



## SSC8041GN4

### P-Channel Enhancement Mode MOSFET

#### ➤ Features

$V_{DS}$	$V_{GS}$	$R_{DS(ON)}$	$I_D$
-40V	$\pm 20V$	9m $\Omega$ @-10V	-36A
		16m $\Omega$ @-4.5V	

#### ➤ Description

This SSC8041GN4 uses advanced trench technology to provide excellent RDSON 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 +  $\Delta V_{DS}$  +  $R_g$  Tested!**

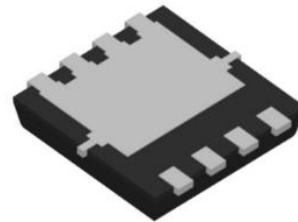
#### ➤ Applications

- Load Switch
- PWM Application
- Power Management

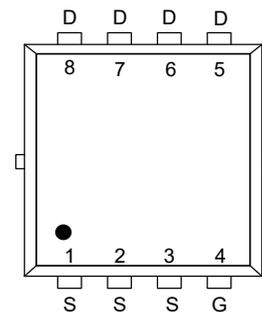
#### ➤ Ordering Information

Device	Package	Shipping
SSC8041GN4	PDFN3.3X3.3-8L	5000/Reel

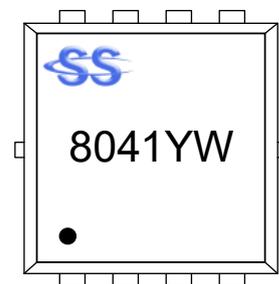
#### ➤ Pin configuration



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



**Pin Configuration (Top View)**



#### **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	-40	V
$V_{GSS}$	Gate-to-Source Voltage	$\pm 20$	V
$I_D$	Continuous Drain Current <sup>d</sup>	$T_C=25^\circ\text{C}$	-36
		$T_C=100^\circ\text{C}$	-20.4
$I_{DSM}$	Continuous Drain Current <sup>a</sup>	$T_A=25^\circ\text{C}$	-14
		$T_A=70^\circ\text{C}$	-10.7
$I_{DM}$	Pulsed Drain Current <sup>b</sup>	-144	A
$P_D$	Power Dissipation <sup>c</sup>	$T_C=25^\circ\text{C}$	21
		$T_C=100^\circ\text{C}$	8.3
$P_{DSM}$	Power Dissipation <sup>a</sup>	$T_A=25^\circ\text{C}$	3.13
		$T_A=70^\circ\text{C}$	2
$I_{AS}$	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	72.3	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	Ratings	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance <sup>a</sup>	40	°C/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	6	

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  $T_{J(\text{MAX})}=150^\circ\text{C}$ , 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.

