SSCU3628NP30GN6

N and P-Channel Enhancement Mode Power MOSFET

➢ Features

N-Channel

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
30V	±20V	13mΩ@10V	36A
		20mΩ@4.5V	

P-Channel

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
-30V	±20V	22mΩ@-10V	-28A
		30mΩ@-4.5V	

➢ Description

The SSCU3628NP30GN6 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!

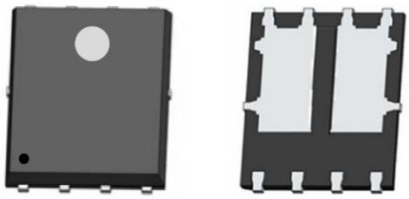
➢ Applications

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

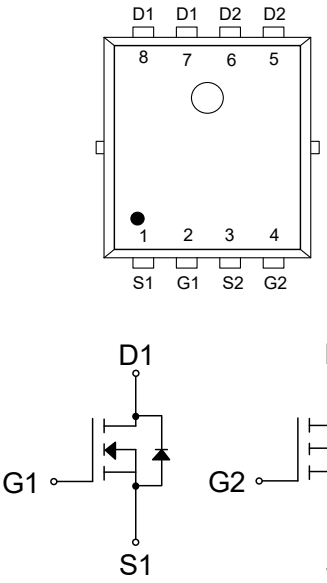
➢ Ordering Information

Device	Package	Shipping
SSCU3628NP30GN6	PDFN5X6-8L	5000/Reel

➢ Pin configuration



PDFN5X6-8L



Pin Configuration (Top View)

Marking

(XXYY: Internal Traceability Code)

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

Symbol	Parameter		N-Channel	P-Channel	Unit
V_{DSS}	Drain-to-Source Voltage		30	-30	V
V_{GSS}	Gate-to-Source Voltage		±20	±20	V
I_D	Continuous Drain Current [d]	T_C=25℃	36	-28	A
		T_C=100℃	19	-15	
I_{DSM}	Continuous Drain Current [a]	T_A=25℃	9	-7	A
		T_A=70℃	6.5	-5	
I_{DM}	Pulsed Drain Current [b]		144	-112	A
P_D	Power Dissipation [c]	T_C=25℃	45	42	W
		T_C=100℃	18	17	
P_{DSM}	Power Dissipation [a]	T_A=25℃	3	3	W
		T_A=70℃	1.9	1.9	
I_{AS}	Avalanche Current [b] L=0.5mH Single Pulse		11	-12	A
E_{AS}	Avalanche Energy [b] L=0.5mH Single Pulse		30	36	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	Max.	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]	42	53	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	2.8	4	

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.

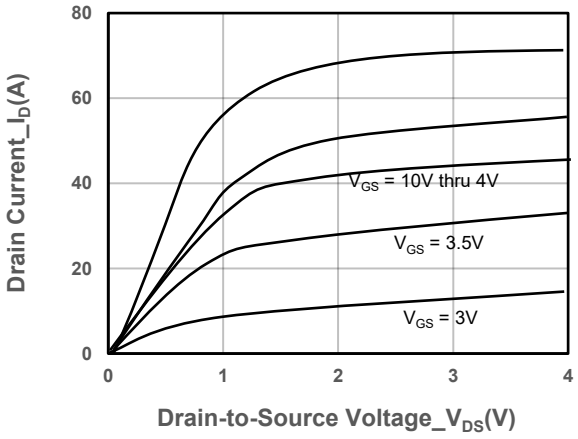
➢ N-Channel Electrical Characteristics (T_A=25℃ unless otherwise noted)

