



SSC8219GN4

P-Channel Enhancement Mode MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
-16V	$\pm 12V$	7.8m Ω @-4.5V	-45A
		10.2m Ω @-2.5V	

➤ Description

The SSC8219GN4 is P-Channel enhancement mode MOSFET. Uses 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.

100% UIS + ΔV_{DS} + R_g Tested!

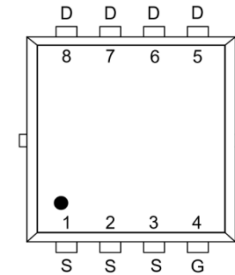
➤ Applications

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

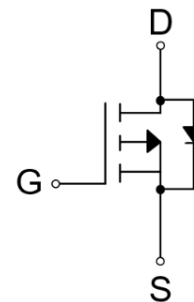
➤ Ordering Information

Device	Package	Shipping
SSC8219GN4	PDFN3.3X3.3-8L	5000/Reel

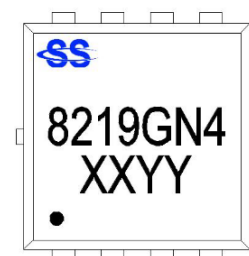
➤ Pin configuration



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



Pin Configuration



Marking

(XXYY: Internal Traceability Code)

**➤ Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)**

Symbol	Parameter		Ratings	Unit
V_{DS}	Drain-to-Source Voltage		-16	V
V_{GS}	Gate-to-Source Voltage		± 12	V
I_D	Continuous Drain Current ^b	$T_C = 25^{\circ}\text{C}$	-45	A
		$T_C = 100^{\circ}\text{C}$	-24	A
I_{DM}	Pulsed Drain Current ^b		-178	A
I_{DSM}	Continuous Drain Current ^a	$T_A = 25^{\circ}\text{C}$	-16	A
		$T_A = 70^{\circ}\text{C}$	-11.4	A
P_D	Power Dissipation ^c	$T_C = 25^{\circ}\text{C}$	25	W
		$T_C = 100^{\circ}\text{C}$	10	W
P_{DSM}	Power Dissipation ^a	$T_A = 25^{\circ}\text{C}$	3.2	W
		$T_A = 70^{\circ}\text{C}$	2	W
I_{AS}	Avalanche Current ^b $L = 0.5\text{mH}$		-19	A
E_{AS}	Avalanche Energy ^b $L = 0.5\text{mH}$		90	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	40	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	3.7	

Note:

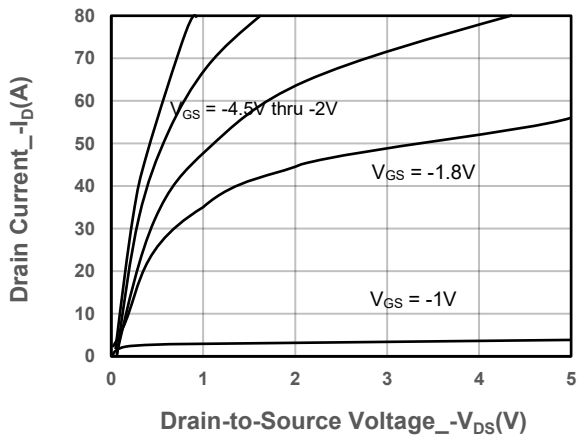
- The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user's specific board design. The current rating is based on the $t \leq 10\text{s}$ thermal 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)**

