



SSC8038GN4

N-Channel Enhancement Mode MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
30V	$\pm 20V$	7.5m Ω @10V	32A
		10.5m Ω @4.5V	

➤ Description

N-Channel enhancement mode MOSFET. Uses trench Technology and design to provide excellent RDS(ON) with low gate charge. This device is suitable for use in DC - DC conversion, power switch and charging circuit.

100% UIS + ΔV_{DS} + R_g Tested!

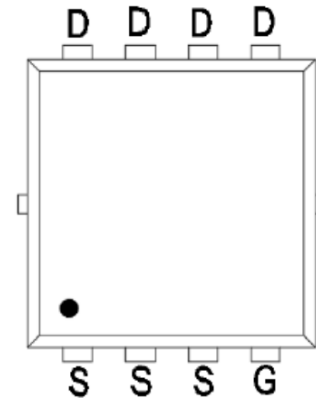
➤ Applications

- Inverter
- DC-DC Converter
- Half and Full Bridge Topology
- Motor Drive Control

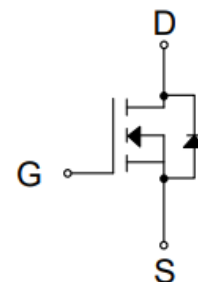
➤ Ordering Information

Device	Package	Shipping
SSC8038GN4	PDFN3.3X3.3-8L	5000/Reel

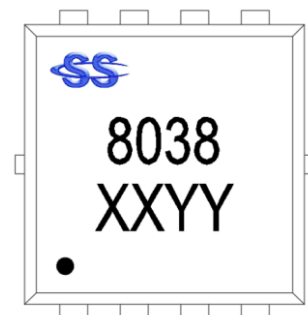
➤ Pin configuration



PDFN3.3x3.3-8L (Top View)



Pin Configuration



Marking

(XYY: 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		± 20	V
I_D	Continuous Drain Current ^d	$T_C = 25^{\circ}\text{C}$	32	A
		$T_C = 100^{\circ}\text{C}$	21	A
I_{DM}	Pulsed Drain Current ^b		120	A
I_{DSM}	Continuous Drain Current ^a	$T_A = 25^{\circ}\text{C}$	20	A
		$T_A = 70^{\circ}\text{C}$	13	A
P_D	Power Dissipation ^c	$T_C = 25^{\circ}\text{C}$	17.5	W
		$T_C = 100^{\circ}\text{C}$	7	W
P_{DSM}	Power Dissipation ^a	$T_A = 25^{\circ}\text{C}$	3.3	W
		$T_A = 70^{\circ}\text{C}$	2.1	W
I_{AS}	Avalanche Current ^b $L = 0.5\text{mH}$		14	A
E_{AS}	Avalanche Energy ^b $L = 0.5\text{mH}$		49	mJ
T_J	Operation junction temperature		-55 to 150	$^{\circ}\text{C}$
T_{STG}	Storage temperature range		-55 to 150	$^{\circ}\text{C}$

➤ Thermal Resistance Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Ratings	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance ^a	38	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	7	

Note:

- The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² 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's specific board design. The current rating 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.

