



SSC8130GN4

N-Channel Enhanced MOSFET

➤ Features

VDS	VGS	RDSON Typ.	ID
30V	±20V	4mR@10V	55A
		6mR@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.

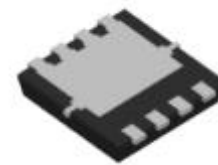
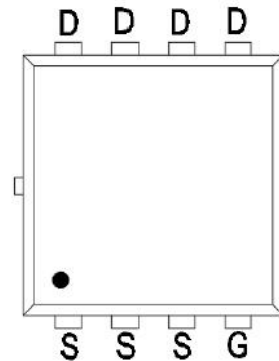
➤ Applications

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

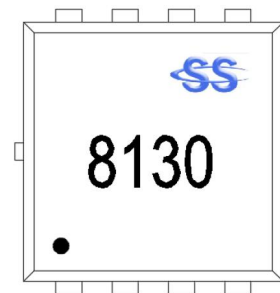
➤ Ordering Information

Device	Package	Shipping
SSC8130GN4	PDFN3.3X3.3	5000/Reel

➤ Pin configuration



Bottom View



Marking

➤ Absolute Maximum Ratings (T_A=25°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°C	55	A
		T _C =100°C	32	
I _{DSM}	Continuous Drain Current ^a	T _A =25°C	26	A
		T _A =70°C	17	
I _{DM}	Pulsed Drain Current ^b	220	A	
P _D	Power Dissipation ^c	T _C =25°C	29	W
		T _C =100°C	11.6	
P _{DSM}	Power Dissipation ^a	T _A =25°C	3.6	W
		T _A =70°C	2.3	
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	°C	
T _{STG}	Storage temperature range	-55~150		

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

Symbol	Parameter	Ratings	Unit
R _{θJA}	Junction-to-Ambient Thermal Resistance ^a	35	°C/W
R _{θJC}	Junction-to-Case Thermal Resistance	4.3	

Note:

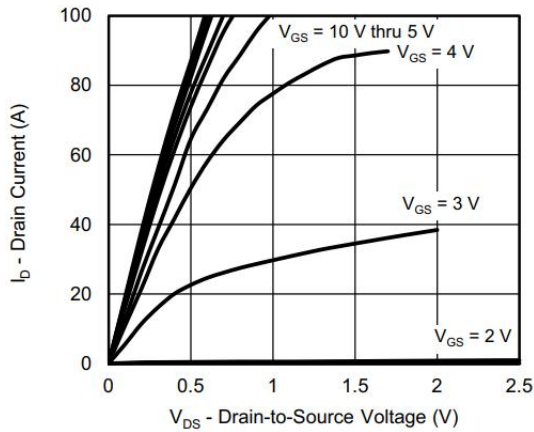
- The value of R_{θJA} is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with T_A=25°C. The value in any given application depends on the user is specific board design. The power dissipation is based on the t ≤ 10s thermal resistance rating.
- Repetitive 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.

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

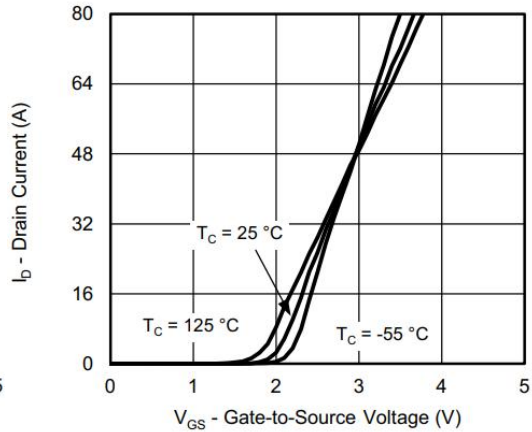


Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.7	3	V
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=20A$		4	5.5	mR
		$V_{GS}=4.5V, I_D=10A$		6	8	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=24V, V_{GS}=0V$			1	μA
I_{GSS}	Gate-Source leak current	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
G_{FS}	Transconductance	$V_{DS}=5V, I_D=10A$		16		S
V_{SD}	Forward Voltage	$V_{GS}=0V, I_S=10A$		0.8	1.3	V
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V,$ $f=1MHz$		2350		pF
C_{oss}	Output Capacitance			280		
C_{rss}	Reverse Transfer Capacitance			260		
$T_{D(ON)}$	Turn-on delay time	$V_{GS}=10V, R_L=3R$ $V_{DS}=15V, R_G=1R$		15		ns
T_r	Rise time			7		
$T_{D(OFF)}$	Turn-off delay time			25		
T_f	Fall time			6		
Q_G	Total Gate Charge	$V_{GS}=10V, V_{DS}=15V$ $I_D=20A$		26		nC
Q_{GS}	Gate Source Charge			12		
Q_{GD}	Gate Drain Charge			5.4		
T_{rr}	Diode Recovery Time	$I_F=10A, di/dt=100A/\mu s$		40		ns
Q_{rr}	Diode Recovery Charge	$I_F=10A, di/dt=100A/\mu s$		55		nC

