



SSC80316GN4

N-Channel Enhancement Mode MOSFET

➤ Features

V _{DS}	V _{GS}	R _{DS(ON)} Typ.	I _D
30V	±20V	5.5mΩ@10V	60A
		7.4mΩ@4.5V	

➤ Description

This device uses advanced trench technology to provide excellent R_{DS(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 + ΔV_{DS} + R_g Tested!

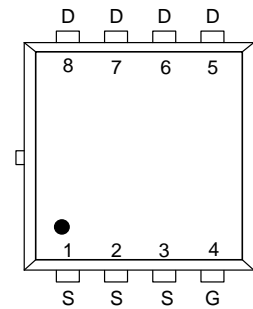
➤ Applications

- Load Switch
- NB/PC
- DCDC Conversion
- Motor Drive

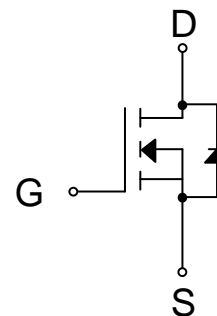
➤ Ordering Information

Device	Package	Shipping
SSC80316GN4	PDFN3.3X3.3-8L	5000/Reel

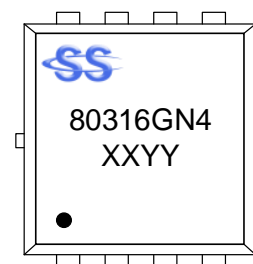
➤ Pin Configuration



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



Pin Configuration



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	$T_C=25^\circ\text{C}$	60	A
		$T_C=100^\circ\text{C}$	32	
I_{DSM}	Continuous Drain Current ^a	$T_A=25^\circ\text{C}$	17	A
		$T_A=70^\circ\text{C}$	13	
I_{DM}	Pulsed Drain Current ^b	210	A	
P_D	Power Dissipation ^c	$T_C=25^\circ\text{C}$	31.3	W
		$T_C=100^\circ\text{C}$	12.5	
P_{DSM}	Power Dissipation ^a	$T_A=25^\circ\text{C}$	2.8	W
		$T_A=70^\circ\text{C}$	1.8	
E_{AS}	Avalanche Energy ^b L=0.5mH Single Pulse	42	mJ	
T_J	Operation junction temperature	-55~150	°C	
T_{STG}	Storage temperature range	-55~150		

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

Symbol	Parameter	Maximum	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance ^a	45	°C/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	4	

Note:

- The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with $T_A=25^\circ\text{C}$. 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 $T_{J(MAX)}=150^\circ\text{C}$, 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.

