



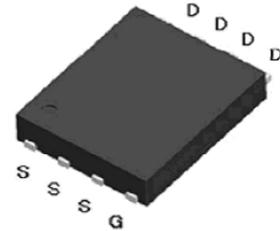
SSCU6N20GN6

N-Channel Enhancement Mode MOSFET

➤ Features

V _{DS}	V _{GS}	R _{DS(ON)} Typ.	I _D
20V	±12V	6mΩ@4V5	65A
		8.2mΩ@2V5	

➤ Pin configuration

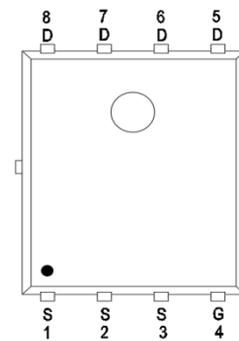


PDFN5X6-8L(Top View)

➤ Description

The SSCU6N20GN6 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!



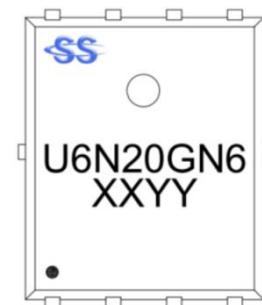
Pin Configuration

➤ Applications

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

➤ Ordering Information

Device	Package	Shipping
SSCU6N20GN6	PDFN5X6-8L	5000/Reel



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	20	V	
V _{GSS}	Gate-to-Source Voltage	± 12	V	
I _D	Continuous Drain Current ^d	T _C =25°C	65	A
		T _C =100°C	35	
I _{DSM}	Continuous Drain Current ^a	T _A =25°C	20	A
		T _A =70°C	15	
I _{DM}	Pulsed Drain Current ^b	263	A	
P _D	Power Dissipation ^c	T _C =25°C	42	W
		T _C =100°C	16.7	
P _{DSM}	Power Dissipation ^a	T _A =25°C	4.2	W
		T _A =70°C	2.7	
I _{AS}	Avalanche Current ^b L=0.5mH Single Pulse	14	A	
E _{AS}	Avalanche Energy ^b L=0.5mH Single Pulse	49	mJ	
T _J	Operation junction temperature	-55~150	°C	
T _{STG}	Storage temperature range	-55~150		

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

Symbol	Parameter	Ratings	Max.	Unit
R _{θJA}	Junction-to-Ambient Thermal Resistance ^a	30	39	°C/W
R _{θJC}	Junction-to-Case Thermal Resistance	3	4	

Note:

- 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_s≤10s thermal resistance rating.
- Repetitive rating, pulse width limited by junction temperature.
- 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.
- The maximum current rating is package limited.

