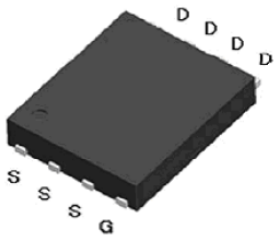
SSC80312GN6

N-Channel Enhancement Mode MOSFET

➢ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
30V	±20V	3mΩ@10V	90A
		4.2mΩ@4.5V	

➢ Pin configuration

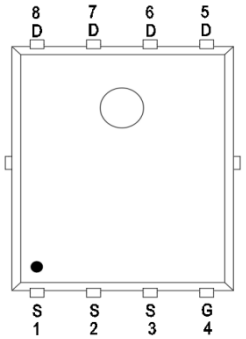


PDFN5X6-8L(Top View)

➢ Description

The SSC80312GN6 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

Marking

(XXYY: Internal Traceability Code)

➢ Ordering Information

Device	Package	Shipping
SSC80312GN6	PDFN5X6-8L	5000/Reel

➢ 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℃	90	A
		T_C=100℃	48	
I_{DSM}	Continuous Drain Current [a]	T_A=25℃	29	A
		T_A=70℃	21	
I_{DM}	Pulsed Drain Current [b]		360	A
P_D	Power Dissipation [c]	T_C=25℃	39	W
		T_C=100℃	15.7	
P_{DSM}	Power Dissipation [a]	T_A=25℃	4.2	W
		T_A=70℃	2.7	
I_{AS}	Avalanche Current [b] L=0.5mH Single Pulse		25	A
E_{AS}	Avalanche Energy [b] L=0.5mH Single Pulse		156	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]	30	39	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	3.2	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.

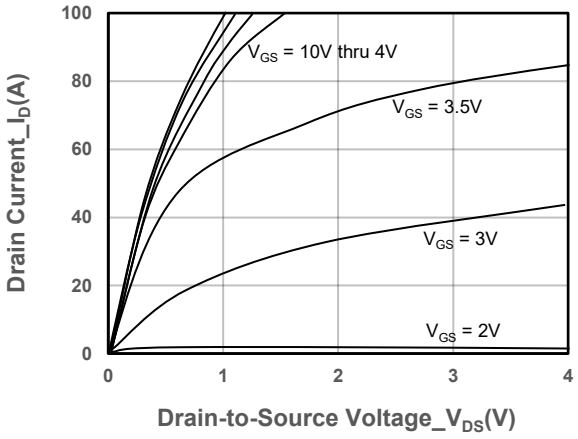
c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

d. The maximum current rating is package limited.

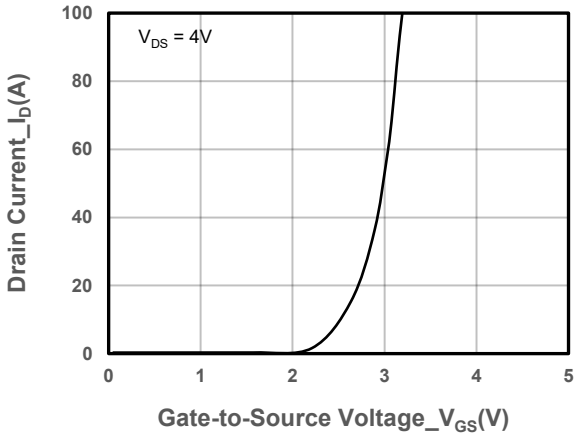
➢ Electrical Characteristics (T_A=25℃ unless otherwise noted)

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		3	4.2	mΩ
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 10A		4.2	6	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 = 20A		0.8	1.3	V
Gate Resistance	R_G	V_{DS} = 0V, f = 1MHz		2.7		Ω
Input Capacitance	C_{ISS}	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		2315		pF
Output Capacitance	C_{OSS}			286		
Reverse Transfer Capacitance	C_{RSS}			235		
Total Gate Charge	Q_G	V_{GS} = 10V, V_{DS} = 15V, I_D = 20A		43		nC
Gate to Source Charge	Q_{GS}			8		
Gate to Drain Charge	Q_{GD}			11		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 10V, V_{DS} = 15V, I_D = 20A, R_G = 3Ω		8.5		ns
Rise Time	T_r			15		
Turn-off Delay Time	$T_{D(OFF)}$			33		
Fall Time	T_f			12		
Diode Recovery Time	T_{rr}	I_F=20A, di/dt=100A/us		13		ns
Diode Recovery Charge	Q_{rr}	I_F=20A, di/dt=100A/us		3.4		nC

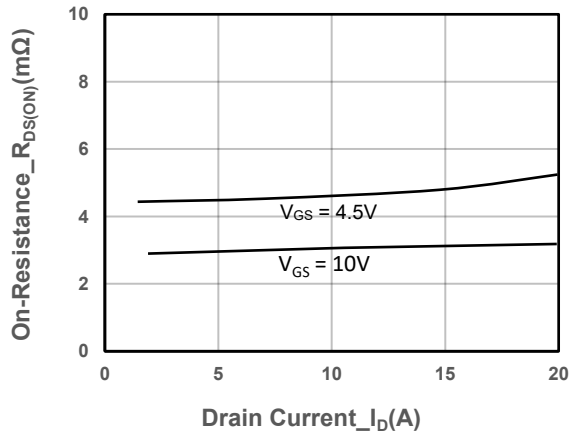
➢ Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