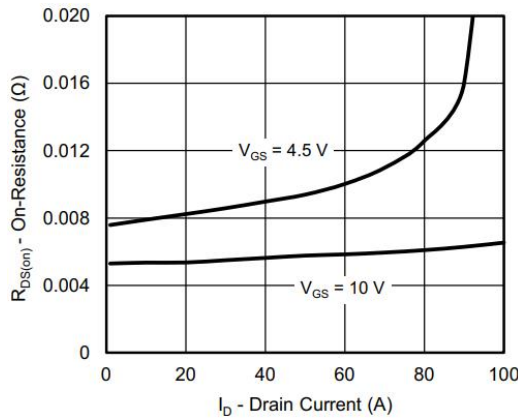
➤ **Typical Characteristics**($T_A=25^\circ C$ unless otherwise noted)



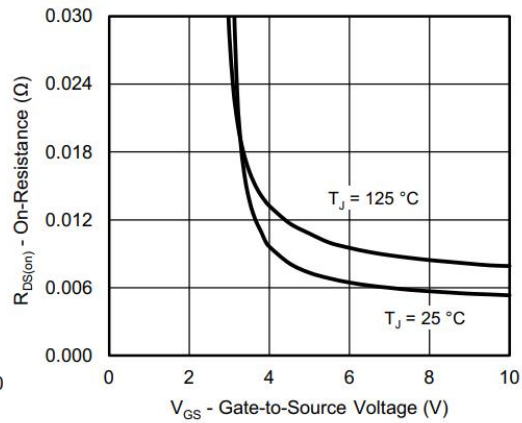
Output Characteristics



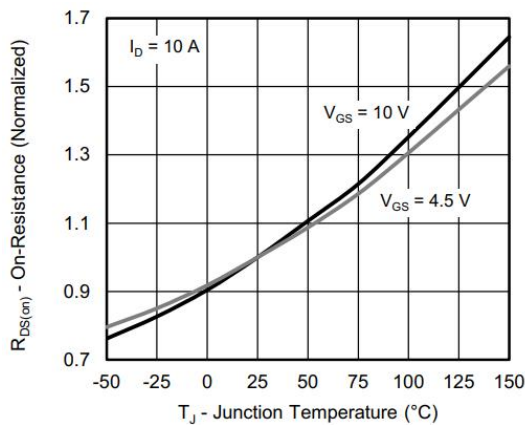
Transfer Characteristics



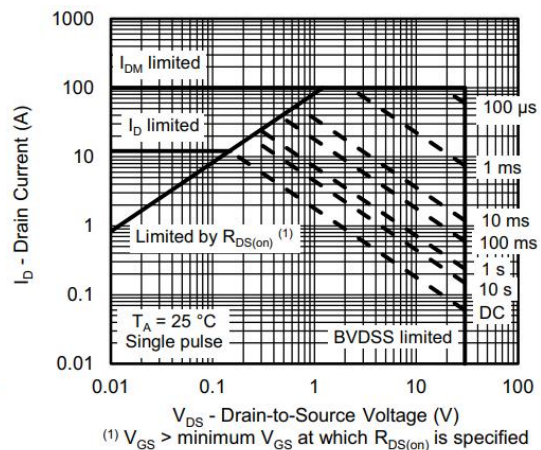
On-Resistance vs. Drain Current



On-Resistance vs. Gate-to-Source Voltage

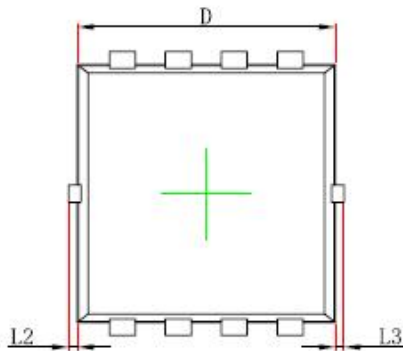


On-Resistance vs. Junction Temperature

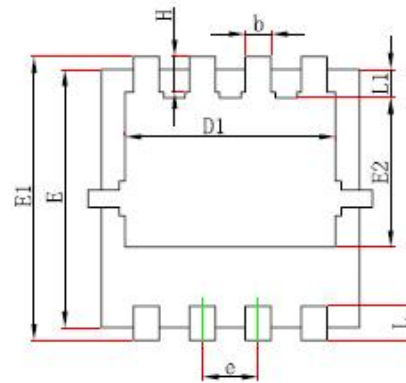


Safe Operating Area

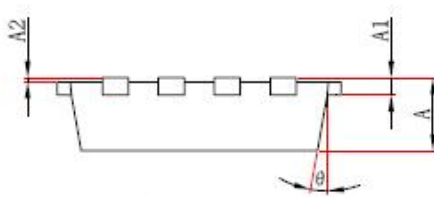
➤ Package Information



Top View
[顶视图]



