



SSC8129GN4

P-Channel Enhancement Mode MOSFET

➤ Features

V _{DS}	V _{GS}	R _{DS(ON)}	I _D
-20V	±12V	8mΩ@-4V5	-42A
		13mΩ@-2V5	

➤ Description

This SSC8129GN4 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!

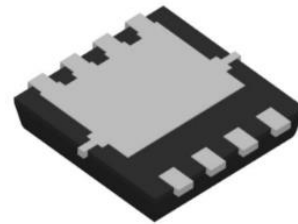
➤ Applications

- Load Switch
- PWM Application
- Power Management
- Electronic Cigarette

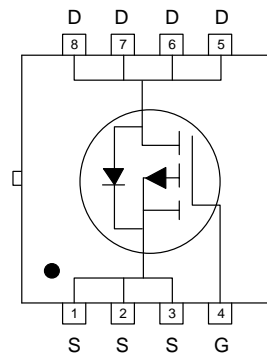
➤ Ordering Information

Device	Package	Shipping
SSC8129GN4	PDFN3.3X3.3-8L	5000/Reel

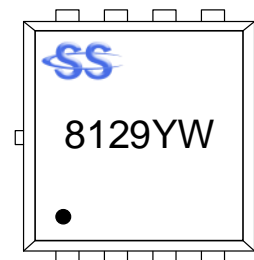
➤ Pin configuration



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	-20	V
V_{GSS}	Gate-to-Source Voltage	± 12	V
I_D	Continuous Drain Current ^d	$T_C=25^\circ\text{C}$	-42
		$T_C=100^\circ\text{C}$	-22
I_{DSM}	Continuous Drain Current ^a	$T_A=25^\circ\text{C}$	-16
		$T_A=70^\circ\text{C}$	-12.5
I_{DM}	Pulsed Drain Current ^b	-160	A
P_D	Power Dissipation ^c	$T_C=25^\circ\text{C}$	23
		$T_C=100^\circ\text{C}$	9
P_{DSM}	Power Dissipation ^a	$T_A=25^\circ\text{C}$	3.9
		$T_A=70^\circ\text{C}$	2.5
I_{AS}	Avalanche Current ^b $L=0.5\text{mH}$ Single Pulse	-14	A
E_{AS}	Avalanche Energy ^b $L=0.5\text{mH}$ Single Pulse	49	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	Maximum	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance ^a	33	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	5.4	

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 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.

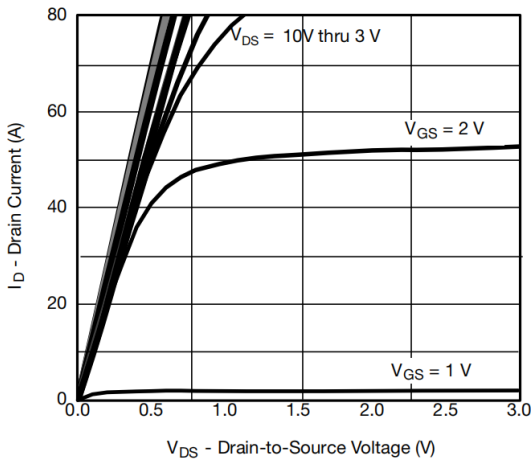


➤ **Electrical Characteristics (T_A=25°C unless otherwise noted)**

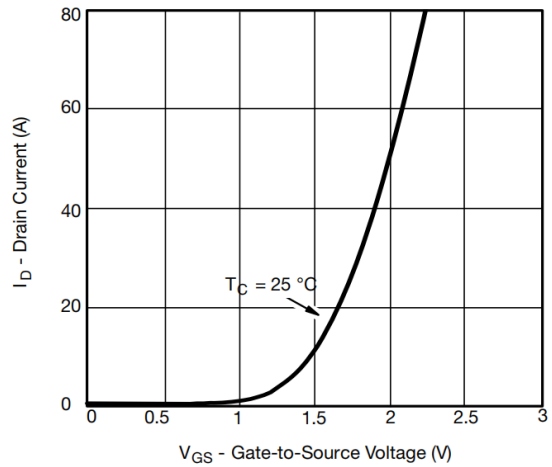
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250uA	-0.5	-0.75	-1	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -10A		8	12	mΩ
		V _{GS} = -2.5V, I _D = -7A		13	16	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			1	μA
Gate-Source Leak Current	I _{GSS}	V _{GS} = ±12V, 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 = -2.3A		-0.7	-1.3	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		9		Ω
Input Capacitance	C _{ISS}	V _{DS} = -15V, V _{GS} = 0V, f = 1MHz		3321		pF
Output Capacitance	C _{OSS}			365		
Reverse Transfer Capacitance	C _{RSS}			328		
Total Gate Charge	Q _G	V _{GS} = -4.5V, V _{DS} = -10V, I _D = -7A		16		nC
Gate to Source Charge	Q _{GS}			2.4		
Gate to Drain Charge	Q _{GD}			5.5		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = -4.5V, V _{DS} = -10V, R _L = 1.5Ω, R _G = 3Ω		17		ns
Rise Time	T _r			28		
Turn-off Delay Time	T _{D(OFF)}			72		
Fall Time	T _f			35		



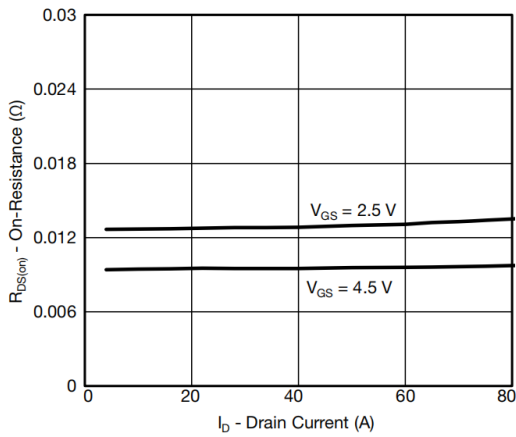
➤ **Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)**



