



## SSC8146GN4

### N-Channel Enhanced MOSFET

#### > Features

VDS	VGS	RDSON Typ.	ID
45V	±30V	11mR@10V	35A
		23mR@4V5	

#### > Description

This device is N-Channel enhancement MOSFET. Uses advanced trench technology and design to provide excellent RDSON with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. 100% UIS+DVDS+Rg Test.

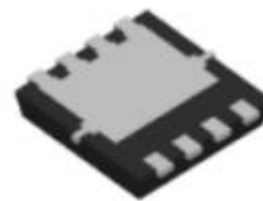
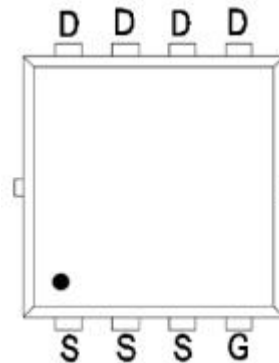
#### > Applications

- DC/DC converters
- Power supplies
- Motor Drive Control
- Synchronous rectification

#### > Ordering Information

Device	Package	Shipping
SSC8146GN4	PDFN3.3X3.3	5000/Reel

#### > Pin configuration



Bottom View



Marking

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

Symbol	Parameter	Ratings	Unit
$V_{DSS}$	Drain-to-Source Voltage	45	V
$V_{GSS}$	Gate-to-Source Voltage	$\pm 30$	V
$I_D$	Continuous Drain Current <sup>d</sup>	$T_C=25^{\circ}\text{C}$	35
		$T_C=100^{\circ}\text{C}$	22
$I_{DSM}$	Continuous Drain Current <sup>a</sup>	$T_A=25^{\circ}\text{C}$	14
		$T_A=70^{\circ}\text{C}$	10
$I_{DM}$	Pulsed Drain Current <sup>b</sup>	140	A
$P_D$	Power Dissipation <sup>c</sup>	$T_C=25^{\circ}\text{C}$	28
		$T_C=100^{\circ}\text{C}$	11
$P_{DSM}$	Power Dissipation <sup>a</sup>	$T_A=25^{\circ}\text{C}$	3.6
		$T_A=70^{\circ}\text{C}$	2.3
$I_{AS}$	Avalanche Current <sup>b</sup> L=0.5mH Single Pulse	16	A
$E_{AS}$	Avalanche Energy <sup>b</sup> L=0.5mH Single Pulse	64	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
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance <sup>a</sup>	35	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	4.4	

Note:

- The value of  $R_{\theta JA}$  is measured with the device mounted on 1 in<sup>2</sup> 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.