Bottom View
[背视图]

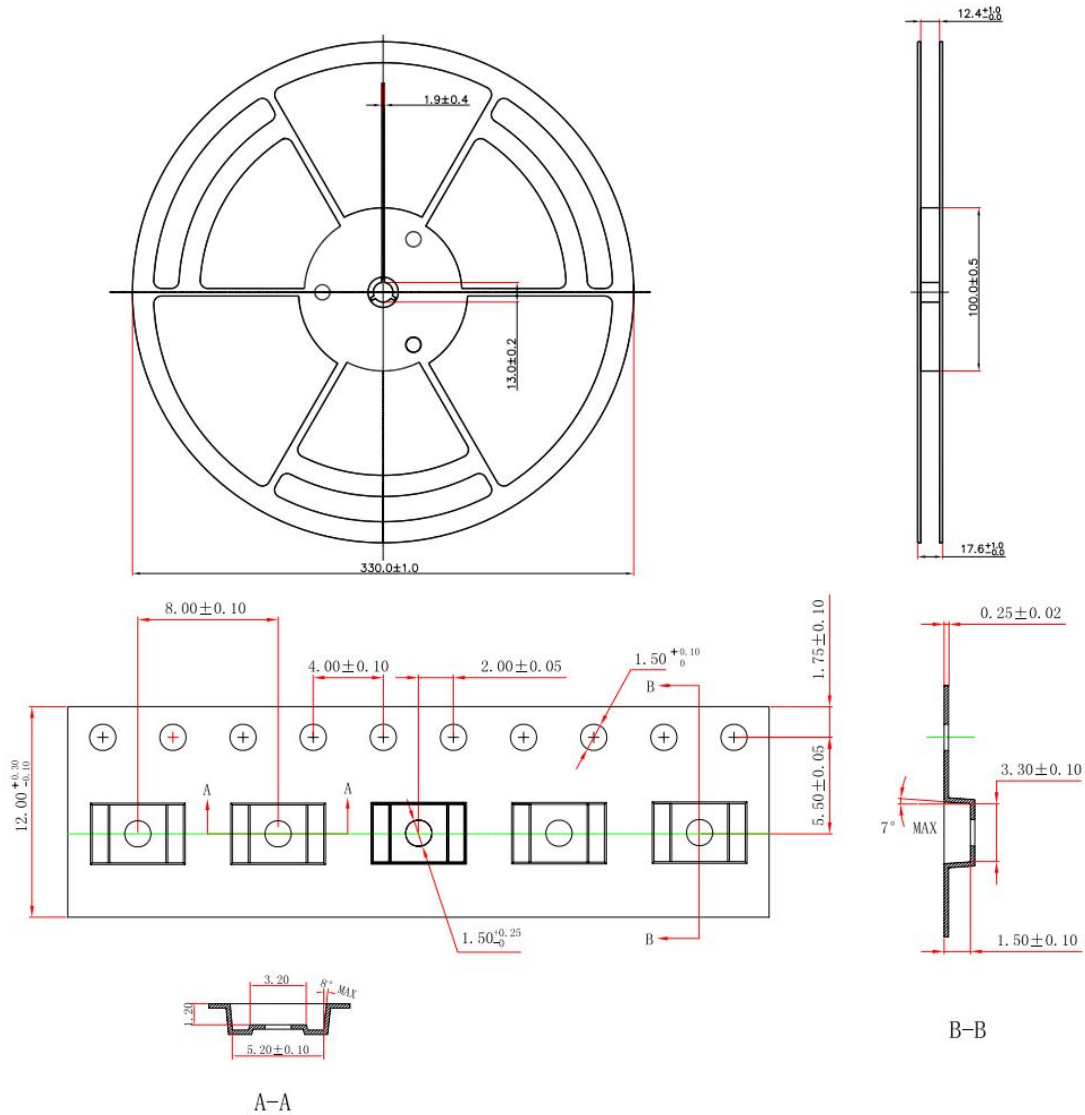


Side View
[侧视图]

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**



DISCLAIMER

AFSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. AFSEMI 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.