



## SSC8030GN4

### N-Channel Enhancement Mode MOSFET

#### ➤ Features

V <sub>DS</sub>	V <sub>GS</sub>	R <sub>DS(ON)</sub>	I <sub>D</sub>
30V	±20V	7mΩ@10V	48A
		9mΩ@4.5V	

#### ➤ Description

This device uses advanced trench technology to provide excellent RDSON and low gate charge. This device is suitable for use as a load switch or in PWM applications.

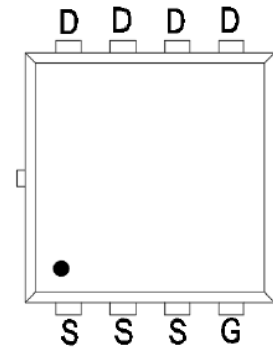
#### ➤ Applications

- Load Switch
- NB/PC
- DCDC conversion

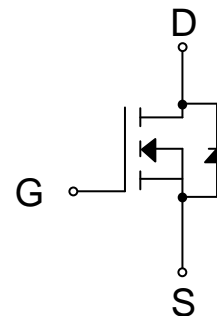
#### ➤ Ordering Information

Device	Package	Shipping
SSC8030GN4	PDFN3.3X3.3-8L	5000/Reel

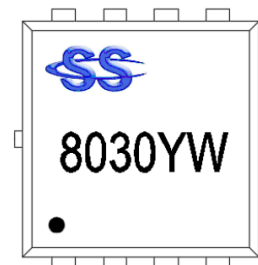
#### ➤ Pin Configuration



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



**Pin Configuration**



**Marking**

(YW: 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	$\pm 20$	V
$I_D$	Continuous Drain Current <sup>d</sup>	$T_C=25^{\circ}\text{C}$	48
		$T_C=100^{\circ}\text{C}$	27
$I_{DSM}$	Continuous Drain Current <sup>a</sup>	$T_A=25^{\circ}\text{C}$	15.6
		$T_A=70^{\circ}\text{C}$	11.5
$I_{DM}$	Pulsed Drain Current <sup>b</sup>	190	A
$P_D$	Power Dissipation <sup>c</sup>	$T_C=25^{\circ}\text{C}$	26
		$T_C=100^{\circ}\text{C}$	10.6
$P_{DSM}$	Power Dissipation <sup>a</sup>	$T_A=25^{\circ}\text{C}$	2.7
		$T_A=70^{\circ}\text{C}$	1.7
$I_{AS}$	Avalanche Current <sup>b</sup> $L=0.5\text{mH}$ Single Pulse	17	A
$E_{AS}$	Avalanche Energy <sup>b</sup> $L=0.5\text{mH}$ Single Pulse	72	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>	46	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	4.7	

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.

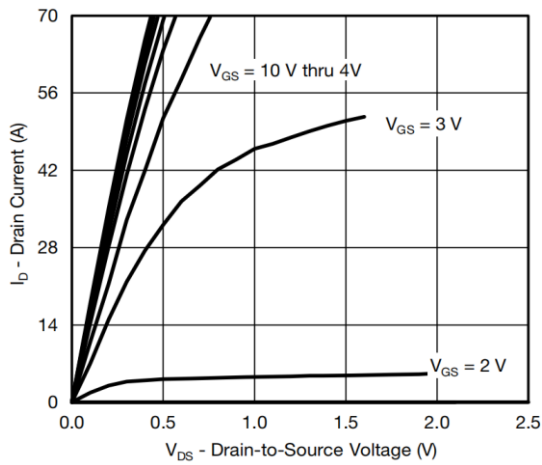


➤ **Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

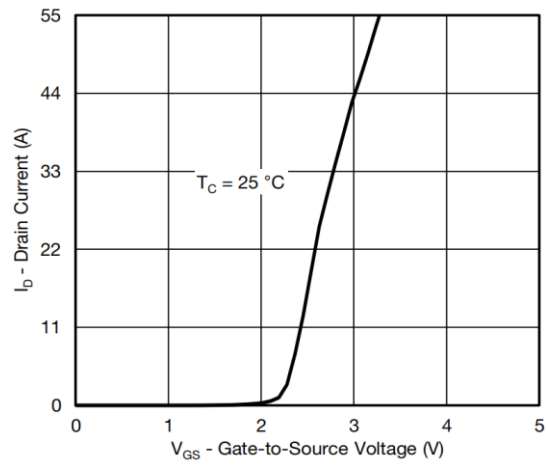
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250uA	1	1.5	3	V
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 15A		7	9.5	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 10A		9	12.5	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V			1	μA
Gate-Source Leak Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±100	nA
Transconductance	G <sub>FS</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 15A		20		s
Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 1A		0.8	1.3	V
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz		986		pF
Output Capacitance	C <sub>OSS</sub>			133		
Reverse Transfer Capacitance	C <sub>RSS</sub>			111		
Total Gate Charge	Q <sub>G</sub>	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 13A		18		nC
Gate to Source Charge	Q <sub>GS</sub>			2		
Gate to Drain Charge	Q <sub>GD</sub>			3		
Turn-on Delay Time	T <sub>D(ON)</sub>	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 15V, R <sub>L</sub> = 0.75Ω, R <sub>G</sub> = 3Ω		7		ns
Rise Time	T <sub>r</sub>			5		
Turn-off Delay Time	T <sub>D(OFF)</sub>			24		
Fall Time	T <sub>f</sub>			6		
Diode Recovery Time	T <sub>rr</sub>	I <sub>F</sub> =20A, di/dt=100A/us		10		ns
Diode Recovery Charge	Q <sub>rr</sub>	I <sub>F</sub> =20A, di/dt=100A/us		14		nC



