SSC8129GQ4

P-Channel Enhancement Mode MOSFET

➢ Features

VDS	VGS	RDSON Typ.	ID
-20V	±12V	9mR@-4V5	-32A
		13mR@-2V5	

➢ 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 wild range of given voltage ratings(4.5V~25V) such as load switch and battery protection.

➢ Applications

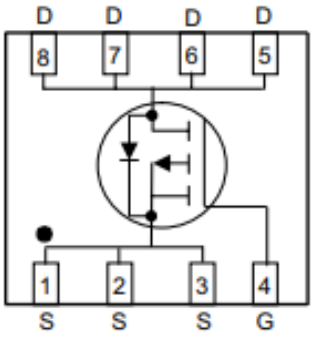
- Load Switch
- NB battery
- DCDC conversion

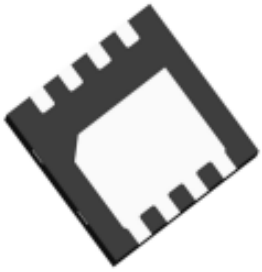
➢ Ordering Information

Device	Package	Shipping
SSC8129GQ4	DFN3x3	5000/Reel

➢ Pin configuration

Top view





Bottom View

Marking

➢ Absolute Maximum Ratings(T_A=25℃ 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 [a]	-32	A
I_{DM}	Pulsed Drain Current [b]	-64	A
P_D	Power Dissipation [c]	28	W
P_{DSM}	Power Dissipation [a]	4	W
T_J	Operation junction temperature	-55 to 150	℃
T_{STG}	Storage temperature range	-55 to 150	℃

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

Symbol	Parameter	Typical	Maximum	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]		33	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance		4.9	

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 current rating is based on the t≤ 10s thermal resistance rating.

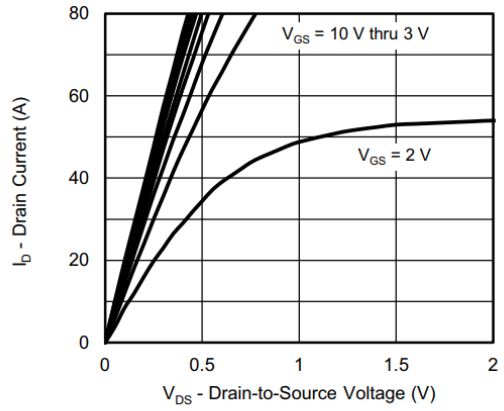
b. Repetitive rating, pulse width limited by junction temperature.

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.

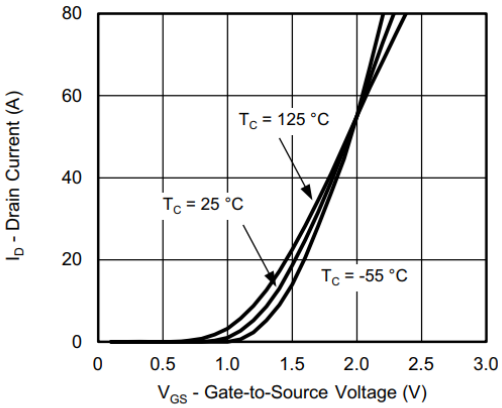
➢ **Electronics Characteristics**(T_A=25℃ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	VGS=0V , ID=-250uA	-20			V
$V_{GS\ (th)}$	Gate Threshold Voltage	VDS=VGS , ID=-250uA	-0.5	-0.7	-1	V
$R_{DS(on)}$	Drain-Source On-Resistance	VGS=-4.5V , ID=-10A		9	12	mR
		VGS=-2.5V , ID=-7A		13	16	
I_{DSS}	Zero Gate Voltage Drain Current	VDS=-20V , VGS=0V			-1	uA
I_{GSS}	Gate-Source leak current	VGS=±12V , VDS=0V			±100	nA
G_{FS}	Trans conductance	VDS=-5V , ID=-10A		18		S
V_{SD}	Forward Voltage	VGS=0V , IS=-2.3A		-0.7	-1.3	V
Ciss	Input Capacitance	VDS=-15V, VGS=0V, f=1MHZ		1828		pF
Coss	Output Capacitance			503		
Crss	Reverse Transfer Capacitance			701		
Qg	Total Gate charge	VGS=-4.5V , VDS=-15V, ID=-7A		17		nC
Qgs	Gate to Source charge			2.2		
Qgd	Gate to Drain charge			5.5		
$T_{D(ON)}$	Turn-on delay time	VGS=-10V, VDS=-15V, RL=1.5R, RG=3R		10.5		ns
Tr	Rise time			19		
$T_{D(OFF)}$	Turn-off delay time			51		
Tf	Fall time			26		

