SSC8039GN4

P-Channel Enhancement Mode MOSFET

➢ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$	I_D
-30V	±20V	12mΩ@-10V	-27A
		15mΩ@-4V5	

➢ Description

This SSC8039GN4 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 + ΔVDS + Rg Tested!

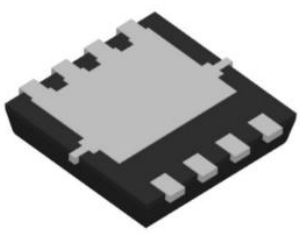
➢ Applications

- Load Switch
- PWM Application
- Power Management

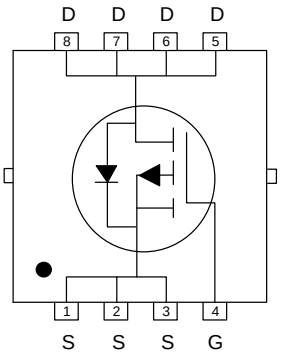
➢ Ordering Information

Device	Package	Shipping
SSC8039GN4	PDFN3.3X3.3-8L	5000/Reel

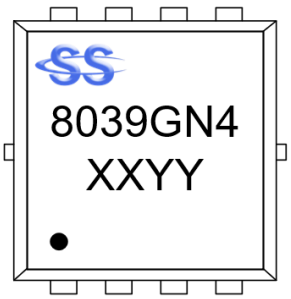
➢ Pin configuration



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



Pin Configuration (Top View)



Marking

(XXYY: Internal Traceability Code)

➢ Absolute Maximum Ratings (T_A=25℃ 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℃	-27	A
		T_C=100℃	-16	
I_{DSM}	Continuous Drain Current [a]	T_A=25℃	-10.5	A
		T_A=70℃	-8.3	
I_{DM}	Pulsed Drain Current [b]		-79	A
P_D	Power Dissipation [c]	T_C=25℃	25	W
		T_C=100℃	9.5	
P_{DSM}	Power Dissipation [a]	T_A=25℃	3.3	W
		T_A=70℃	2.2	
E_{AS}	Avalanche Energy [b] L=0.5mH Single Pulse		29	mJ
T_J	Operation junction temperature		-55~150	℃
T_{STG}	Storage temperature range		-55~150	

➢ Thermal Resistance Ratings (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]	40	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	6	

Note:

a. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2oz.copper, in a still air environment with T_A=25℃.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.

b. Repetitive rating, pulse width limited by junction temperature.

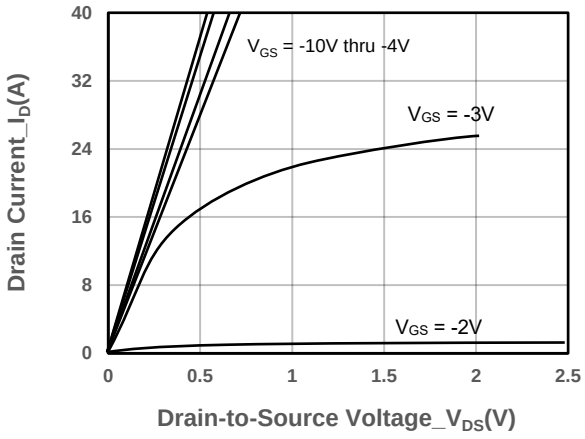
c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

d. The maximum current rating is package limited.

