P-Channel Enhancement Mode MOSFET

➢ Features

VDS	VGS	RDSON Typ.	ID
-20V	±12V	14mR@-4V5	-10A
		20mR@-2V5	

➢ Description

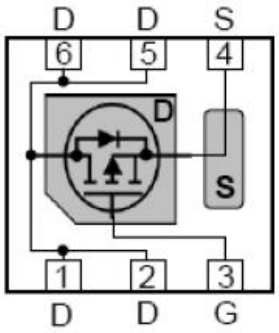
This device is produced with high cell density DMOS trench technology, which is especially used to minimize on-state resistance. This device particularly suits low voltage applications such as portable equipment, power management and other battery powered circuits.

➢ Applications

- Load Switch
- Portable Devices
- DCDC conversion
- Charging
- Driver for Relay

➢ Pin configuration

Top view



Bottom View

Marking

➢ Ordering Information

Device	Package	Shipping
SSC8123GN2	DFN2x2	3000/Reel

➢ 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]	-10	A
I_{DM}	Pulsed Drain Current [b]	-40	A
P_D	Power Dissipation [c]	2.7	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	Ratings	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]	45	℃/W

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.

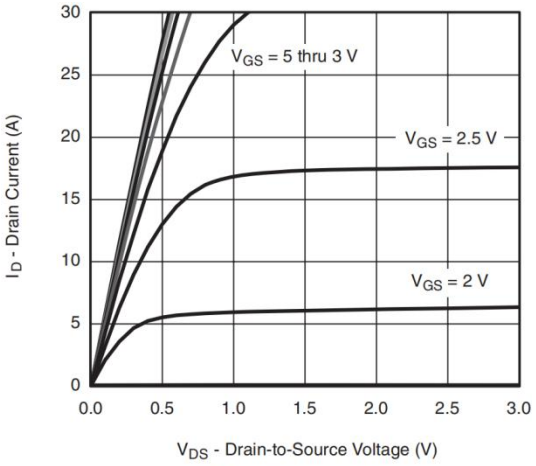
b. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.

c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using steady state junction-to-ambient thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

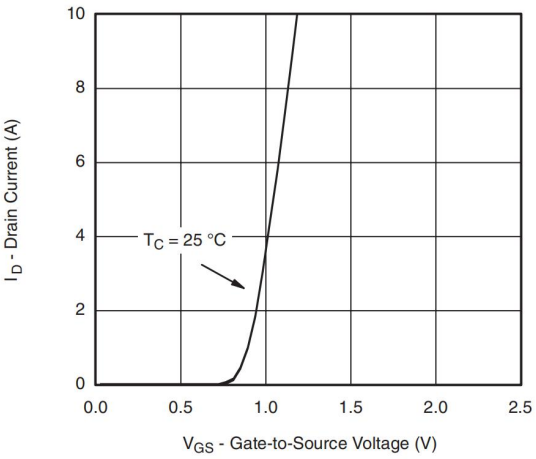
➢ **Electronics Characteristics**(T_A=25℃ unless otherwise noted)

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	-0.4	-0.7	-1	V
$R_{DS(on)}$	Drain-Source On-Resistance	VGS=-4.5V , ID=-4.5A		14	20	mR
		VGS=-2.5V , ID=-2.5A		20	29	
I_{DSS}	Zero Gate Voltage Drain Current	VDS=-16V , VGS=0V			-1	uA
I_{GSS}	Gate-Source leak current	VGS=±12V , VDS=0V			±100	nA
G_{FS}	Transconductance	VDS=-5V , ID=-10A		20		S
V_{SD}	Forward Voltage	VGS=0V , IS=-2.2A		-0.8	-1.3	V
Rg	Gate resistance	VDS=0V, f=1MHz		2.7		R
Ciss	Input Capacitance	VDS=-10V , VGS=0V, f=1MHz		1520		pF
Coss	Output Capacitance			182		
Crss	Reverse Capacitance			158		
$T_{D(ON)}$	Turn-on delay time	VGS=-4.5V, VDS=-10V, RL=1R RG=3R		12		ns
Tr	Rise time			22		
$T_{D(OFF)}$	Turn-off delay time			45		
Tf	Fall time			23		
Qg	Total Gate charge	VGS=-4.5V, VDS=-10V ID=-10A		16		nC
Qgs	Gate Source charge			3		
Qgd	Gate Drain charge			4		
trr	Reverse Recovery Time	IF=-10A, dI/dt=100A/μs		15		ns
Qrr	Reverse Recovery Charge	IF=-10A, dI/dt=100A/μs		6		nC

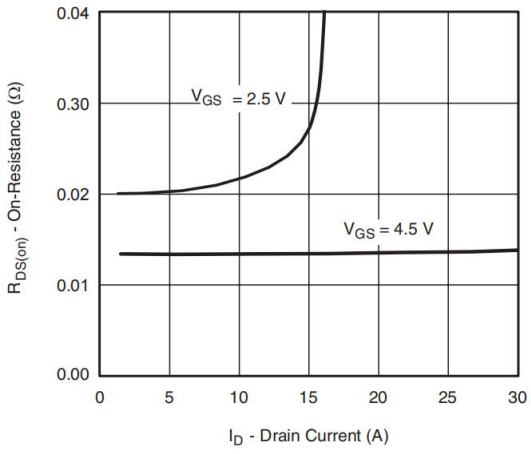
➢ Typical Characteristics(T_A=25℃ unless otherwise noted)