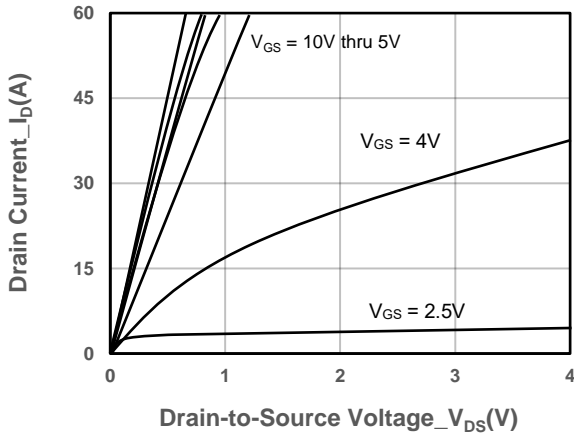


➤ **Electrical Characteristics (T_A=25°C unless otherwise noted)**

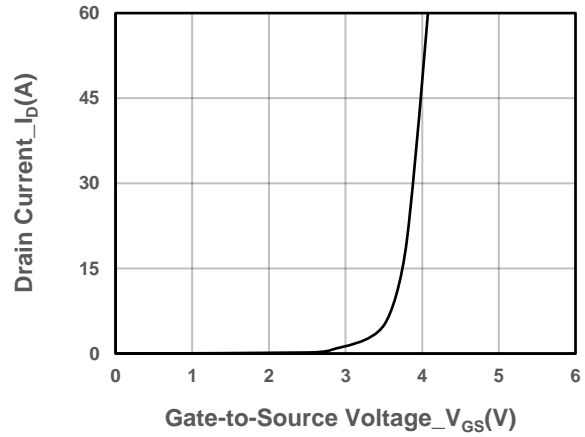
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.5	2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 20A		5.5	7.2	mΩ
		V _{GS} = 4.5V, I _D = 10A		7.4	9.5	
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 = 10A		0.75	1.3	V
Gate Resistance	R _g	V _{DS} = 0V, f = 1MHz		4		Ω
Input Capacitance	C _{ISS}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz		1900		pF
Output Capacitance	C _{OSS}			185		
Reverse Transfer Capacitance	C _{RSS}			188		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 15V, I _D = 10A		18		nC
Gate to Source Charge	Q _{GS}			3.2		
Gate to Drain Charge	Q _{GD}			3		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 10V, V _{DS} = 15V, R _L = 15Ω, R _G = 3Ω, I _D = 1A		8		ns
Rise Time	T _r			2.8		
Turn-off Delay Time	T _{D(OFF)}			21		
Fall Time	T _f			5.4		
Diode Recovery Time	T _{rr}	I _F =20A, di/dt=100A/us		15		ns
Diode Recovery Charge	Q _{rr}	I _F =20A, di/dt=100A/us		8		nC



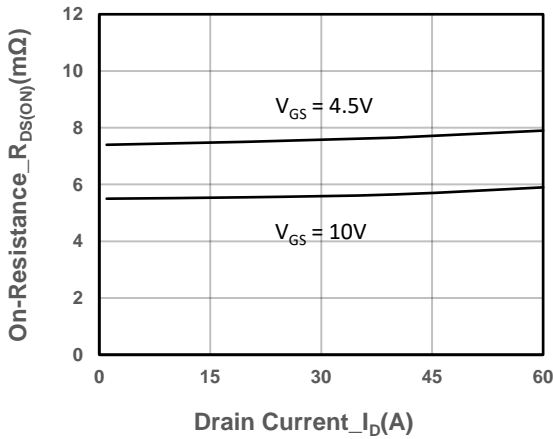
➤ **Typical Performance Characteristics (T_A=25°C unless otherwise noted)**



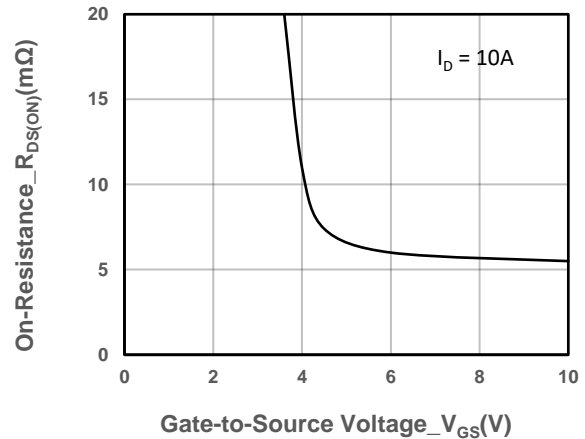
Output Characteristics



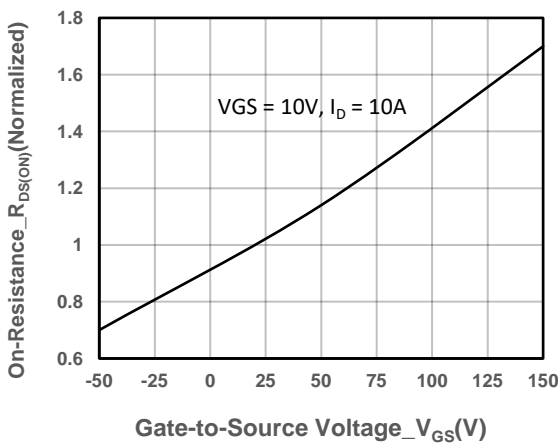
Transfer Characteristics



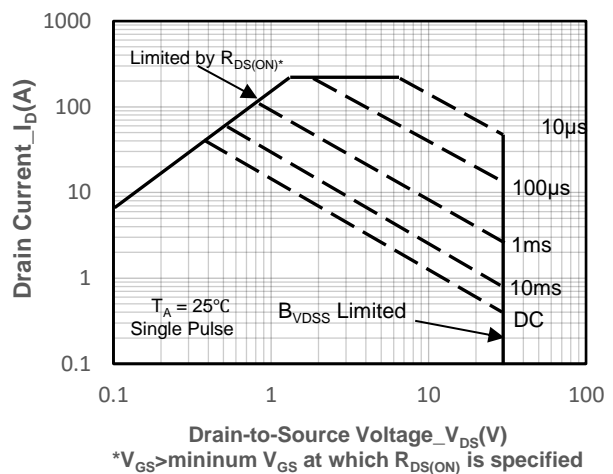
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage