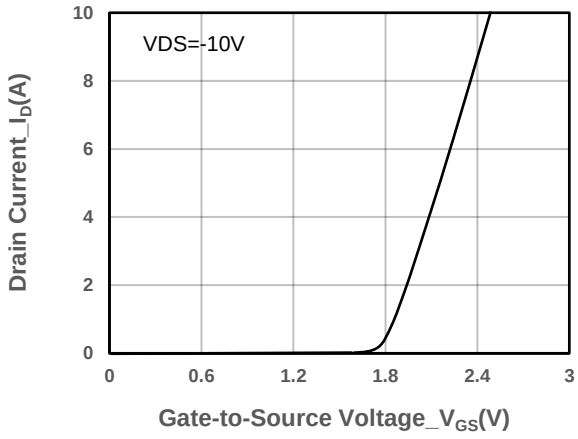
➢ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250uA	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250uA	-1	-1.3	-3	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -10A		12	16	mΩ
		V_{GS} = -4.5V, I_D = -7A		15	20	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -30V, V_{GS} = 0V			-1	uA
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
Transconductance	G_{FS}	V_{DS} = -5V, I_D = -10A		18		s
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = -1A		-0.75	-1.6	V
Gate Resistance	R_G	V_{DS} = 0V, f = 1MHz		6.5		Ω
Input Capacitance	C_{ISS}	V_{DS} = -20V, V_{GS} = 0V, f = 1MHz		2000		pF
Output Capacitance	C_{OSS}			550		
Reverse Transfer Capacitance	C_{RSS}			800		
Total Gate Charge	Q_G	V_{GS} = -4.5V, V_{DS} = -15V, I_D = -7A		15		nC
Gate to Source Charge	Q_{GS}			4.2		
Gate to Drain Charge	Q_{GD}			2.8		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = -10V, V_{DS} = -15V, R_L = 1.5Ω, R_G = 3Ω		8.5		ns
Rise Time	T_r			6		
Turn-off Delay Time	$T_{D(OFF)}$			39		
Fall Time	T_f			15		
Diode Recovery Time	T_{rr}	I_F=-10A, di/dt=-100A/us		16		ns
Diode Recovery Charge	Q_{rr}	I_F=-10A, di/dt=-100A/us		7		nC

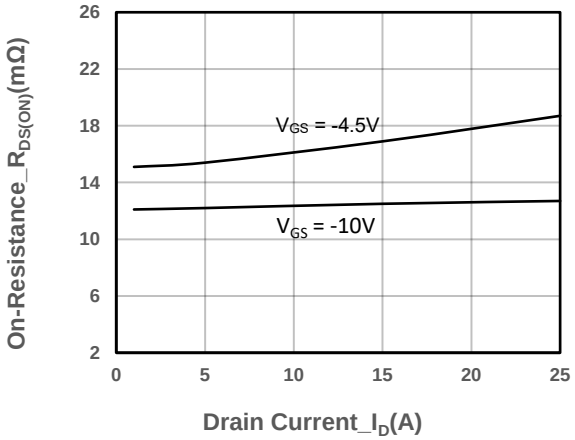
➢ Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