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	1.6	2.2	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 8A		13	20	mΩ
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 6A		20	29	mΩ
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 = 8A		0.7	1.3	V
Gate Resistance	R_G	V_{DS}=0V, f=1MHz		2		Ω
Input Capacitance	C_{ISS}	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		738		pF
Output Capacitance	C_{OSS}			85		
Reverse Transfer Capacitance	C_{RSS}			69		
Total Gate Charge	Q_G	V_{GS} = 10V, V_{DS} = 15V, I_D = 5A		16		nC
Gate to Source Charge	Q_{GS}			4.8		
Gate to Drain Charge	Q_{GD}			3.6		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 10V, V_{DS} = 15V, R_L = 1Ω, R_{GEN} = 3Ω		6		ns
Rise Time	T_r			12.5		
Turn-off Delay Time	$T_{D(OFF)}$			16		
Fall Time	T_f			5		
Diode Recovery Time	T_{rr}	I_F = 10A, di/dt = 100A/us		7		ns
Diode Recovery Charge	Q_{rr}			1.4		nC

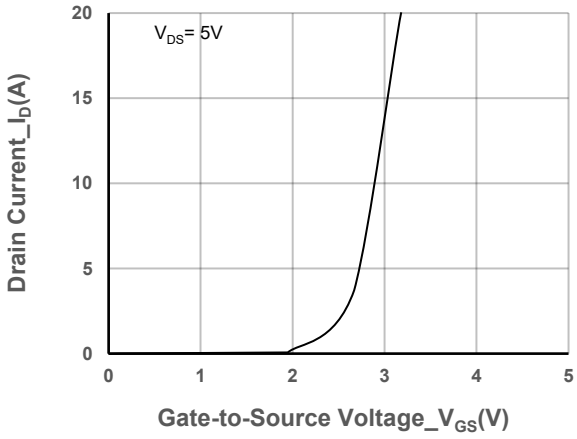
➢ P-Channel Electrical Characteristics (T_A=25℃ unless otherwise noted)

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	-1.7	-2.2	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -8A		22	31	mΩ
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -6A		30	50	mΩ
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 = -8A		-0.7	-1.3	V
Gate Resistance	R_G	V_{DS} = 0V, f = 1MHz		11		Ω
Input Capacitance	C_{ISS}	V_{DS} = -15V, V_{GS} = 0V, f = 1MHz		871		pF
Output Capacitance	C_{OSS}			115		
Reverse Transfer Capacitance	C_{RSS}			91		
Total Gate Charge	Q_G	V_{GS} = -10V, V_{DS} = -15V, I_D = -5A		18		nC
Gate to Source Charge	Q_{GS}			3.5		
Gate to Drain Charge	Q_{GD}			4		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = -10V, V_{DS} = -15V, I_D = -5A, R_{GEN} = 3Ω		4		ns
Rise Time	T_r			2.3		
Turn-off Delay Time	$T_{D(OFF)}$			38		
Fall Time	T_f			25		
Diode Recovery Time	T_{rr}	I_F=-10A, di/dt=-100A/us		10		ns
Diode Recovery Charge	Q_{rr}	I_F=-10A, di/dt=-100A/us		3		nC

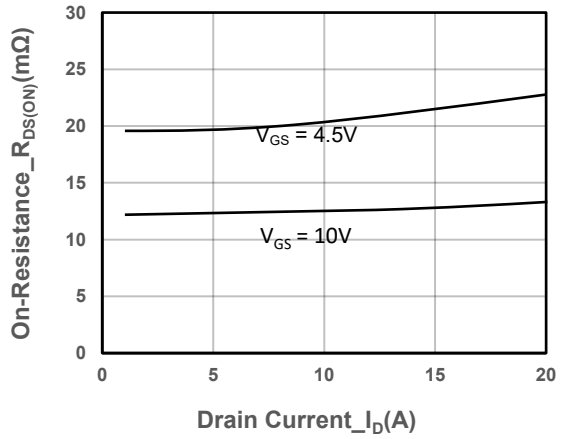
➢ N-Channel Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



