU065N30GN4

N-Channel Enhancement Mode MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$	I_D
30V	$\pm 20V$	6m Ω @10V	45A
		9.5m Ω @4.5V	

➤ Description

This SSCU065N30GN4 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.

100% UIS + ΔV_{DS} + R_g Tested!

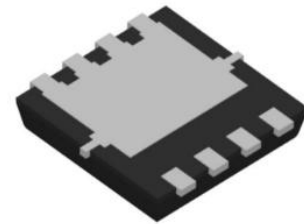
➤ Applications

- Load Switch
- PWM Application
- Power Management

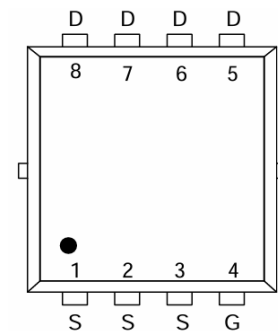
➤ Ordering Information

Device	Package	Shipping
SSCU065N30GN4	PDFN3.3X3.3-8L	5000/Reel

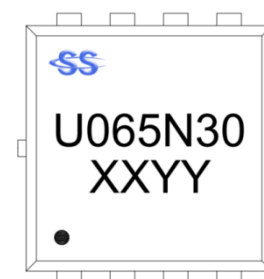
➤ Pin configuration



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



Pin Configuration (Top View)



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		30	V
V_{GSS}	Gate-to-Source Voltage		± 20	V
I_{D}	Continuous Drain Current ^d	$T_{\text{C}}=25^{\circ}\text{C}$	45	A
		$T_{\text{C}}=100^{\circ}\text{C}$	24	
I_{DSM}	Continuous Drain Current ^a	$T_{\text{A}}=25^{\circ}\text{C}$	17.3	A
		$T_{\text{A}}=70^{\circ}\text{C}$	12.4	
I_{DM}	Pulsed Drain Current ^b		180	A
P_{D}	Power Dissipation ^c	$T_{\text{C}}=25^{\circ}\text{C}$	20.8	W
		$T_{\text{C}}=100^{\circ}\text{C}$	8.3	
P_{DSM}	Power Dissipation ^a	$T_{\text{A}}=25^{\circ}\text{C}$	3.1	W
		$T_{\text{A}}=70^{\circ}\text{C}$	2	
E_{AS}	Avalanche Energy ^b $L=0.5\text{mH}$ Single Pulse		72	mJ
T_{J}	Operation junction temperature		-55~150	$^{\circ}\text{C}$
T_{STG}	Storage temperature range		-55~150	

➤ Thermal Resistance Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Ratings	Unit
$R_{\theta\text{JA}}$	Junction-to-Ambient Thermal Resistance ^a	40	$^{\circ}\text{C}/\text{W}$
$R_{\theta\text{JC}}$	Junction-to-Case Thermal Resistance	6	

Note:

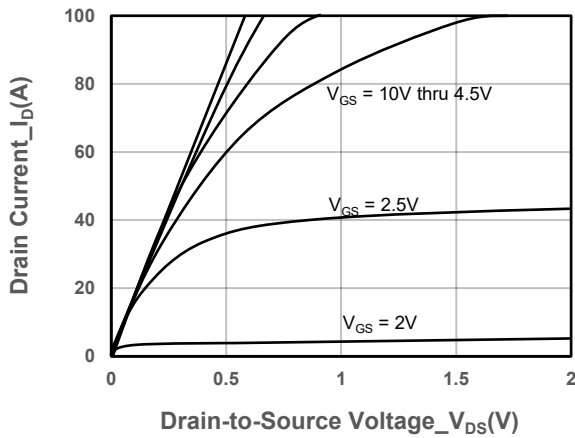
- The value of $R_{\theta\text{JA}}$ is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with $T_{\text{A}}=25^{\circ}\text{C}$. The value in any given application depends on the user is specific board design. The power dissipation is based on the $t \leq 10\text{s}$ thermal resistance rating.
- Repetitive rating, pulse width limited by junction temperature.
- The power dissipation P_{D} is based on $T_{\text{J(MAX)}}=150^{\circ}\text{C}$, 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)**