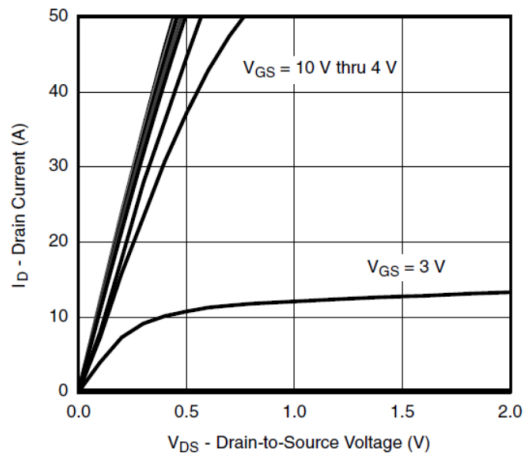


➤ **Electrical Characteristics (T_A=25°C unless otherwise noted)**

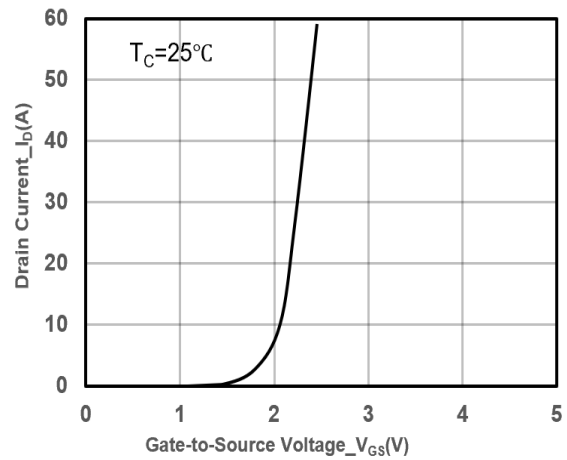
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250uA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1.1	1.3	2.2	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 15A		7.5	10.5	mΩ
		V _{GS} = 4.5V, I _D = 10A		10.5	15	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			1	μA
Gate-Source Leak Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			± 100	nA
Transconductance	G _{FS}	V _{DS} =15V ,I _D =12A		32		S
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S =5A		0.8	1.3	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		4		Ω
Input Capacitance	C _{ISS}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz		898		pF
Output Capacitance	C _{OSS}			165		
Reverse Transfer Capacitance	C _{RSS}			149		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 15V, I _D = 15A		18		nC
Gate to Source Charge	Q _{GS}			2.9		
Gate to Drain Charge	Q _{GD}			2.4		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 10V, V _{DS} = 10V, R _G = 1Ω		10		ns
Rise Time	T _r			10		
Turn-off Delay Time	T _{D(OFF)}			22		
Fall Time	T _f			8		
Diode Recovery Time	T _{rr}	IF=10A, di/dt=100A/us		22		ns
Diode Recovery Charge	Q _{rr}	IF=10A, di/dt=100A/us		15		nC



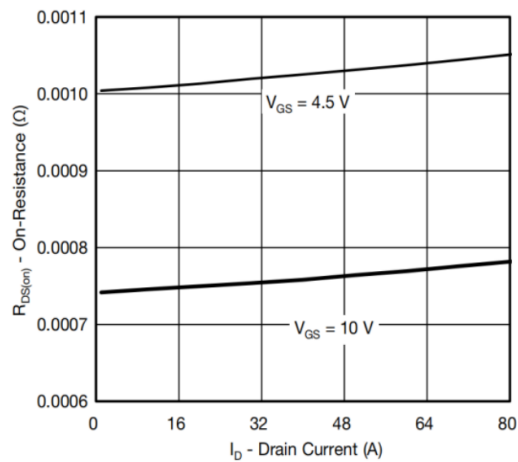
➤ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