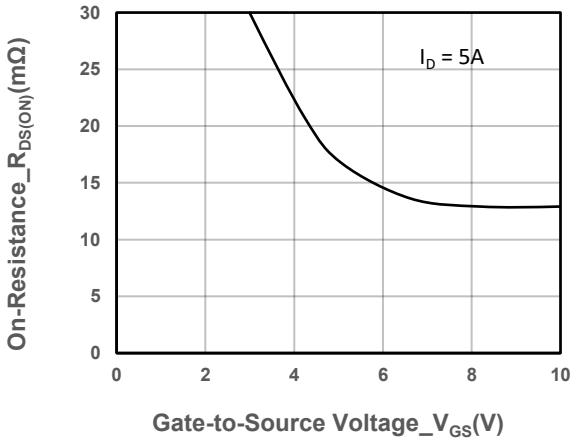
Output Characteristics



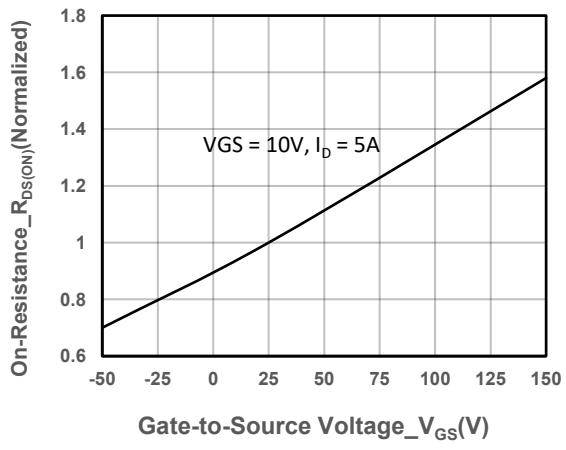
Transfer Characteristics



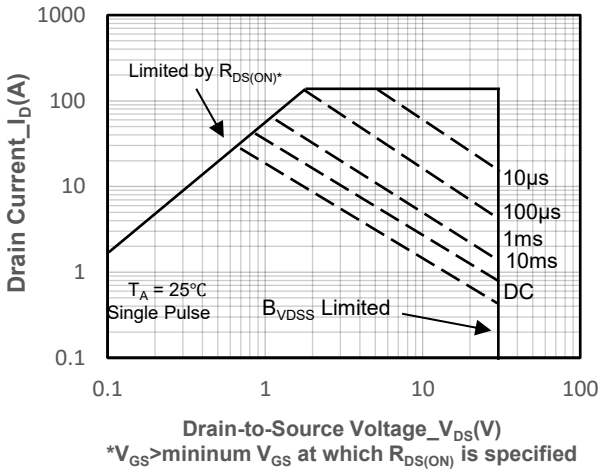
On-Resistance vs. Drain Current and Gate Voltag