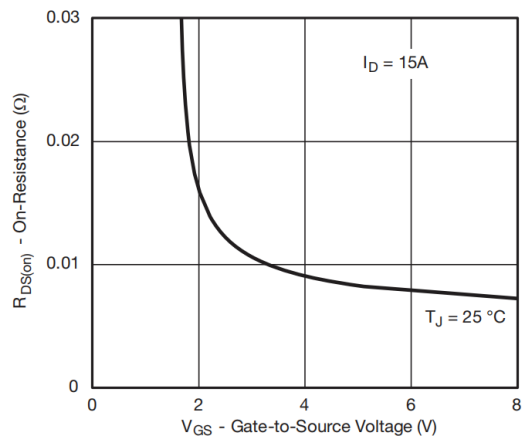
Output Characteristics



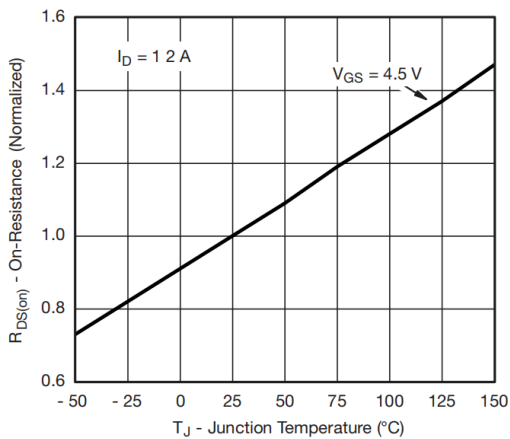
Transfer Characteristics



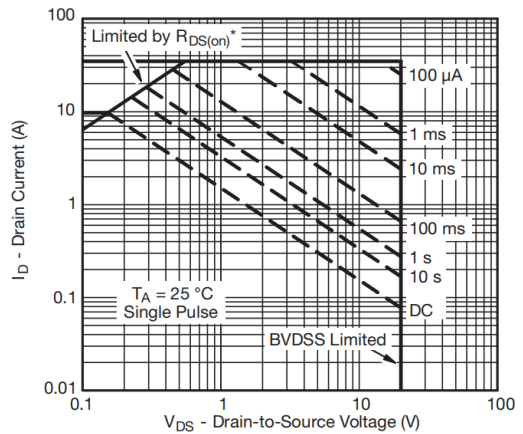
On-Resistance vs. Drain Current



On-Resistance vs. Gate-to-Source Voltage

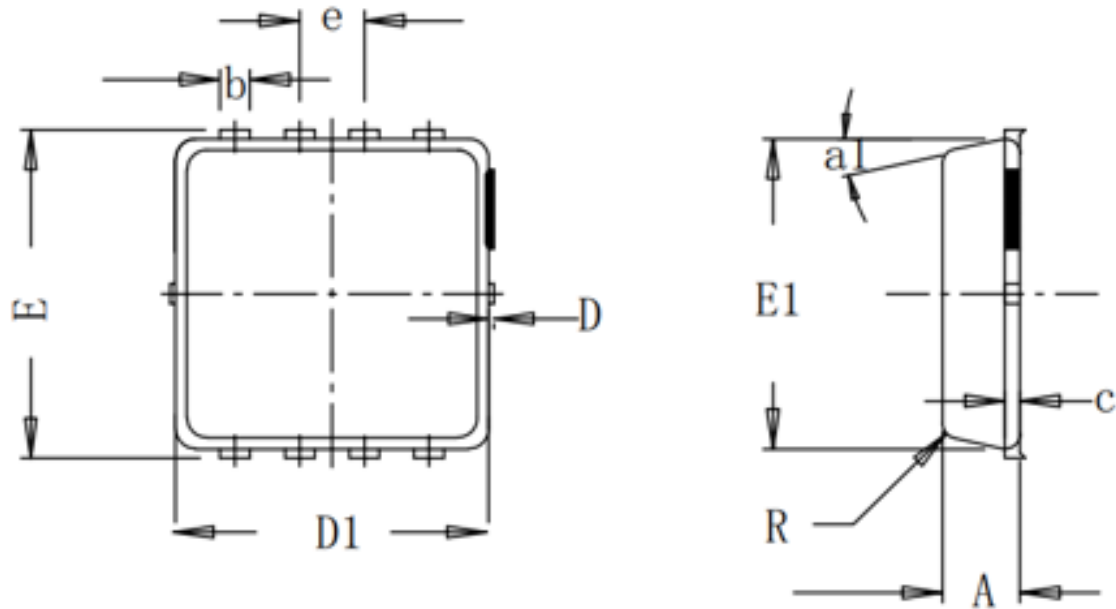


On-Resistance vs. Junction Temperature



Safe Operating Area, Junction-to-Ambient

➤ Package Information



Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	0.75	0.78	0.81
b	0.297	0.3	0.35
c	-	0.152	-
D	0	0.05	0.1
D1	3.12	3.15	3.18
D2	-	2.35	-
E	3.2	3.3	3.4
E1	3.09	3.12	3.15
E2	-	1.75	-
E3	-	0.575	-
E4	-	0.4	-
R	-	0.15	-
e	0.65BSC		
a1°	-	12°	-



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