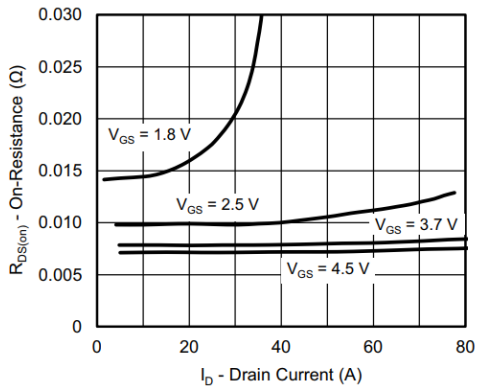
➢ Typical Characteristics(T_A=25℃ unless otherwise noted)



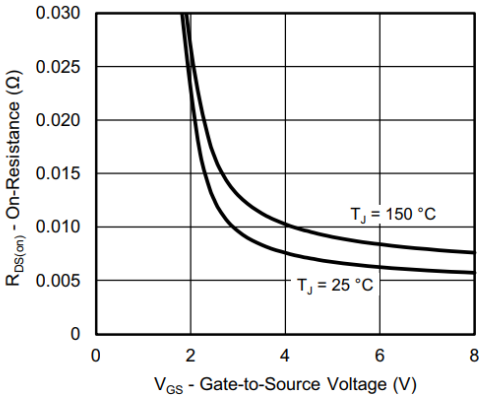
Output Characteristics



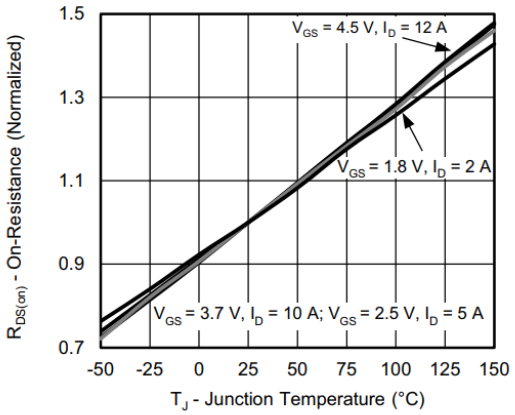
Transfer Characteristics



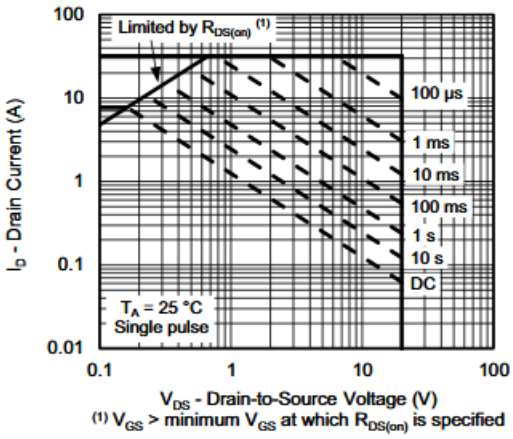
On-Resistance vs. Drain Current and Gate Voltage