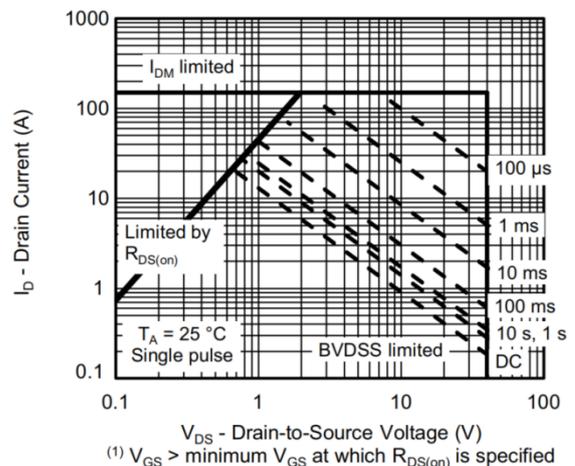
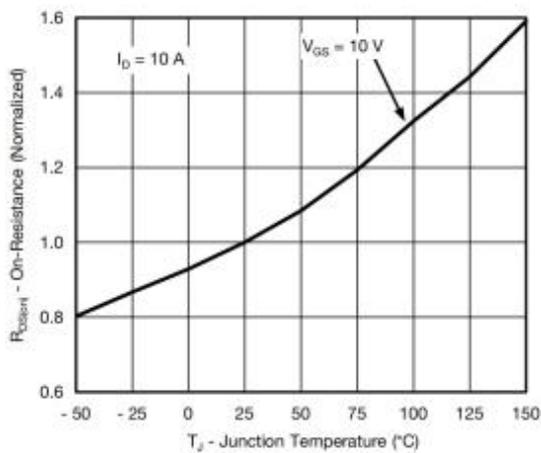
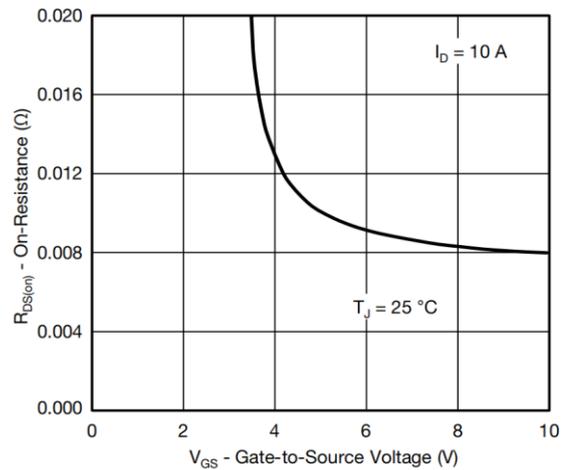
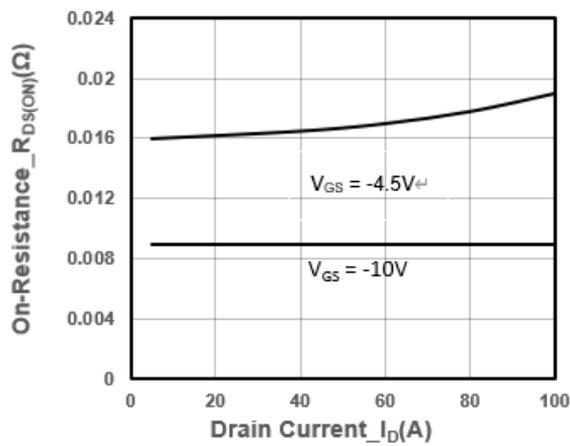
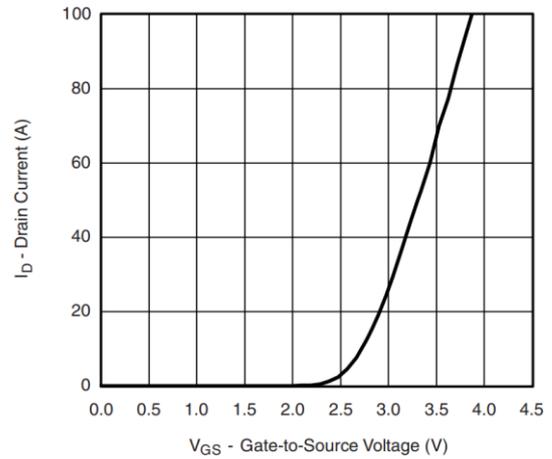
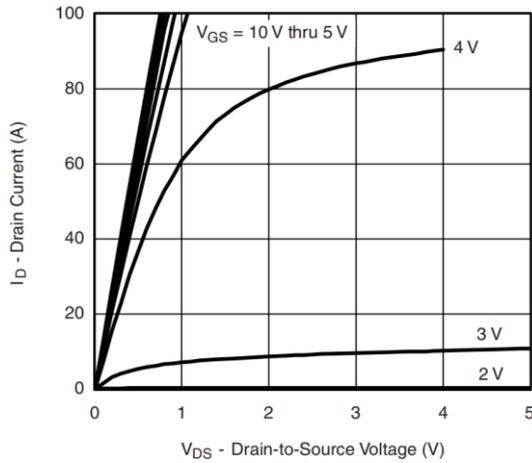


