



# SSC8129GQ4

## P-Channel Enhancement Mode MOSFET

### Features

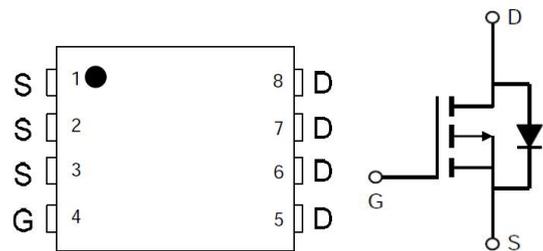
VDS	VGS	RDSon TYP	ID
-20V	±12V	9mR@-4V5V	-18A
		13mR@-2V5	

### Applications

- Load Switch
- DCDC conversion
- NB battery

### Pin configuration

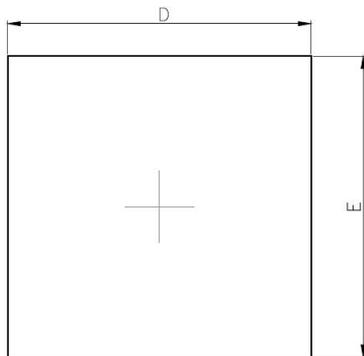
Top View



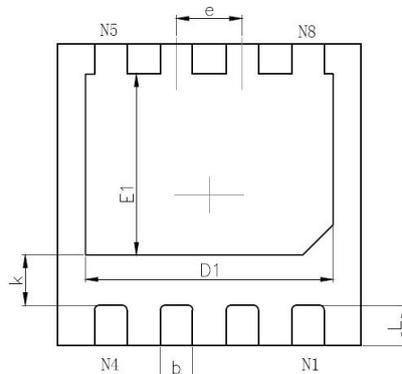
### General Description

This device is produced with high cell density, DMOS trench technology, which is especially used to minimize on-state resistance. This device is particularly suited for low voltage power management requiring a wide range of given voltage ratings (4.5V~25V) such as load switch and battery protection.

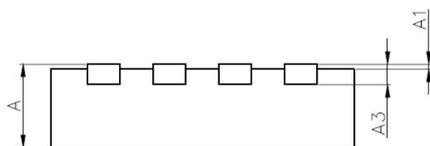
### Package Information



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions Millimeters	
	Min.	Max.
A	0.700/0.800	0.800/0.900
A1	0.000	0.050
A3	0.203REF	
D	2.924	3.076
E	2.924	3.076
D1	2.350	2.550
E1	1.700	1.900
k	0.450	0.550
b	0.270	0.370
e	0.650TYP	
L	0.324	0.476

Package: DFN3X3



# SSC8129GQ4

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DSS}$	-20	V
Gate-Source Voltage	$V_{GSS}$	$\pm 12$	V
Drain Current (Note 1)	Continuous $T_A=25^\circ\text{C}$	-18	A
	Pulsed (Note 2)	-90	A
Total Power Dissipation (Note 1)	$P_D$	3	W
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

● **Electrical Characteristics** @ $T_A = 25^\circ\text{C}$  unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = -250\mu\text{A}$	-20	--	--	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -16\text{ V}, V_{GS} = 0\text{ V}$	--	--	-1	$\mu\text{A}$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS} = \pm 12\text{ V}, V_{DS} = 0\text{ V}$	--	--	$\pm 100$	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	-0.5	-0.7	-1	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = -4.5\text{ V}, I_D = -10\text{ A}$	--	9	12	mR
		$V_{GS} = -2.5\text{ V}, I_D = -7\text{ A}$	--	13	16	
Forward Transconductance	$G_{FS}$	$V_{DS} = -5\text{ V}, I_D = -10\text{ A}$	--	18	--	S
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{ISS}$	$V_{DS} = -15\text{ V}, V_{GS} = 0\text{ V},$ $f = 1\text{ MHz}$	--	1020	--	pF
Output Capacitance	$C_{OSS}$		--	110	--	
Reverse Transfer Capacitance	$C_{RSS}$		--	90	--	
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	$T_{D(ON)}$	$V_{GS} = -10\text{ V}, V_{DS} = -15\text{ V},$ $RL = 1.5\text{ R}, R_{GEN} = 3\text{ R}$	--	10.5	--	nS
Turn-Off Delay Time	$T_{D(OFF)}$		--	51	--	
<b>DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS</b>						
Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0\text{ V}, I_S = -2.3\text{ A}$	--	-0.7	-1.3	V