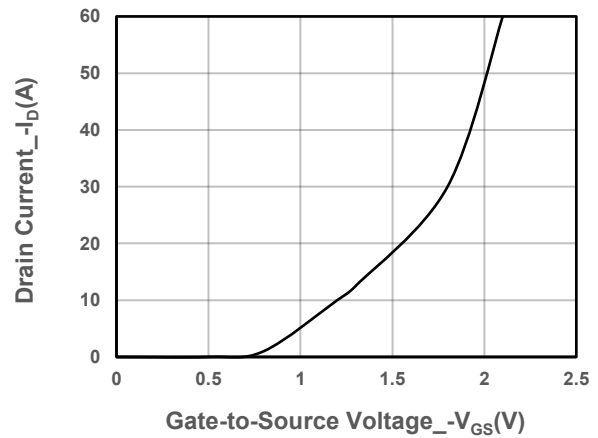
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-16			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.6	-1	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -4.1A		7.8	10.5	mΩ
		V _{GS} = -2.5V, I _D = -3A		10.2	14	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA
Gate-Source Leak Current	I _{GSS}	V _{GS} = ±12V, V _{DS} = 0V			±100	nA
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = -3A			-1.2	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		2.5		Ω
Input Capacitance	C _{ISS}	V _{DS} = -8V, V _{GS} = 0V, f = 1MHz		2053		pF
Output Capacitance	C _{OSS}			385		
Reverse Transfer Capacitance	C _{RSS}			338		
Total Gate Charge	Q _G	V _{GS} = -4.5V, V _{DS} = -8V, I _D = -15A		38		nC
Gate to Source Charge	Q _{GS}			6		
Gate to Drain Charge	Q _{GD}			12		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = -10V, V _{DS} = -8V, I _D = -13A, R _G = 27Ω		10		ns
Rise Time	T _r			85		
Turn-off Delay Time	T _{D(OFF)}			112		
Fall Time	T _f			110		
Diode Recovery Time	T _{rr}	I _F = -20A, di/dt = -100A/μs		23		ns
Diode Recovery Charge	Q _{rr}	I _F = -20A, di/dt = -100A/μs		14		nC



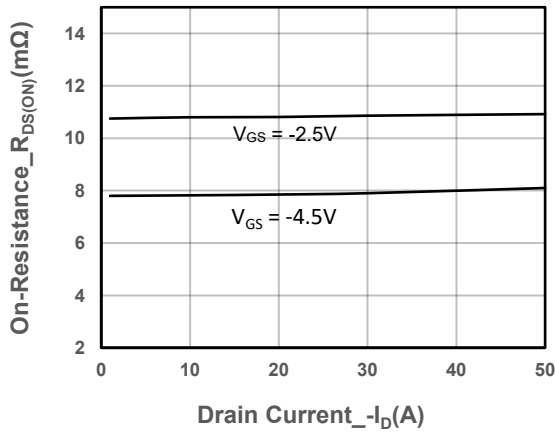
➤ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