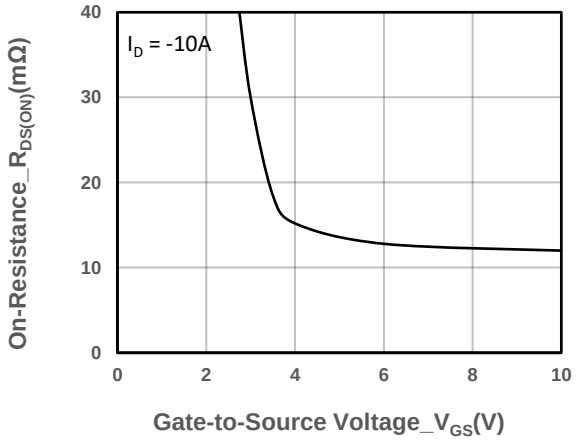
Output Characteristics



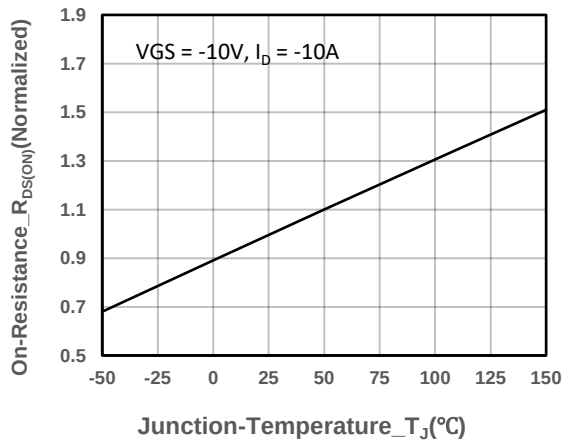
Transfer Characteristics



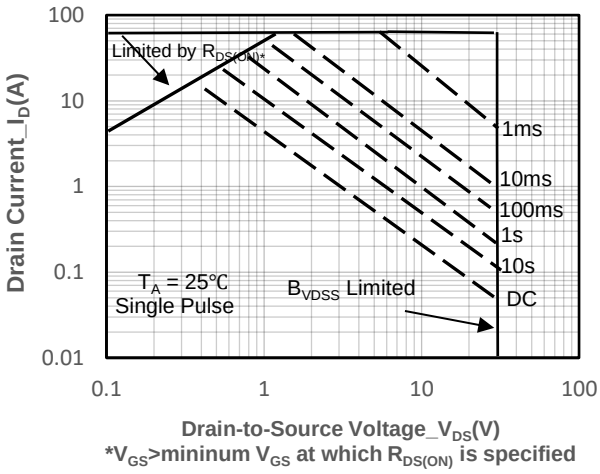
On-Resistance vs. Drain Current and Gate Voltag



On-Resistance vs. Gate-to-Source Voltage

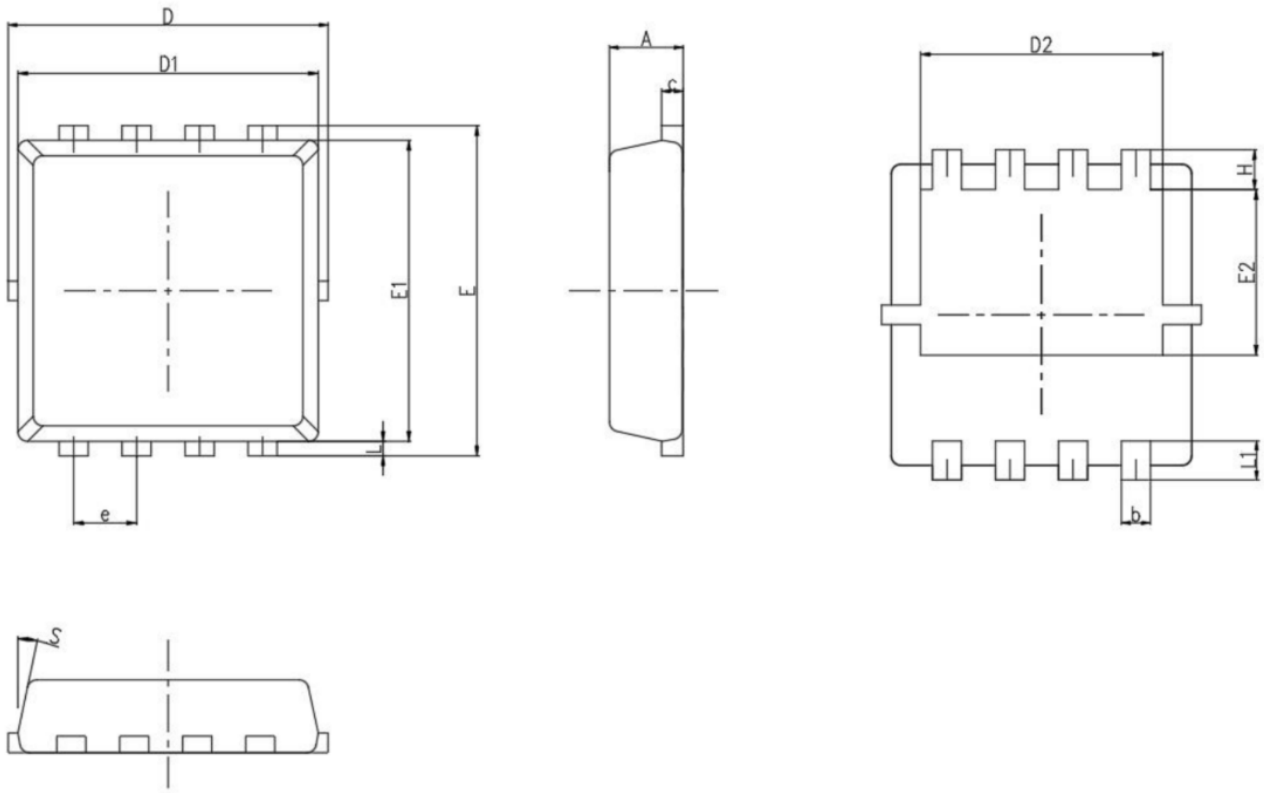


On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

➢ 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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