On-Resistance vs. Gate-to-Source Voltage

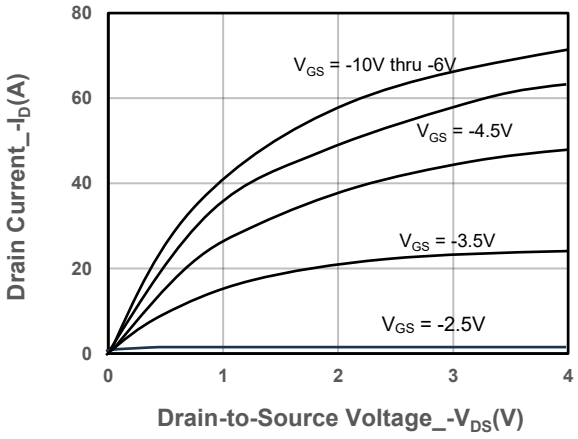


On-Resistance vs. Junction Temperature

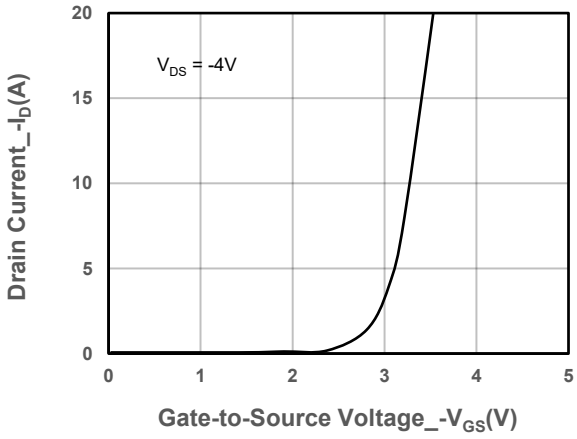


Safe Operating Area vs. Junction-to-Ambient

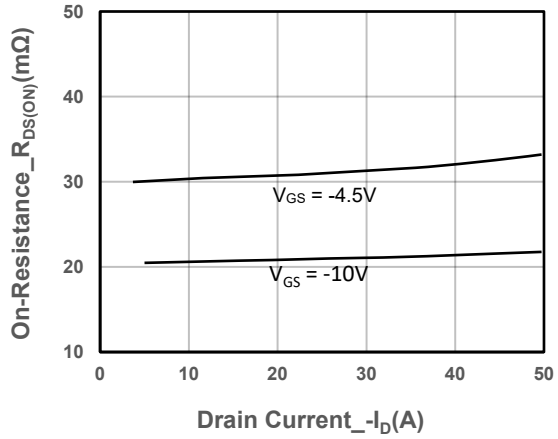
➢ P-Channel Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



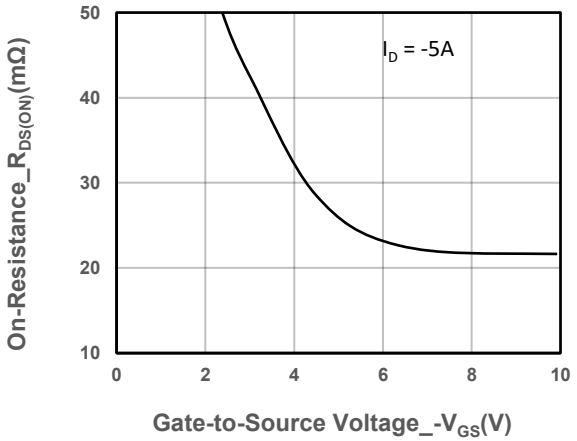
Output Characteristics



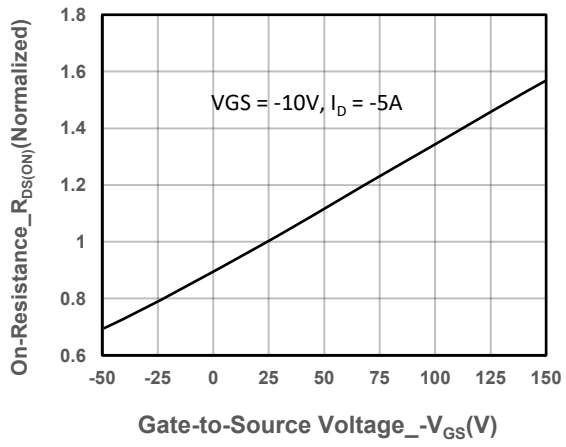
Transfer Characteristics



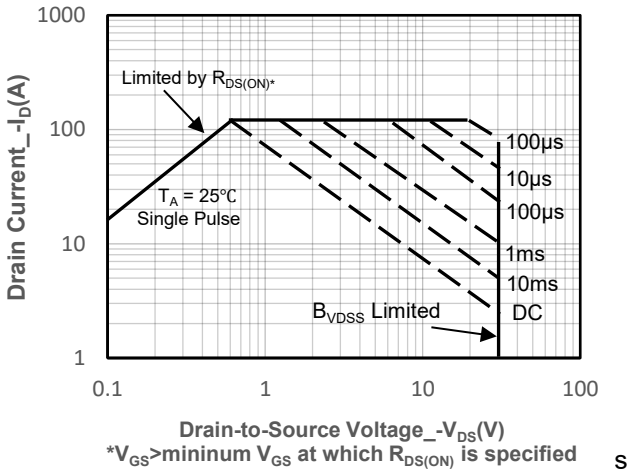
On-Resistance vs. Drain Current and Gate Voltag