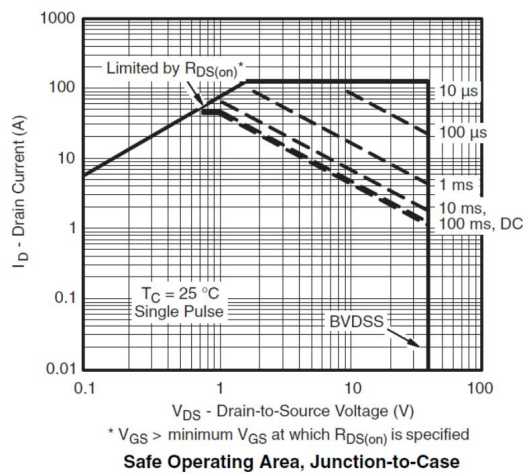
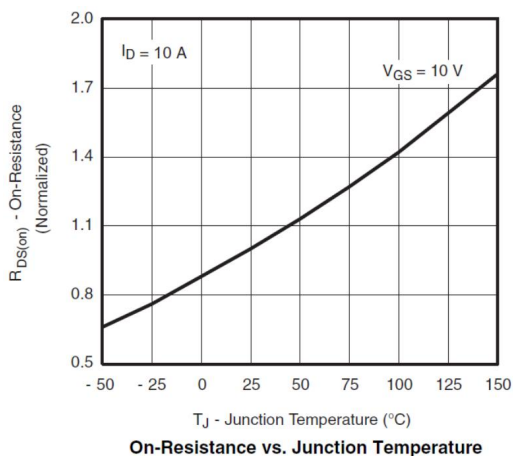
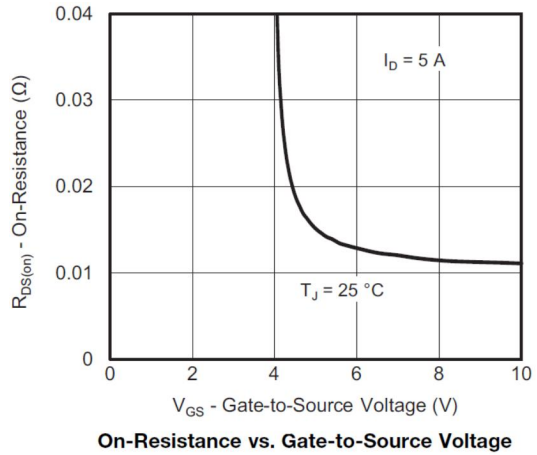
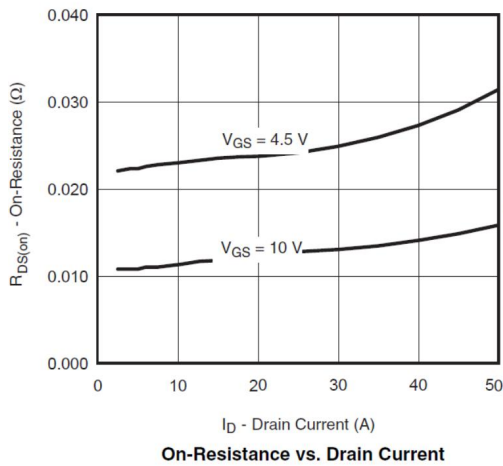
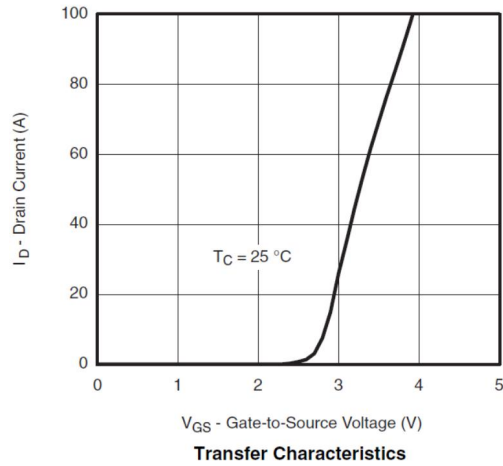
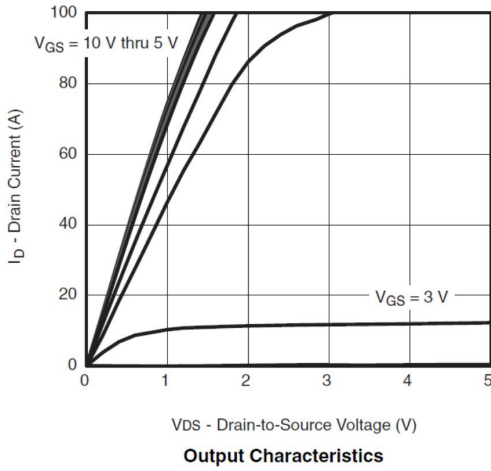


➤ **Electronics Characteristics**( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	45			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	2.1	3	V
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=20A$		11	15	mR
		$V_{GS}=4.5V, I_D=10A$		23	30	
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=40V, V_{GS}=0V$			1	$\mu A$
$I_{GSS}$	Gate-Source leak current	$V_{GS}=\pm 30V, V_{DS}=0V$			$\pm 100$	nA
$G_{FS}$	Transconductance	$V_{DS}=5V, I_D=20A$		16		S
$V_{SD}$	Forward Voltage	$V_{GS}=0V, I_S=5A$		0.8	1.3	V
$R_g$	Gate Resistance	$V_{DS}=0V, f=1MHz$		1.4	2.2	R
$C_{iss}$	Input Capacitance	$V_{DS}=22.5V, V_{GS}=0V, f=1MHz$		1080		pF
$C_{oss}$	Output Capacitance			100		
$C_{rss}$	Reverse Capacitance			85		
$T_{D(ON)}$	Turn-on delay time	$V_{GS}=10V, R_L=1.125R, V_{DS}=22.5V, R_G=3R$		7		ns
$T_r$	Rise time			3		
$T_{D(OFF)}$	Turn-off delay time			13		
$T_f$	Fall time			6		
$Q_G$	Total Gate Charge	$V_{GS}=10V, V_{DS}=22.5V, I_D=20A$		16		nC
$Q_{GS}$	Gate Source Charge			8		
$Q_{GD}$	Gate Drain Charge			5		
$T_{rr}$	Diode Recovery Time	$I_F=20A, di/dt=500A/\mu s$		10		ns
$Q_{rr}$	Diode Recovery Charge	$I_F=20A, di/dt=500A/\mu s$		20		nC

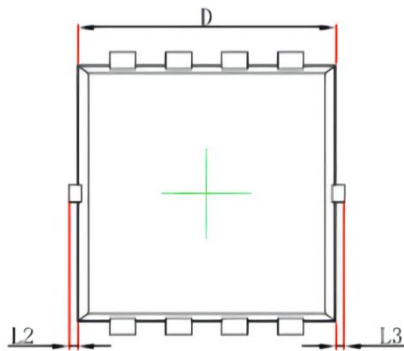


➤ **Typical Characteristics**( $T_A=25^\circ\text{C}$  unless otherwise noted)