➤ **Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

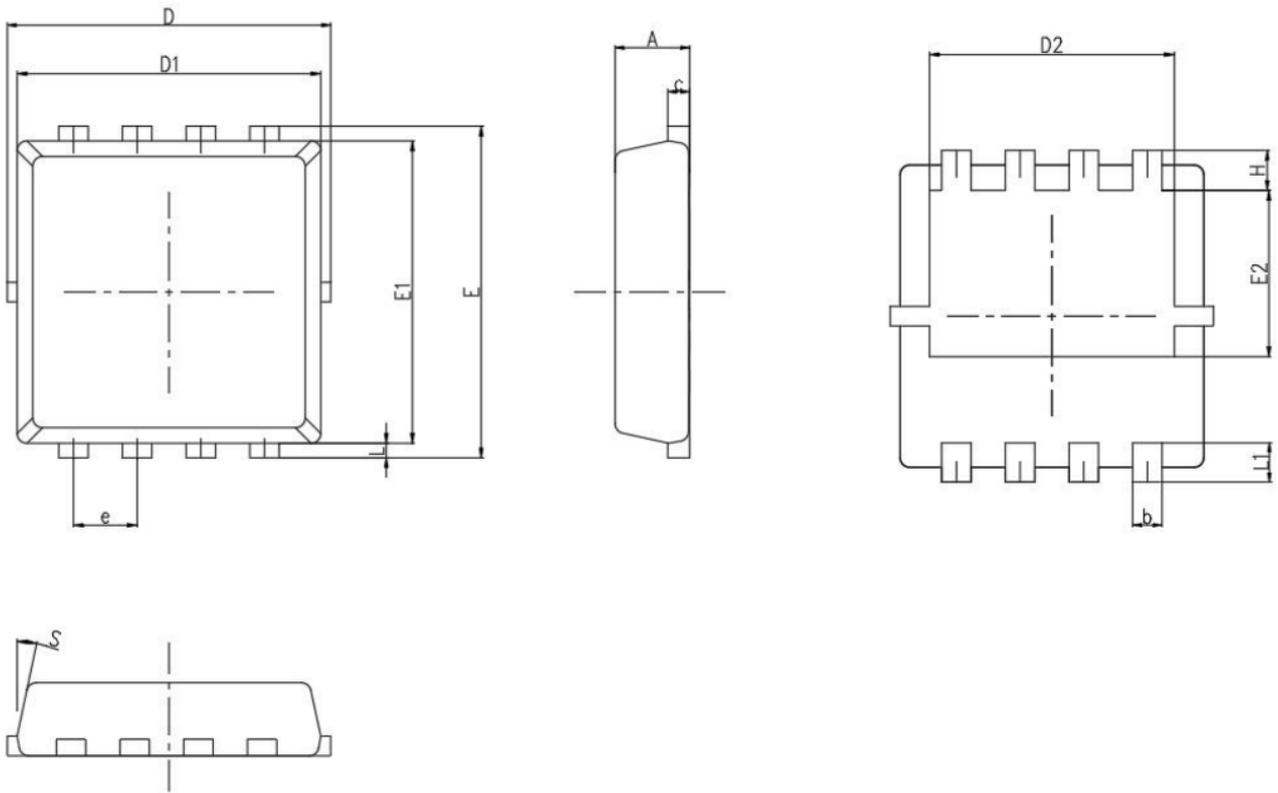
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-40			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250uA	-1.2	-2.1	-2.5	V
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -20A		9	12	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -10A		16	23	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -40V, 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> = -15V, I <sub>D</sub> = -12A		40		s
Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = -5A			-1.4	V
Gate Resistance	R <sub>G</sub>	V <sub>DS</sub> = 0V, f = 1MHz		4		Ω
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V, f = 1MHz		2500		pF
Output Capacitance	C <sub>OSS</sub>			250		
Reverse Transfer Capacitance	C <sub>RSS</sub>			230		
Total Gate Charge	Q <sub>G</sub>	V <sub>GS</sub> = -10V, V <sub>DS</sub> = -20V, I <sub>D</sub> = -15A		18		nC
Gate to Source Charge	Q <sub>GS</sub>			5		
Gate to Drain Charge	Q <sub>GD</sub>			6		
Turn-on Delay Time	T <sub>D(ON)</sub>	V <sub>GS</sub> = -10V, V <sub>DS</sub> = -10V, R <sub>L</sub> = 10Ω, R <sub>G</sub> = 1Ω,		12		ns
Rise Time	T <sub>r</sub>			12		
Turn-off Delay Time	T <sub>D(OFF)</sub>			23		
Fall Time	T <sub>f</sub>			9		
Diode Recovery Time	T <sub>rr</sub>	I <sub>F</sub> =-20A, di/dt=500A/us		20		ns
Diode Recovery Charge	Q <sub>rr</sub>	I <sub>F</sub> =-20A, di/dt=500A/us		18		nC



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



## ➤ 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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