Note: 1. The value of  $P_D$  is measured with the device mounted on  $1\text{ in}^2$  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 DC thermal resistance rating.

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

● Typical Performance Characteristics

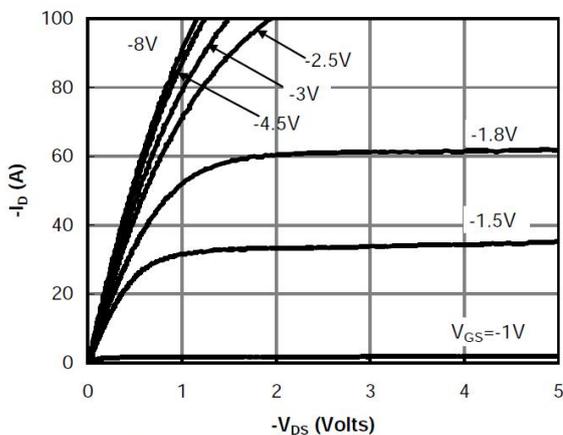


Fig 1: On-Region Characteristics (Note E)

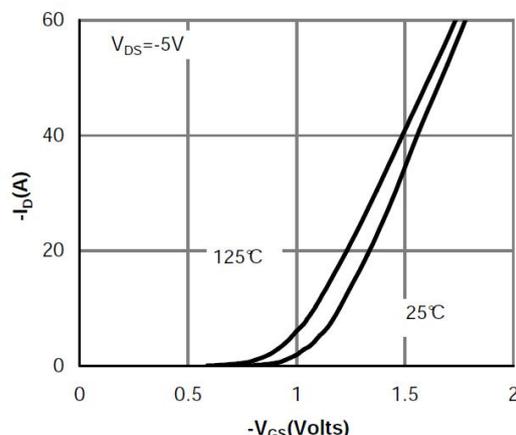


Figure 2: Transfer Characteristics (Note E)

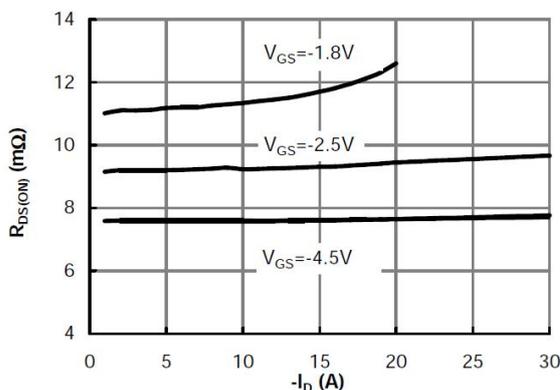


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

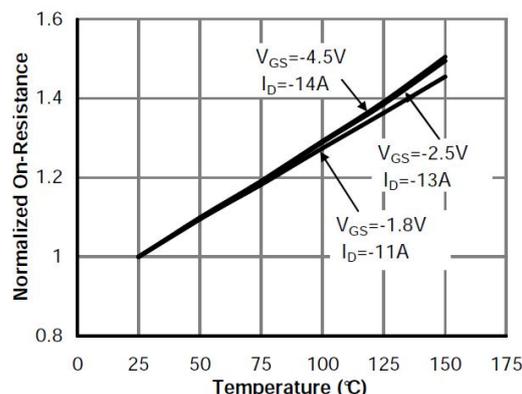


Figure 4: On-Resistance vs. Junction Temperature (Note E)