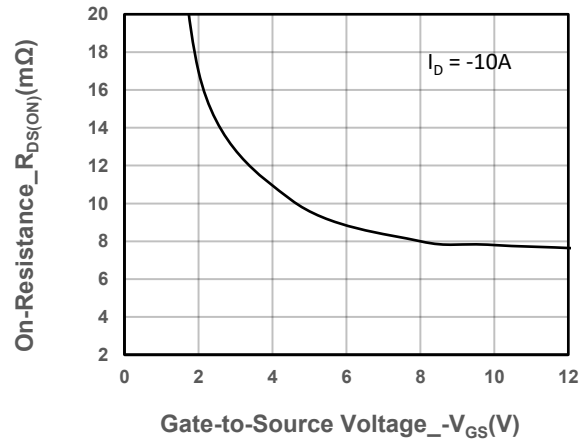
Output Characteristics



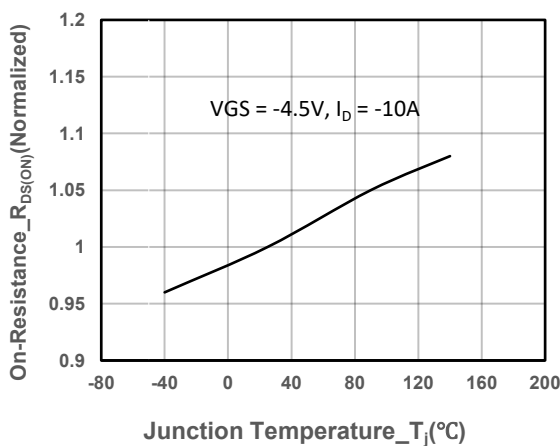
Transfer Characteristics



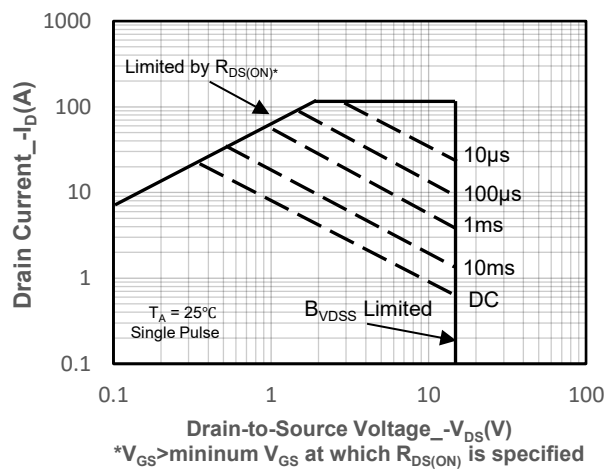
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage



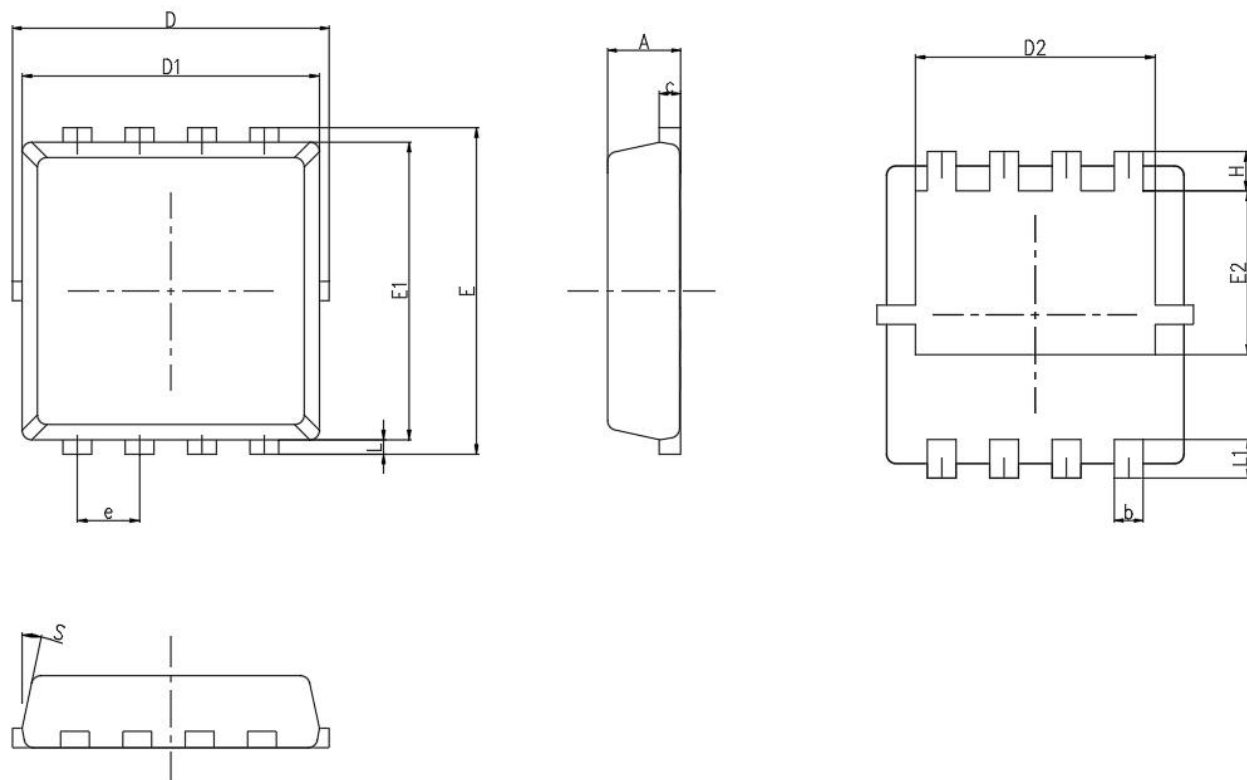
On-Resistance vs. Junction Temperature



Safe Operating Area 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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