SSC8012GN2

N-Channel Enhancement Mode MOSFET

➢ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
16V	±12V	12mΩ@10V	12A
		15mΩ@4V5	

➢ 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.

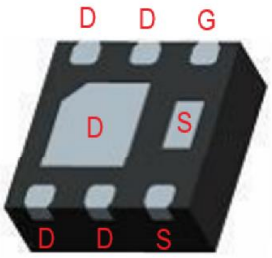
➢ Applications

- Load Switch
- Portable Devices
- DCDC Conversion
- Charging

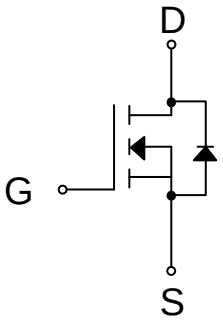
➢ Ordering Information

Device	Package	Shipping
SSC8012GN2	DFN2020-6L	3000/Reel

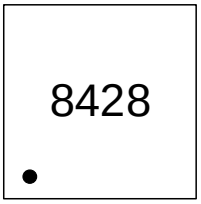
➢ Pin Configuration



DFN2020-6L (Bottom View)



Pin Configuration



Marking

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

Parameter		Symbol	Ratings	Unit
Drain-to-Source Voltage		V_{DS}	16	V
Gate-to-Source Voltage		V_{GS}	±12	V
Continuous Drain Current [d]	T_C=25℃	I_D	12	A
	T_C=100℃		7	
Pulsed Drain Current [b]		I_{DM}	40	A
Power Dissipation [c]	T_C=25℃	P_D	3.1	W
	T_C=100℃		1.25	
Operation junction temperature		T_J	-55~150	℃
Storage temperature range		T_{STG}	-55~150	

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

Parameter	Symbol	Maximum	Unit
Junction-to-Ambient Thermal Resistance [a]	$R_{\theta JA}$	40	℃/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.

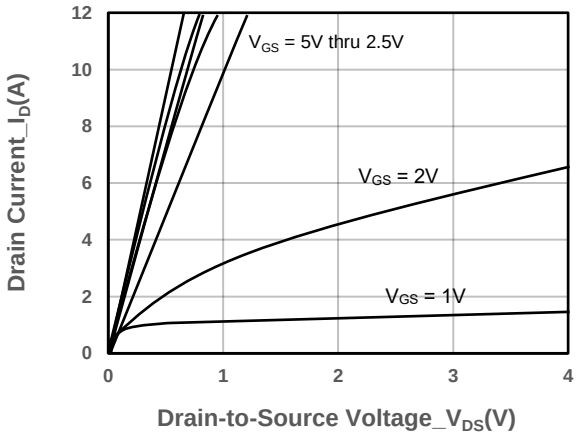
c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

d. The maximum current rating is package limited.

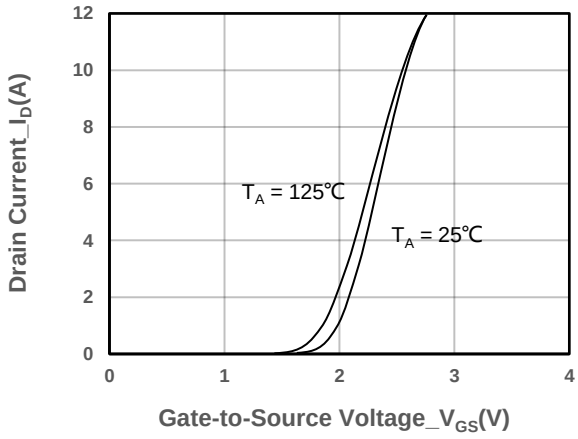
➢ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250uA	16			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	0.4	0.75	1.2	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 6A		12	16	mΩ
		V_{GS} = 2.5V, I_D = 3A		15	20	
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
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 1A			1.3	V
Input Capacitance	C_{ISS}	V_{DS} = 10V, V_{GS} = 0V, f = 1MHz		600		pF
Output Capacitance	C_{OSS}			300		
Reverse Transfer Capacitance	C_{RSS}			140		
Total Gate Charge	Q_G	V_{GS} = 4.5V, V_{DS} = 10V, I_D = 5A		8.6		nC
Gate to Source Charge	Q_{GS}			1.9		
Gate to Drain Charge	Q_{GD}			2.2		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 4.5V, V_{DS} = 10V, R_L = 1.4Ω, R_G = 6Ω, I_D = 5A		6		ns
Rise Time	T_r			12		
Turn-off Delay Time	$T_{D(OFF)}$			46		
Fall Time	T_f			22		