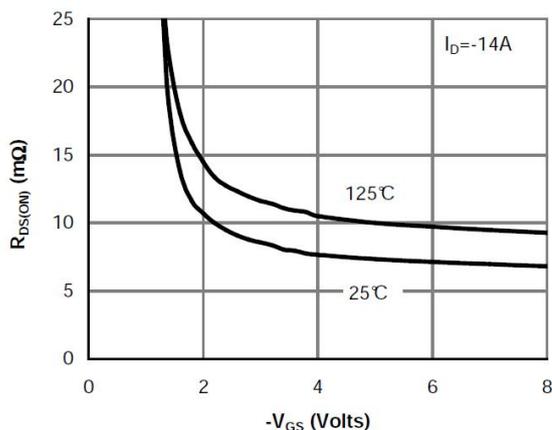


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

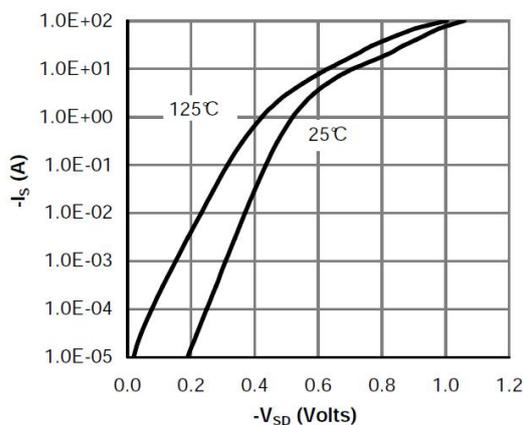


Figure 6: Body-Diode Characteristics (Note E)