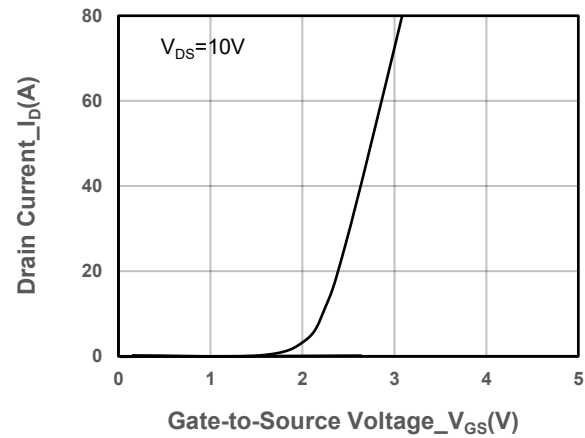
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250uA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1	1.5	2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 10A		6	9	mΩ
		V _{GS} = 4.5V, I _D = 7A		9.5	13.5	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30V, V _{GS} = 0V			1	uA
Gate-Source Leak Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 5A			1.3	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		1.6		Ω
Input Capacitance	C _{ISS}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz		1080		pF
Output Capacitance	C _{OSS}			136		
Reverse Transfer Capacitance	C _{RSS}			115		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 15V, I _D = 15A		22		nC
Gate to Source Charge	Q _{GS}			2.6		
Gate to Drain Charge	Q _{GD}			4.3		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 10V, V _{DS} = 15V, R _L = 1Ω, R _G = 3Ω		6.5		ns
Rise Time	T _r			34.2		
Turn-off Delay Time	T _{D(OFF)}			20		
Fall Time	T _f			9.6		
Diode Recovery Time	T _{rr}	I _F =20A, di/dt=500A/us		21		ns
Diode Recovery Charge	Q _{rr}	I _F =20A, di/dt=500A/us		12		nC



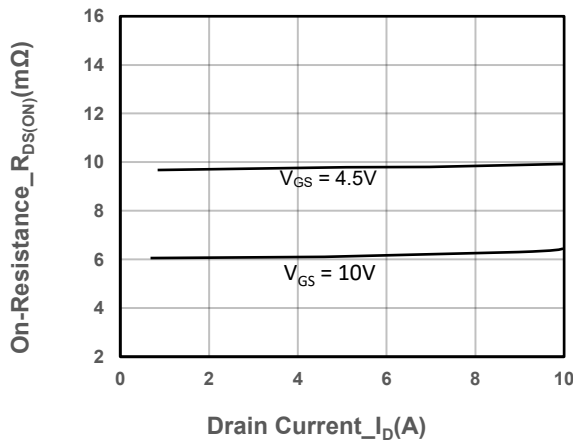
➤ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