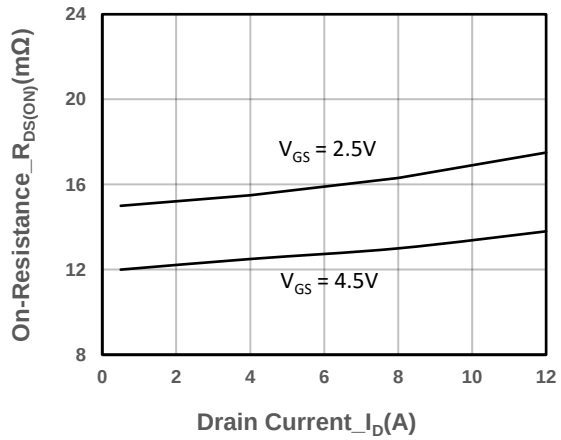
➢ Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



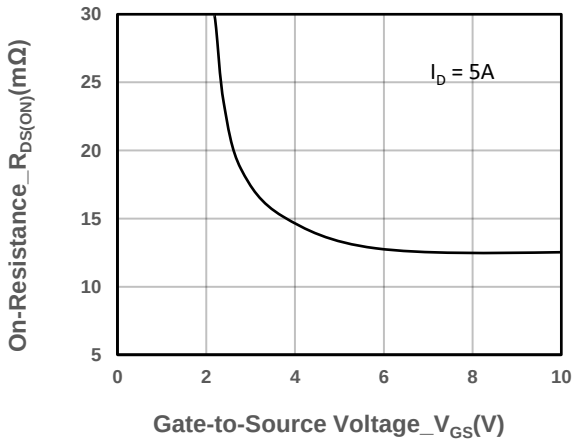
Output Characteristics



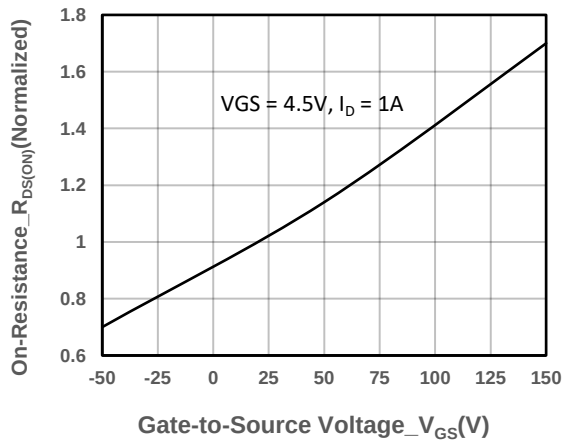
Transfer Characteristics



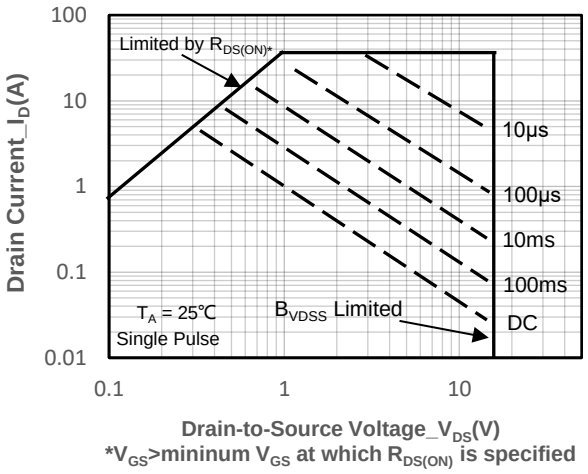
On-Resistance vs. Drain Current and Gate Voltag



On-Resistance vs. Gate-to-Source Voltage

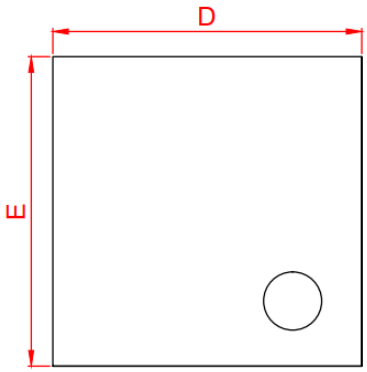


On-Resistance vs. Junction Temperature

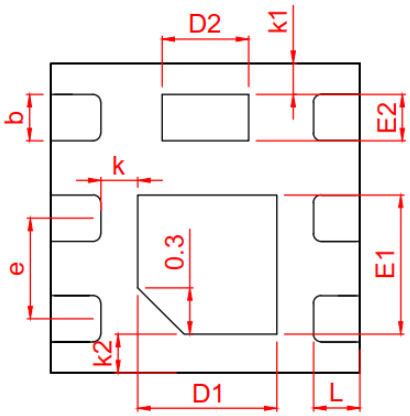


Safe Operating Area vs. Junction-to-Ambient

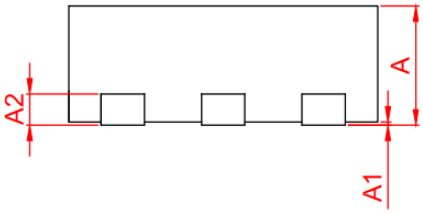
➢ Package Information



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

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.