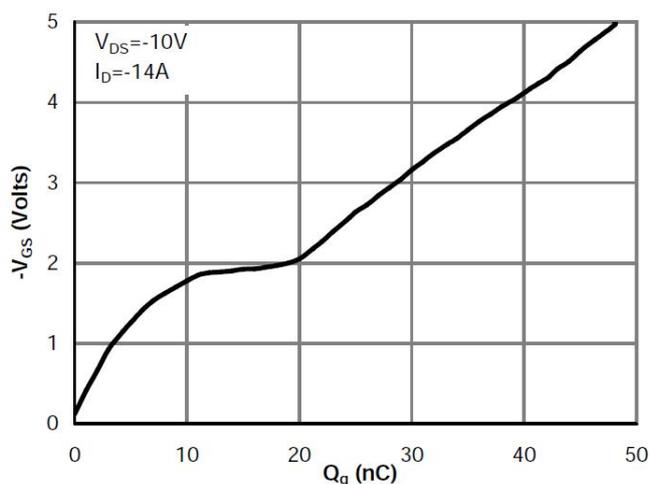


Figure 7: Gate-Charge Characteristics

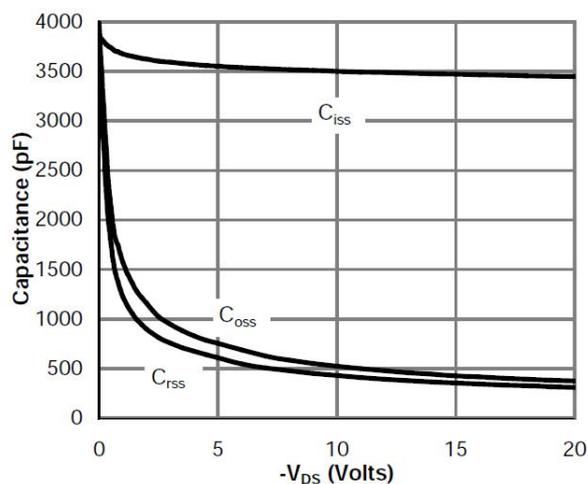


Figure 8: Capacitance Characteristics

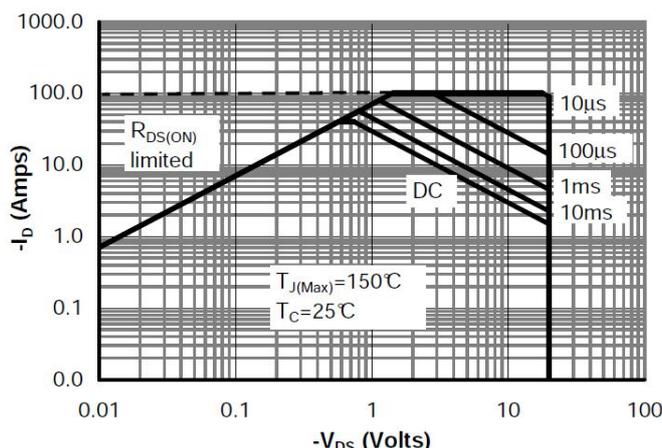


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

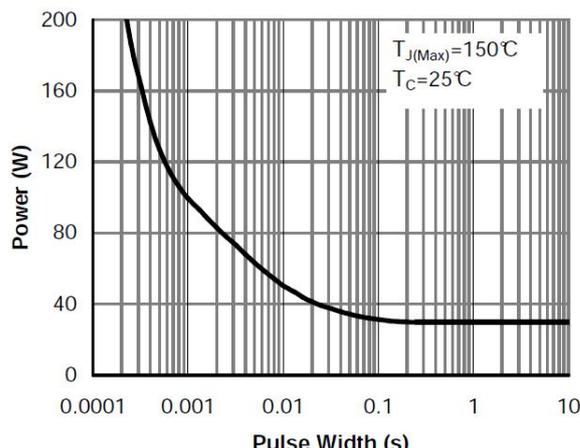


Figure 10: Single Pulse Power Rating Junction-to-Case (Note F)

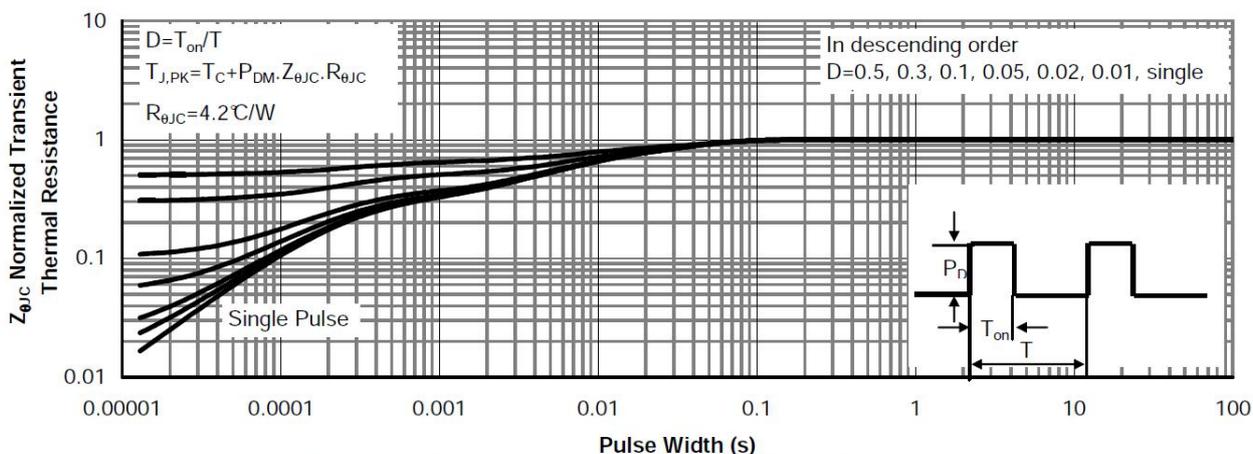


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)



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