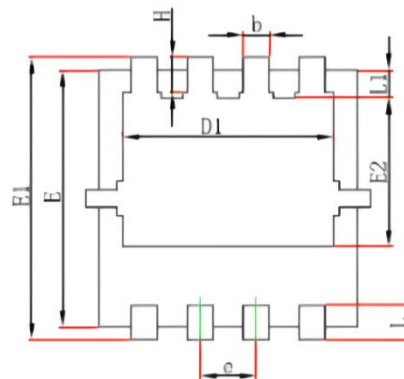




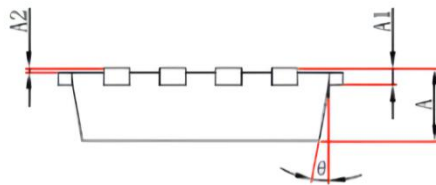
➤ Package Information



Top View  
[顶视图]



Bottom View  
[背视图]



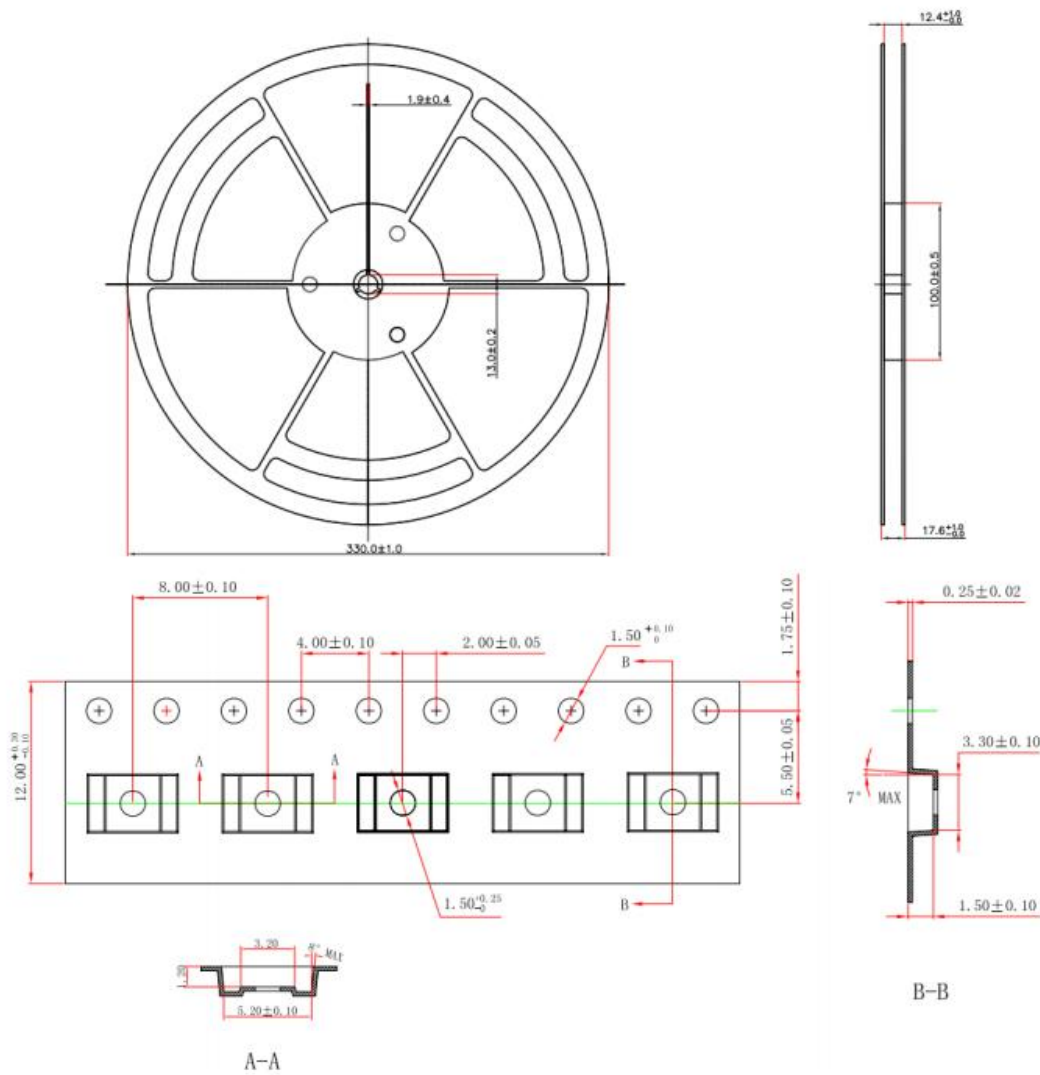
Side View  
[侧视图]

Package: PDNF3.3X3.3-8L

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°



➤ Tape and Reel





➤ **History Version**

V1.0	Product datasheet	2021-08-09
V1.1	Update VGS	2022-03-30

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