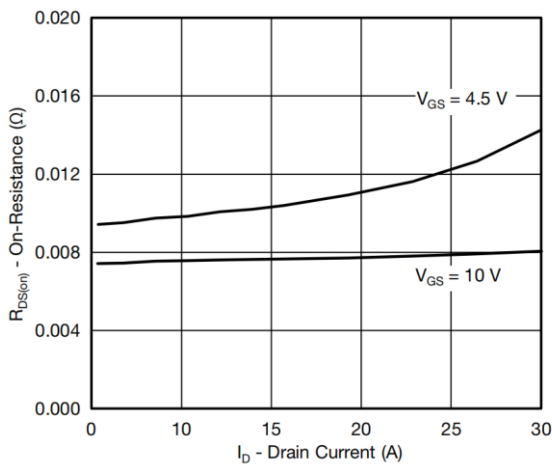
➤ **Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise noted)**



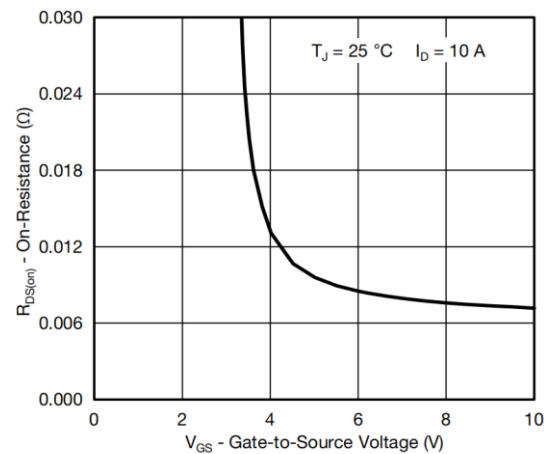
**Output Characteristics**



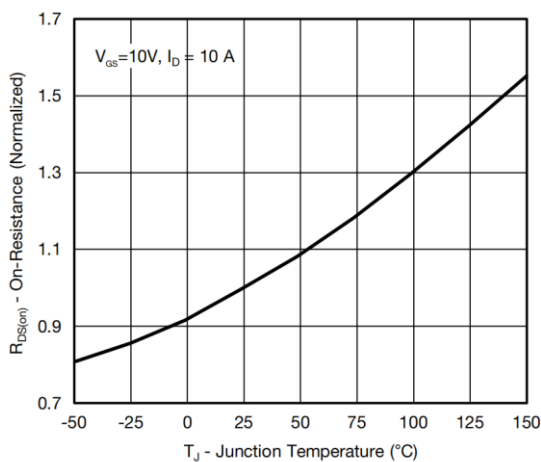
**Transfer Characteristics**



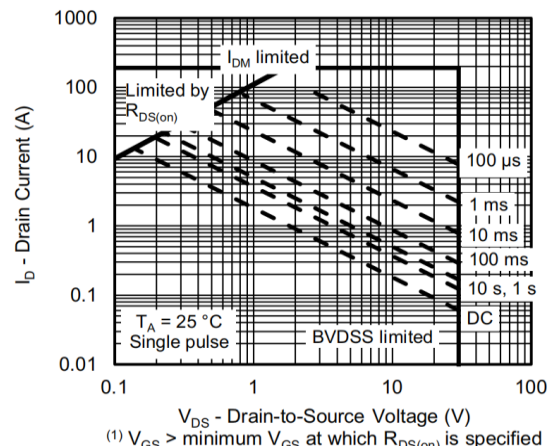
**On-Resistance vs. Drain Current and Gate Voltage**