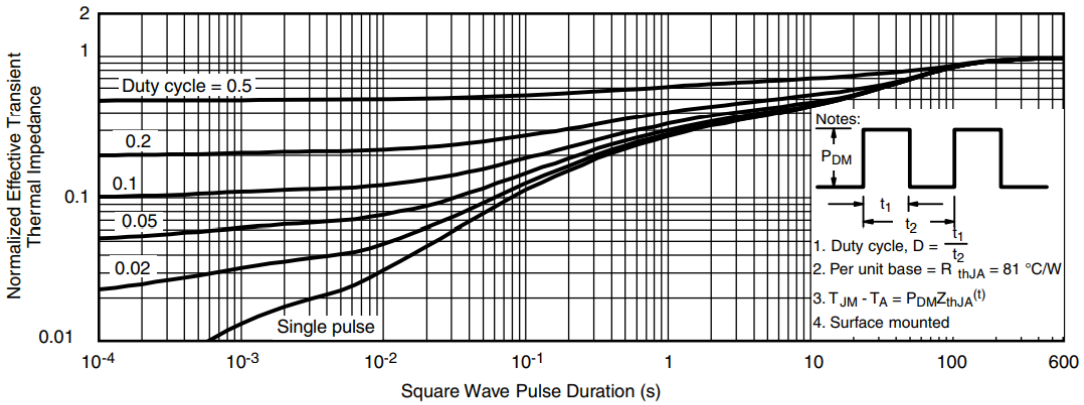
On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Junction Temperature

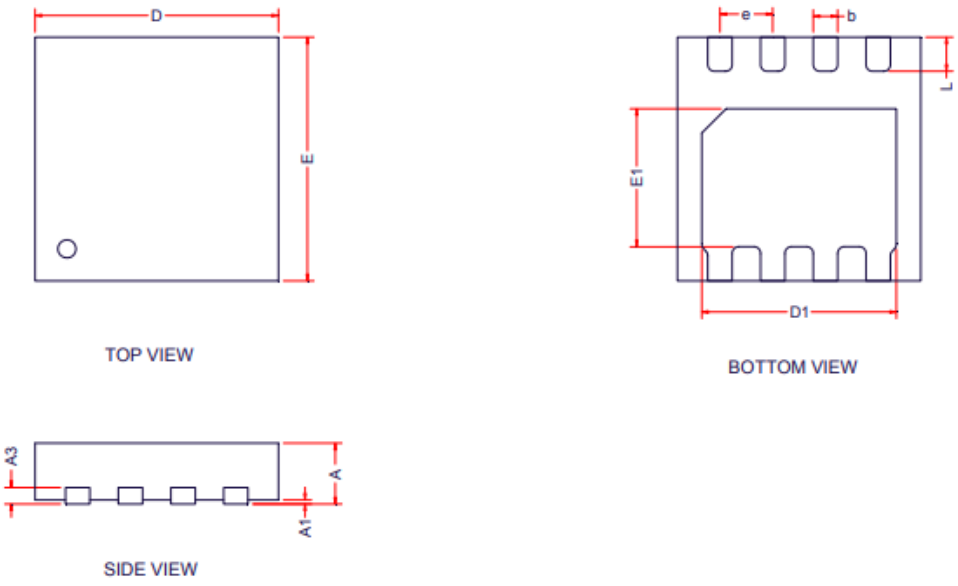


Safe Operating Area, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Ambient

➢ Package Information



DFN3X3-8L

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A2		0.20Ref	
D	2.90	3.00	3.10
E	2.90	3.00	3.10
D1	2.35	2.40	2.45
E1	1.65	1.70	1.75
b	0.25	0.30	0.35
e		0.65BSC	
L	0.37	0.42	0.47

DISCLAIMER

SSCSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. SSCSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICIENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G. OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.

OUR PRODUCT SPECIFICATIONS ARE ONLY VALID IF OBTAINED THROUGH THE COMPANY'S OFFICIAL WEBSITE, CRM SYSTEM, OR OUR SALES PERSONNEL CHANNELS. IF CHANGES OR SPECIAL VERSIONS ARE INVOLVED, THEY MUST BE STAMPED WITH A QUALITY SEAL AND MARKED WITH A SPECIAL VERSION NUMBER TO BE VALID.