SSC8123GN2

P-Channel Enhancement Mode MOSFET

➢ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$	I_D
-20V	±12V	14mΩ@-4V5	-10A
		20mΩ@-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, and low in-line power dissipation are needed in a very small outline surface mount package.

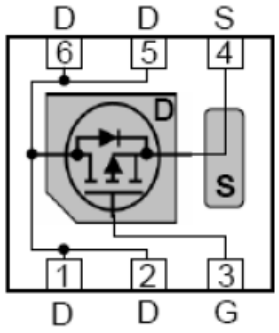
➢ Applications

- Load Switch
- Portable Devices
- DCDC Conversion
- Charging

➢ Ordering Information

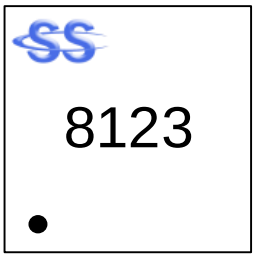
Device	Package	Shipping
SSC8123GN2	DFN2020-6L	3000/Reel

➢ Pin Configuration



DFN2020-6L (Top View)

Bottom View



Marking

➢ Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

Symbol	Parameter		Ratings	Unit
V_{DS}	Drain-to-Source Voltage		-20	V
V_{GS}	Gate-to-Source Voltage		±12	V
I_D	Continuous Drain Current [d]	T_C=25℃	-10	A
		T_C=100℃	-5.5	
I_{DM}	Pulsed Drain Current [b]		-40	A
P_D	Power Dissipation [c]	T_C=25℃	2.7	W
		T_C=100℃	1.2	
T_J	Operation junction temperature		-55~150	℃
T_{STG}	Storage temperature range		-55~150	

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

Symbol	Parameter	Maximum	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. The power dissipation is based on the t≤10s thermal resistance rating.

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

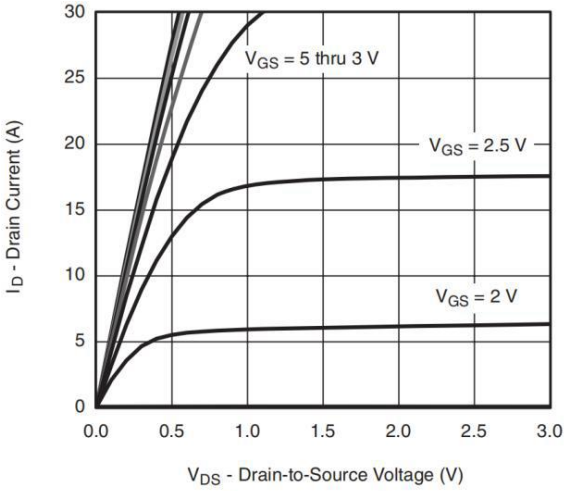
c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

d. The maximum current rating is package limited.

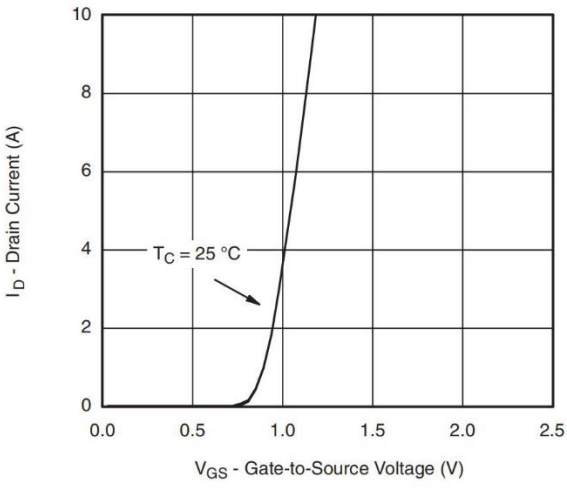
➢ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =- 250uA	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250uA	-0.4	-0.7	-1	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -4.5A		14	20	mΩ
		V_{GS} = -2.5V, I_D = -2.5A		20	29	
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
Transconductance	G_{FS}	V_{DS} = -5V, I_D = -8A		20		s
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = -2.2A		-0.8	-1.3	V
Gate Resistance	R_G	V_{DS} = 0V, f = 1MHz		2.7		Ω
Input Capacitance	C_{ISS}	V_{DS} = -10V, V_{GS} = 0V, f = 1MHz		1520		pF
Output Capacitance	C_{OSS}			182		
Reverse Transfer Capacitance	C_{RSS}			158		
Total Gate Charge	Q_G	V_{GS} = -4.5V, V_{DS} = -10V, I_D =-10A		16		nC
Gate to Source Charge	Q_{GS}			3		
Gate to Drain Charge	Q_{GD}			4		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = -4.5V, V_{DS} = -10V, R_L = 1Ω, R_G = 3Ω		12		ns
Rise Time	T_r			22		
Turn-off Delay Time	$T_{D(OFF)}$			45		
Fall Time	T_f			23		
Reverse Recovery Time	T_{rr}	I_F= -10A, dI/dt=100A/μs		15		ns
Reverse Recovery Charge	Q_{rr}	I_F= -10A, dI/dt=100A/μs		6		nC