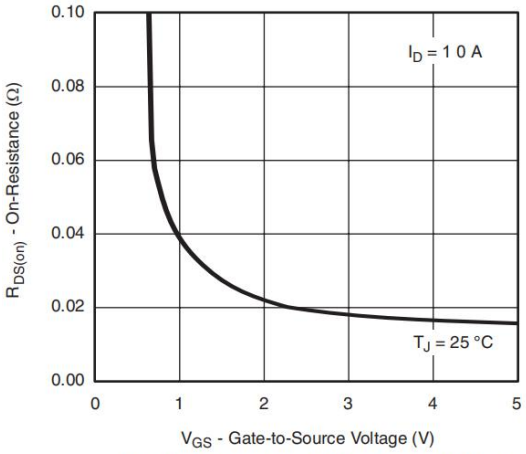
Output Characteristics



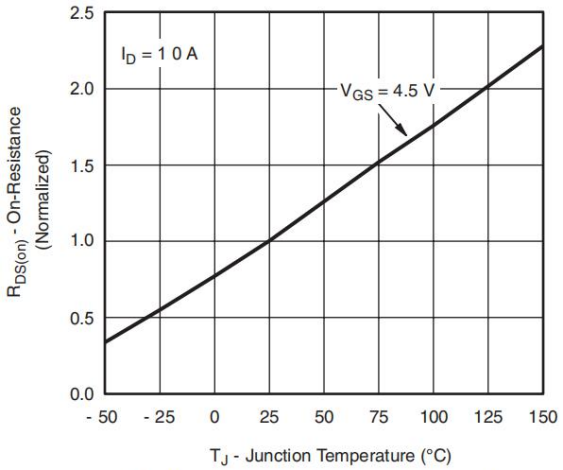
Transfer Characteristics



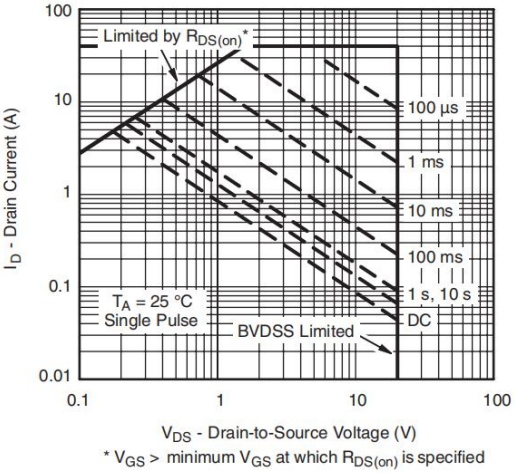
On-Resistance vs. Drain Current



On-Resistance vs. Gate-to-Source Voltage



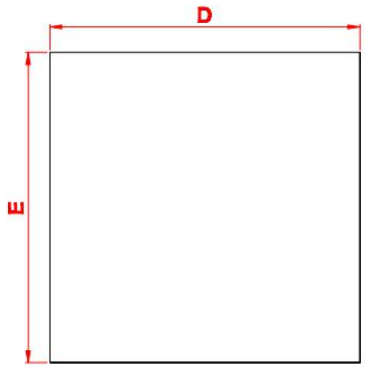
On-Resistance vs. Junction Temperature



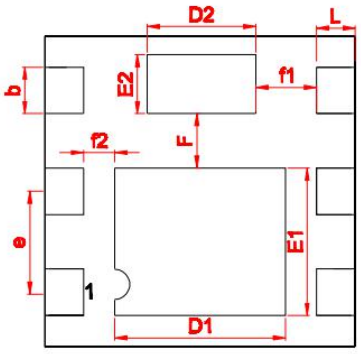
* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area, Junction-to-Ambient

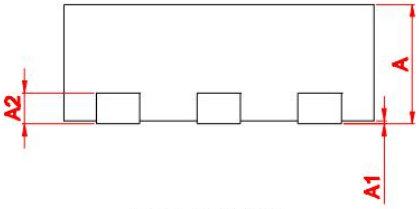
➢ Package Information



TOP VIEW



BOTTOM VIEW



SIDE VIEW

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.700	0.750	0.800
* A1	0.000	0.020	0.050
* b	0.250	0.300	0.350
* A2	0.190	0.210	0.230
* D	1.900	2.000	2.100
* E	1.900	2.000	2.100
* E1	0.900	0.950	1.000
* E2	0.330	0.380	0.430
* D1	1.100	1.150	1.200
* D2	0.650	0.700	0.750
* e	0.600	0.650	0.700
* L	0.225	0.250	0.275
* F	0.300	0.350	0.400
* f1	0.350	0.400	0.450
* f2	0.180	0.200	0.220

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