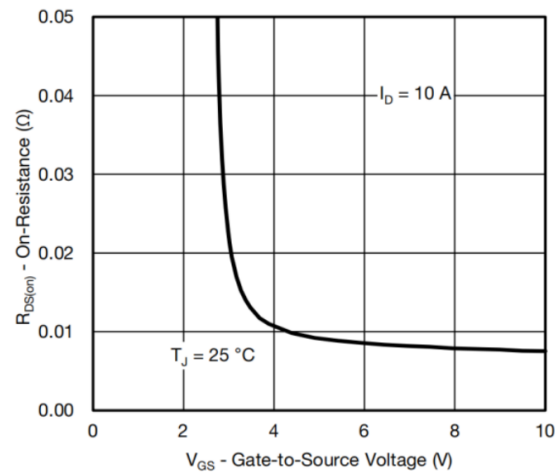
Output Characteristics



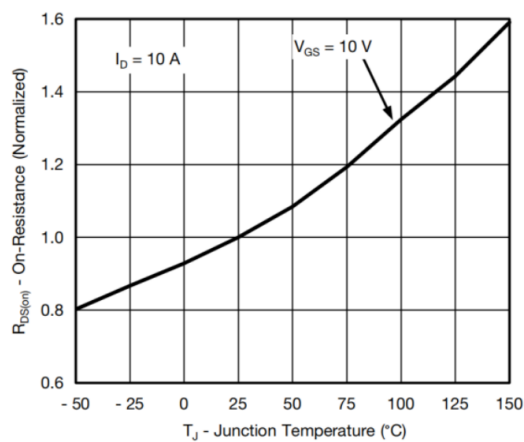
Transfer Characteristics



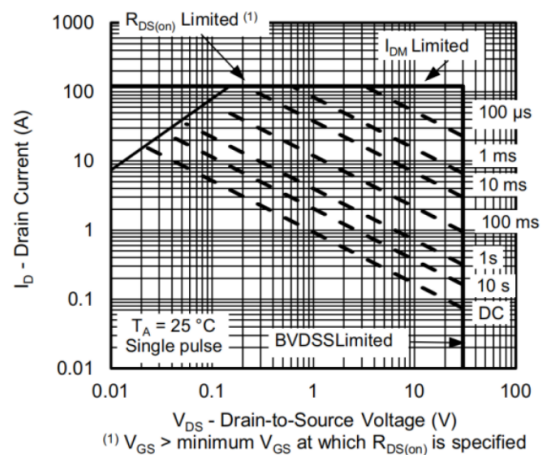
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage

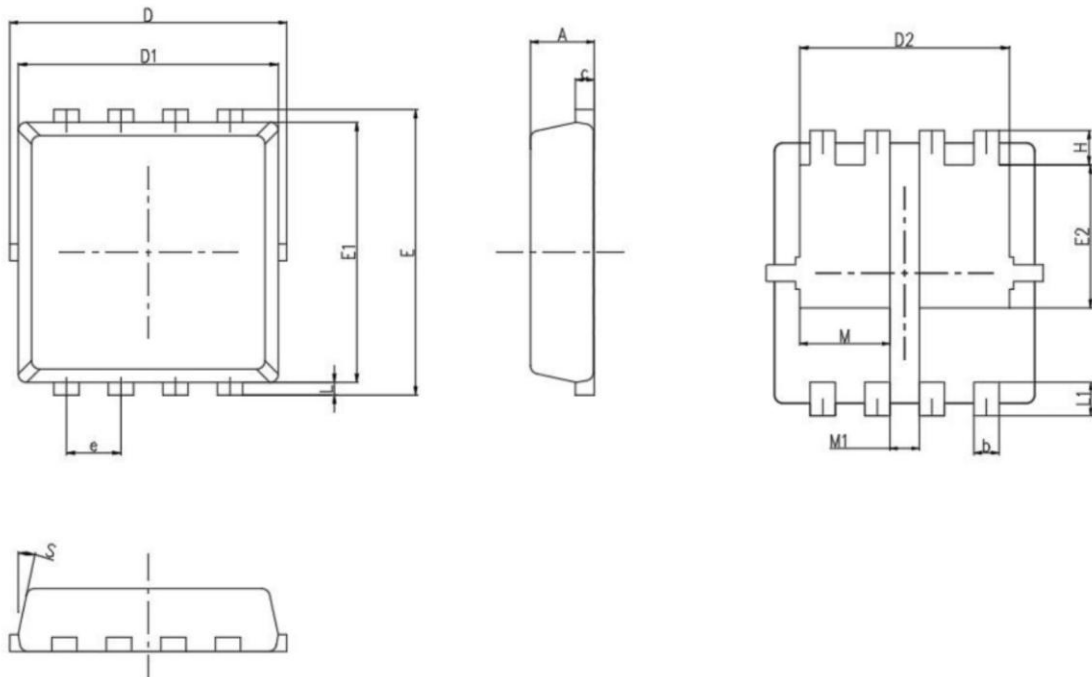


On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

➤ Package Information



Symbol	MILL IMETER		
	Min	Nom	Max
A	0.60	0.75	0.90
b	0.25	0.30	0.35
c	0.10	0.20	0.30
D	3.00	3.20	3.45
D1	3.05	3.15	3.25
D2	2.40	2.50	2.60
E	3.10	3.30	3.50
E1	2.90	3.05	3.20
E2	1.55	1.75	1.95
e	0.65BSC		
H	0.20	0.40	0.57
L	0.06	0.10	0.20
L1	0.30	0.40	0.55
S	10°	12°	14°
M	0.95	1.05	1.15
M1	0.4BSC		



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