**On-Resistance vs. Gate-to-Source Voltage**

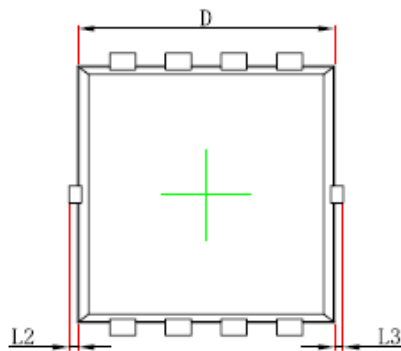


**On-Resistance vs. Junction Temperature**

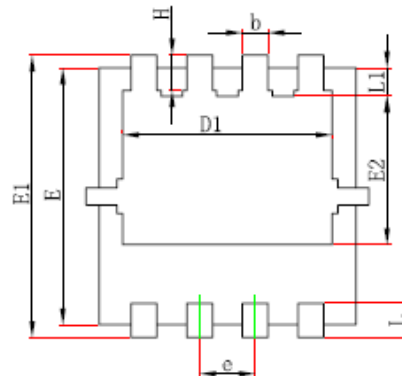


**Safe Operating Area, Junction-to-Ambient**

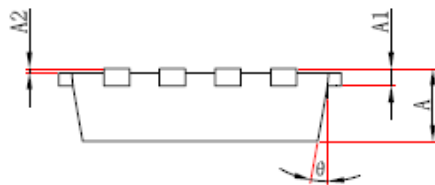
## ➤ Package Information



Top View  
[顶视图]



Bottom View  
[背视图]

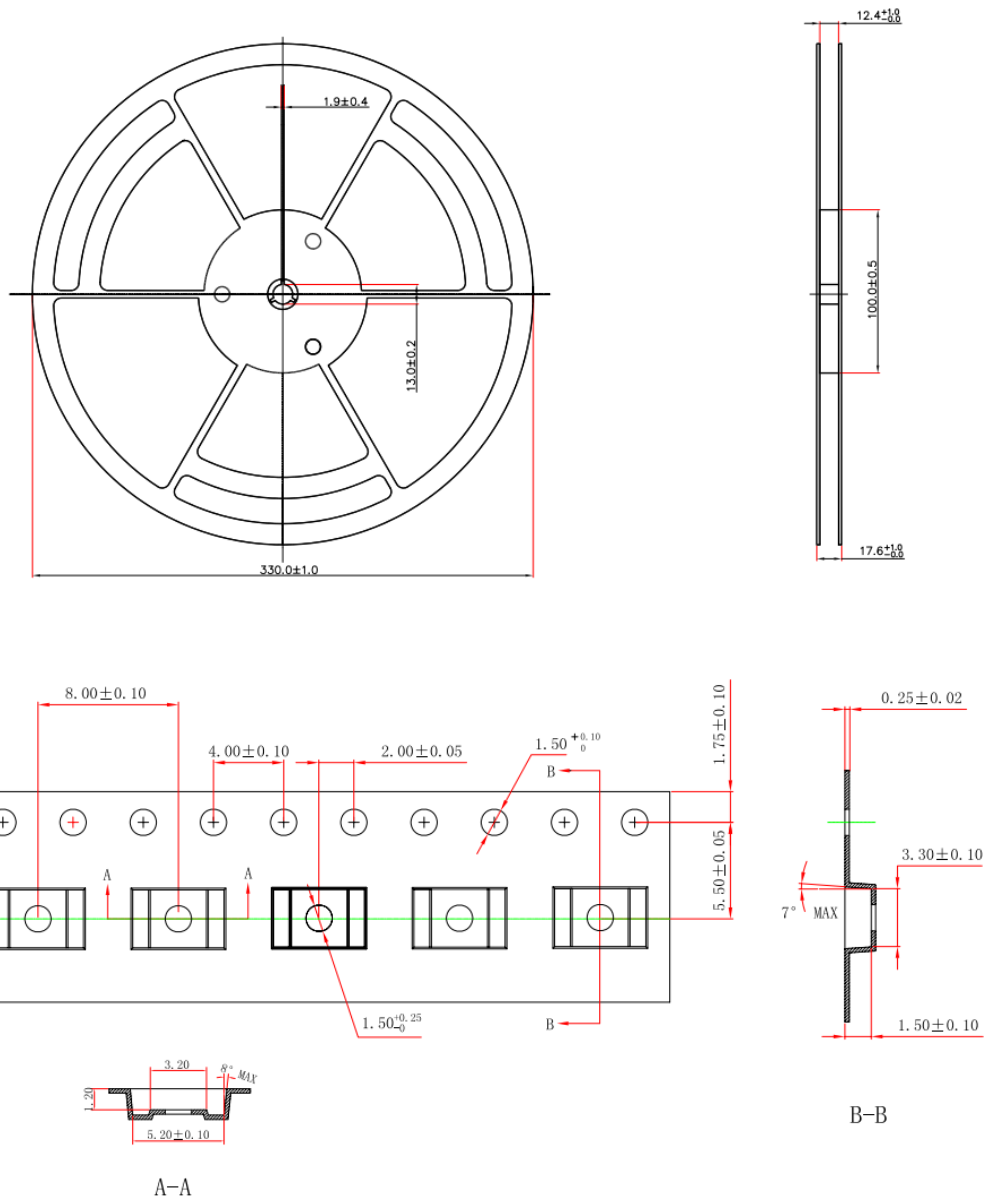


Side View  
[侧视图]

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





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