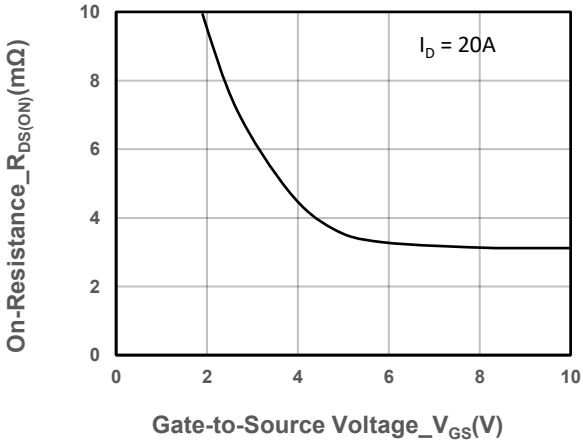
Output Characteristics



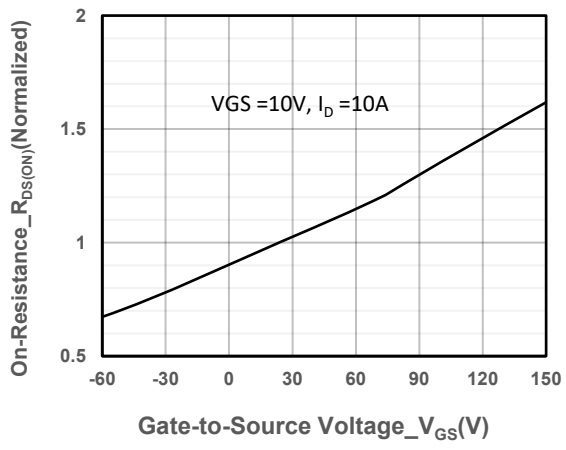
Transfer Characteristics



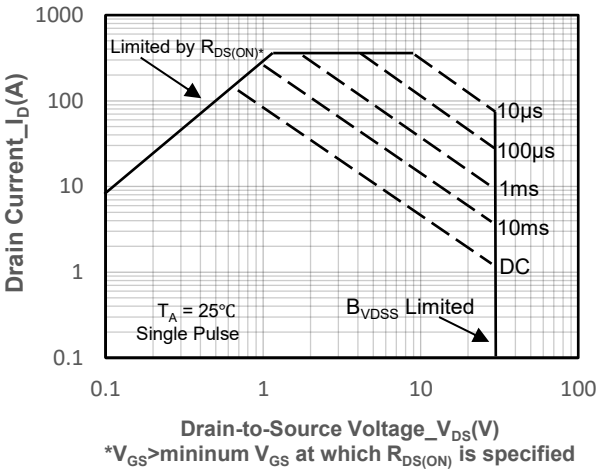
On-Resistance vs. Drain Current and Gate Voltag



On-Resistance vs. Gate-to-Source Voltage

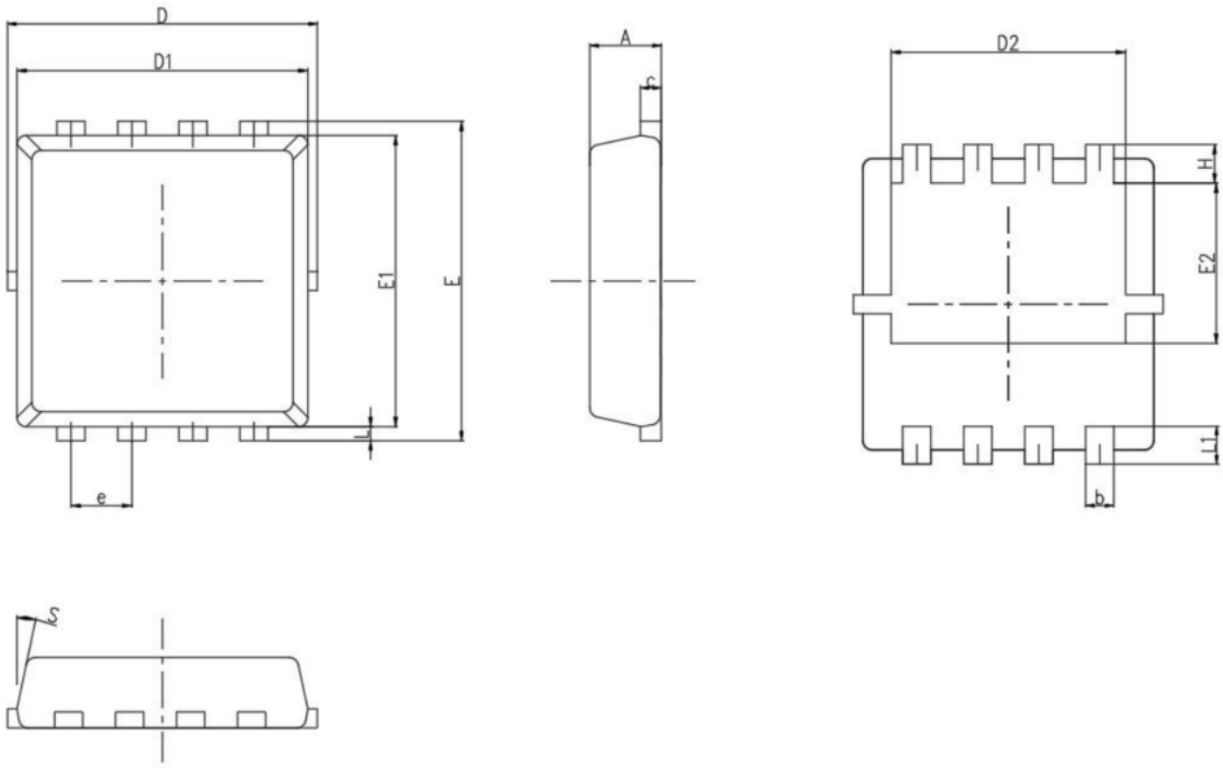


On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

➢ Package Information



Symbol	MILL IMETER		
	Min	Nom	Max
A	0.65	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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