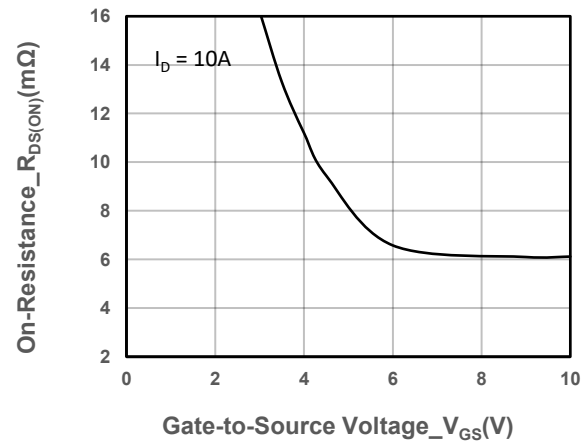
Output Characteristics



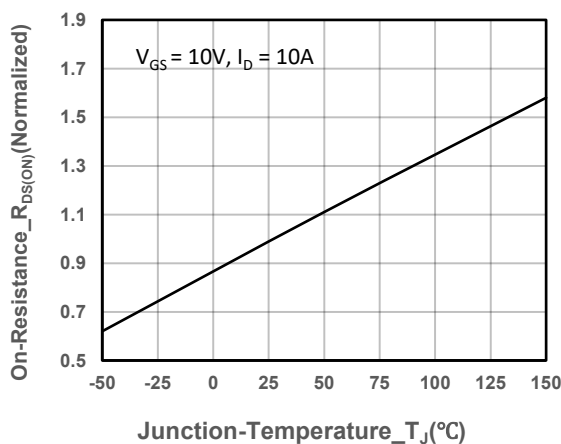
Transfer Characteristics



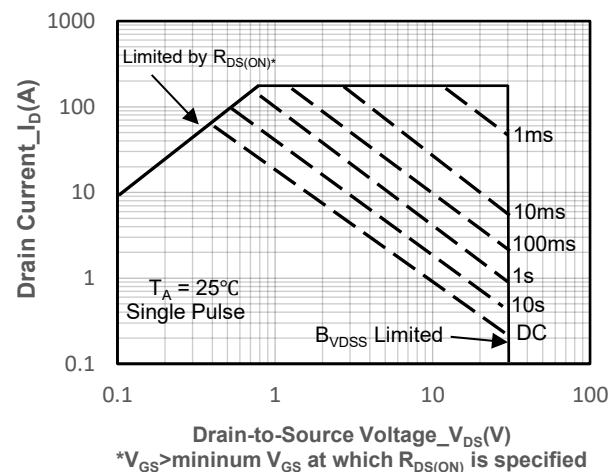
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage



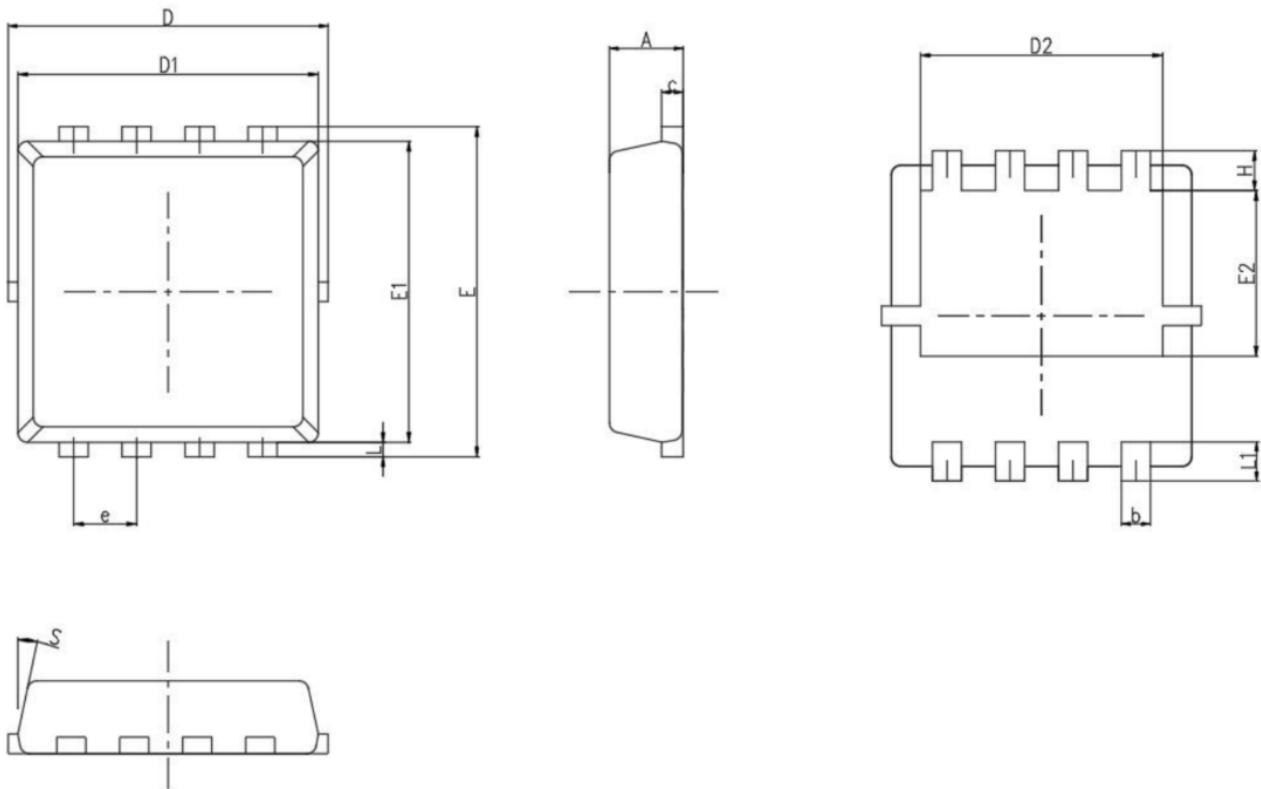
On-Resistance vs. Junction Temperature



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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