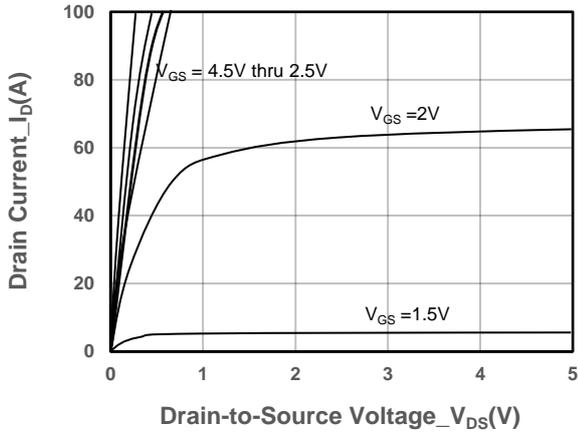


➤ **Electrical Characteristics (T_A=25°C unless otherwise noted)**

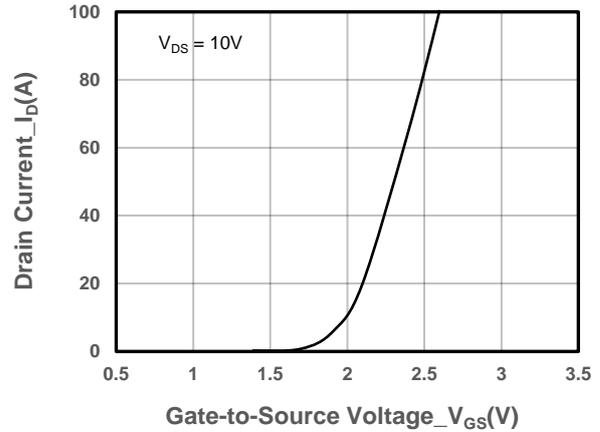
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250uA	20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	0.5	0.7	1	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 20A		6	8	mΩ
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 2.5V, I _D = 15A		8.2	10.5	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		1.4		Ω
Input Capacitance	C _{ISS}	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz		1723		pF
Output Capacitance	C _{OSS}			231		
Reverse Transfer Capacitance	C _{RSS}			204		
Total Gate Charge	Q _G	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 20A		19		nC
Gate to Source Charge	Q _{GS}			3.1		
Gate to Drain Charge	Q _{GD}			6.1		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 20A, R _G = 2Ω		8		ns
Rise Time	T _r			18		
Turn-off Delay Time	T _{D(OFF)}			39		
Fall Time	T _f			25		
Diode Recovery Time	T _{rr}	I _F = 20A, di/dt = 100A/us		8.1		ns
Diode Recovery Charge	Q _{rr}	I _F = 20A, di/dt = 100A/us		1.7		nC



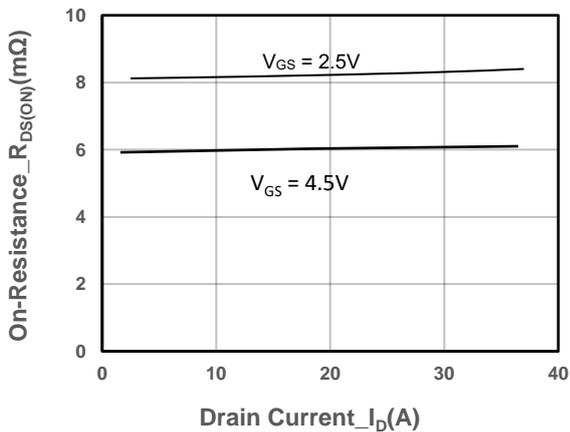
➤ **Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)**