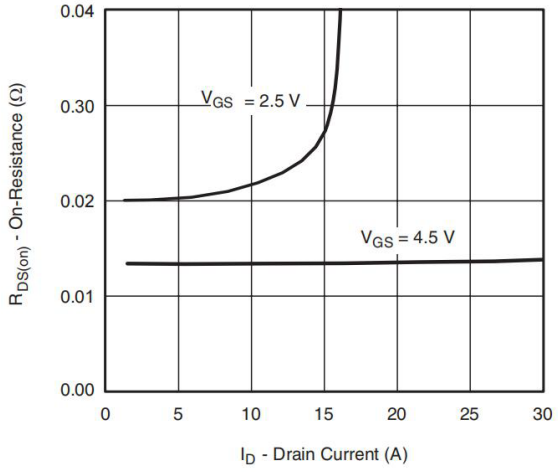
➢ Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



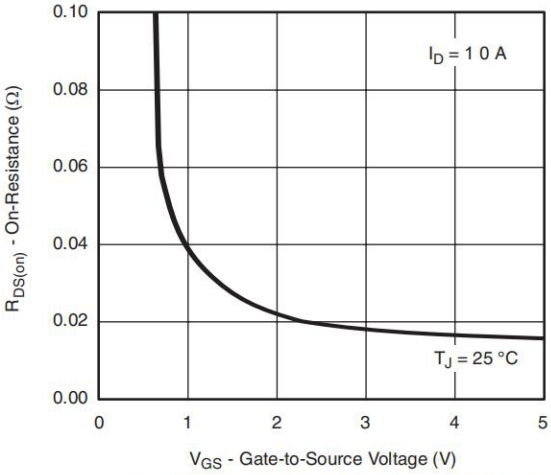
Output Characteristics



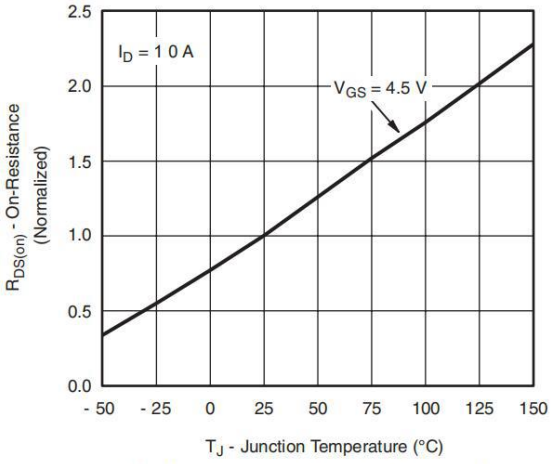
Transfer Characteristics



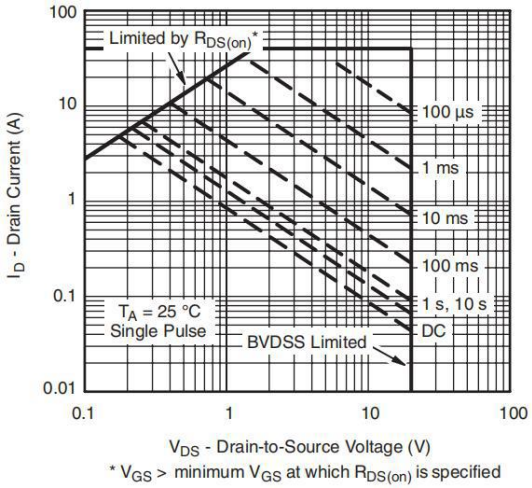
On-Resistance vs. Drain Current



On-Resistance vs. Gate-to-Source Voltage



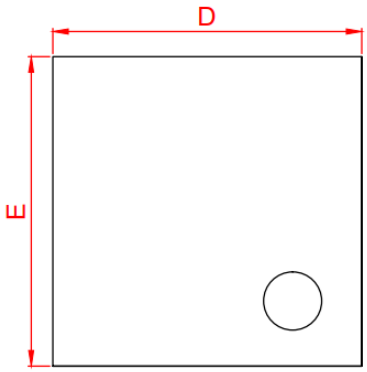
On-Resistance vs. Junction Temperature



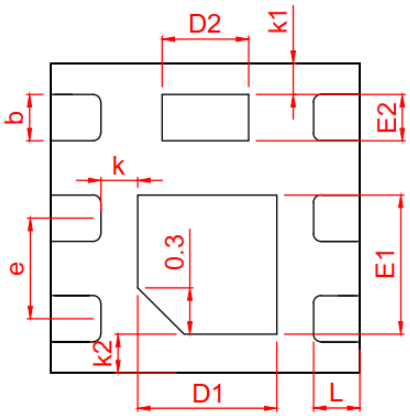
* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area, Junction-to-Ambient

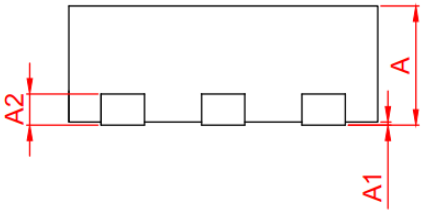
➢ Package Information



TOP VIEW



BOTTOM VIEW



SIDE VIEW

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.50	0.55	0.60
* A1	0.00	0.02	0.05
* b	0.25	0.30	0.35
* A2	0.152 BSC		
* D	1.95	2.00	2.05
* E	1.95	2.00	2.05
* E1	0.80	0.90	1.00
* E2	0.25	0.30	0.35
* D1	0.80	0.90	1.00
* D2	0.46	0.56	0.66
* e	0.65 REF		
* L	0.25	0.30	0.35
* K	0.20	0.25	0.30
* K1	0.15	0.20	0.25
* K2	0.20	0.25	0.30

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