On-Resistance vs. Gate-to-Source Voltage



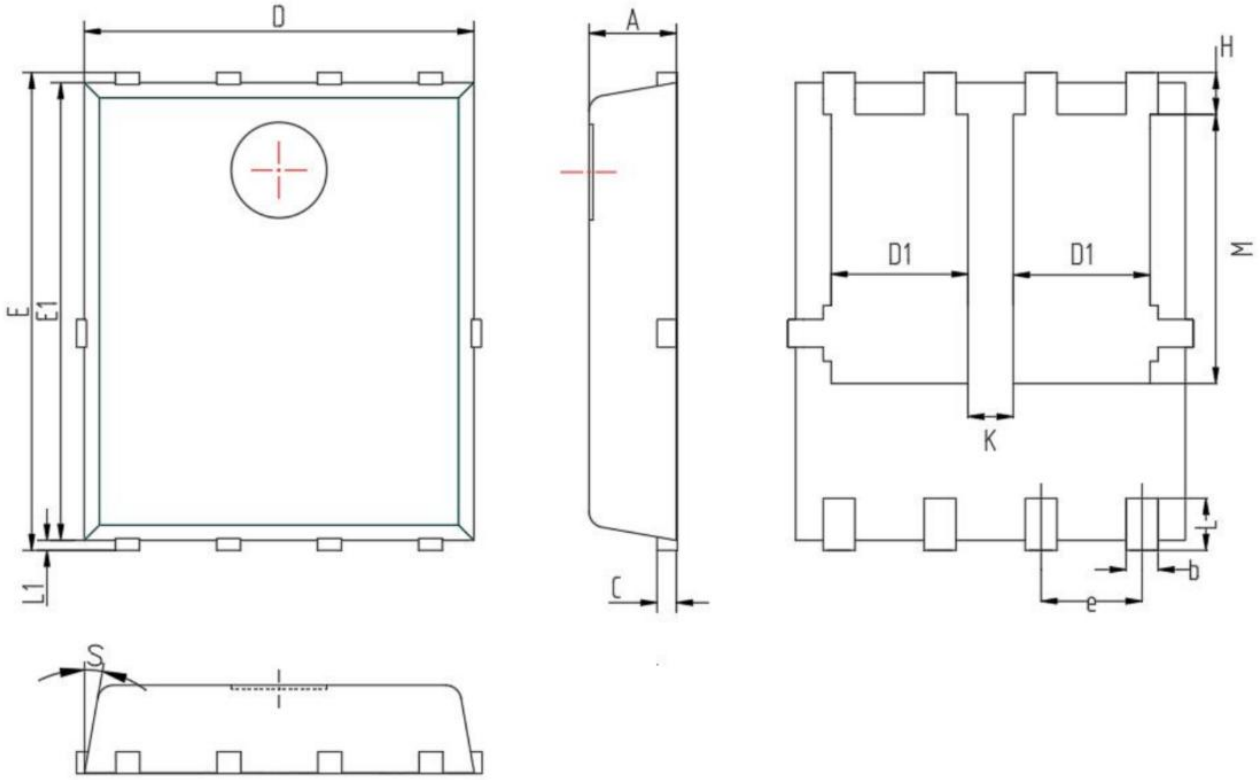
On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

s

➢ Package Information



Symbol	MILL IMETER		
	Min	Nom	Max
A	0.9	1.10	1.20
b	0.25	0.30	0.5
C	0.20	0.25	0.35
D	4.80	5.00	5.20
D1	1.50	1.70	1.80
E	5.90	6.00	6.30
E1	5.60	5.75	5.90
e	1.27BSC		
H	0.48	0.58	0.80
K	0.50	0.60	0.70
L	0.50	0.60	0.84
L1	0.10	0.15	0.30
M	3.30	3.48	3.67
S	12° BSC		

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