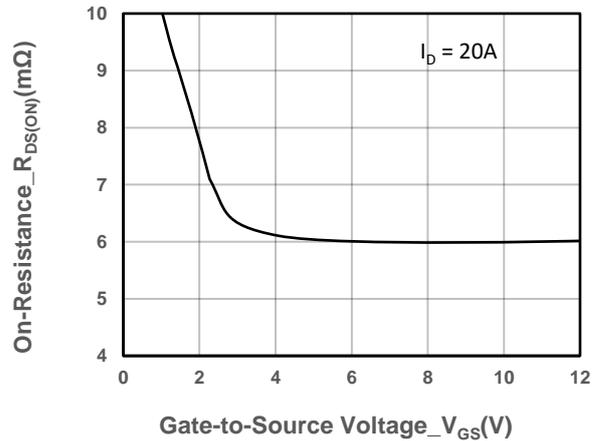
Output Characteristics



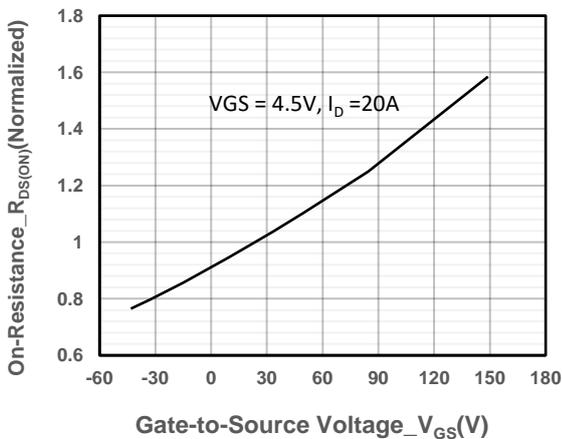
Transfer Characteristics



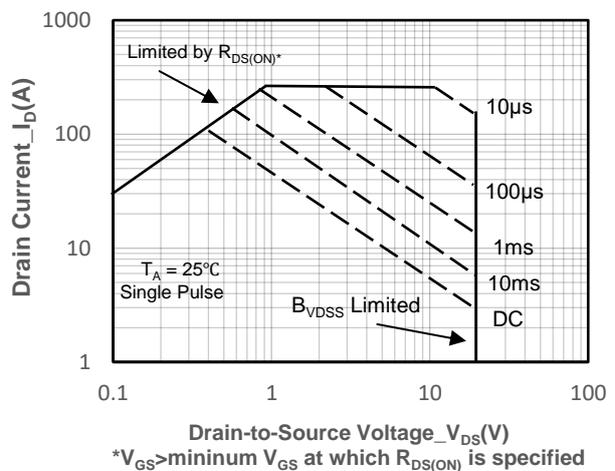
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage

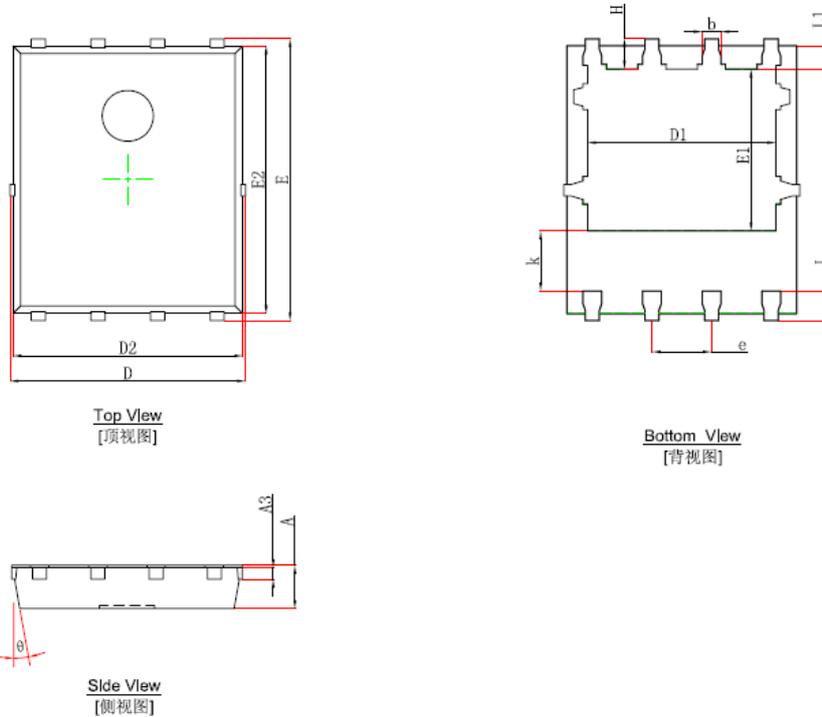


On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

➤ Package Information



Package: PDNF5X6-8L

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF		0.010REF	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP		0.050TYP	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°



DISCLAIMER

SSCSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. SSCSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICIENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G. OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.

OUR PRODUCT SPECIFICATIONS ARE ONLY VALID IF OBTAINED THROUGH THE COMPANY'S OFFICIAL WEBSITE, CRM SYSTEM, OR OUR SALES PERSONNEL CHANNELS. IF CHANGES OR SPECIAL VERSIONS ARE INVOLVED, THEY MUST BE STAMPED WITH A QUALITY SEAL AND MARKED WITH A SPECIAL VERSION NUMBER TO BE VALID.