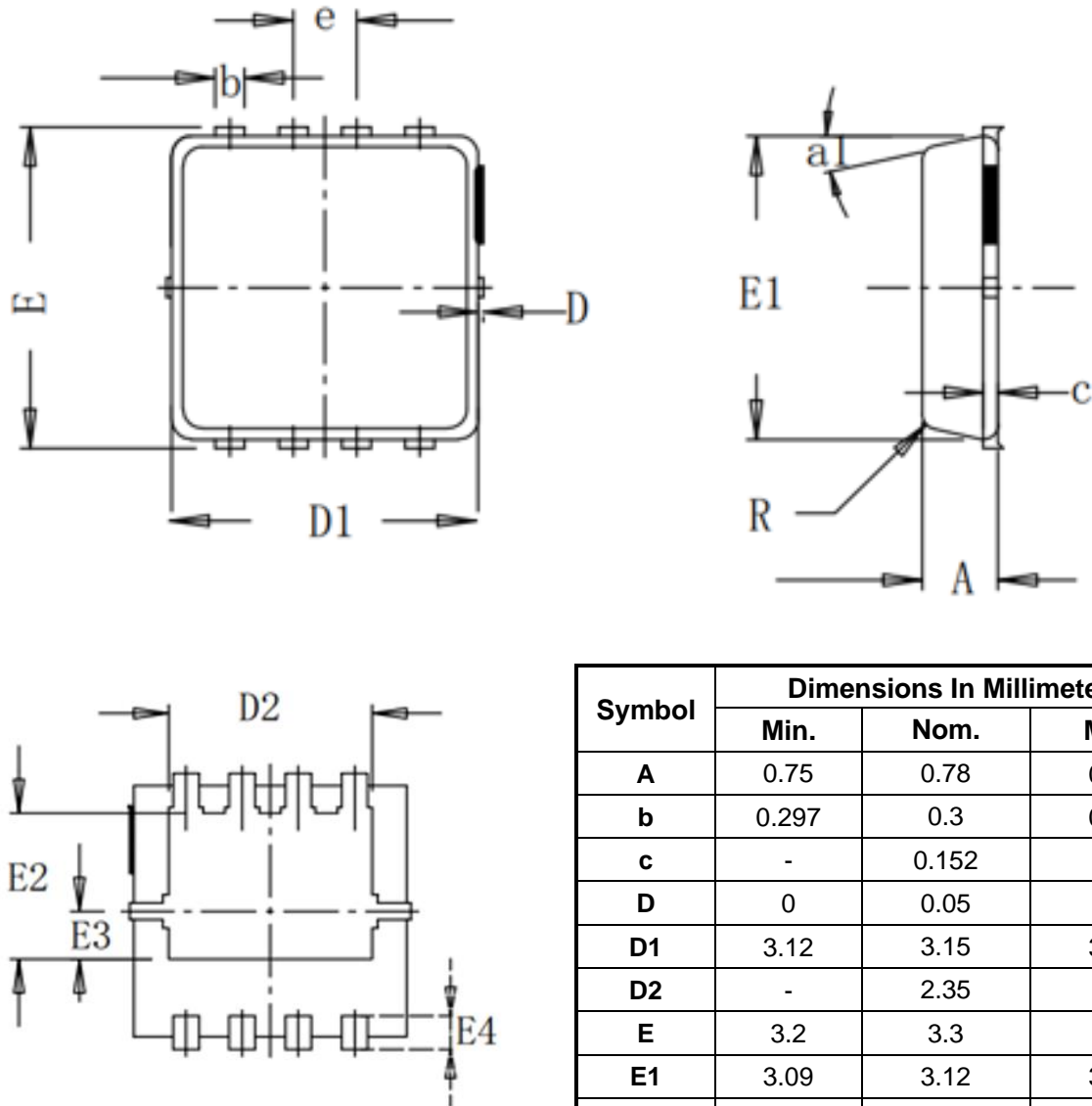


On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

➤ Package Information



Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	0.75	0.78	0.81
b	0.297	0.3	0.35
c	-	0.152	-
D	0	0.05	0.1
D1	3.12	3.15	3.18
D2	-	2.35	-
E	3.2	3.3	3.4
E1	3.09	3.12	3.15
E2	-	1.75	-
E3	-	0.575	-
E4	-	0.4	-
R	-	0.15	-
e	0.65BSC		
a1°	-	12°	-



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