SSC8021GN1

P-Channel MOSFET with ESD Protection

➢ Features

VDS	VGS	RDSON Typ.	ID	ESD
-20V	±12V	0.45R@-4V5 0.6R@-2V5	-1A	0.5kV

➢ Description

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. The product does not contain Rohs substances such as lead and halogen.

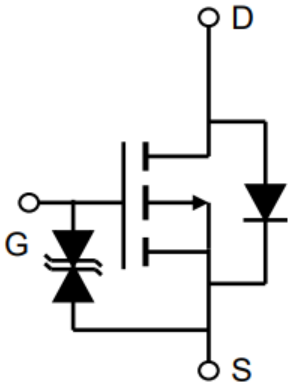
➢ Applications

- Load Switch
- Portable Devices
- Signal Drive

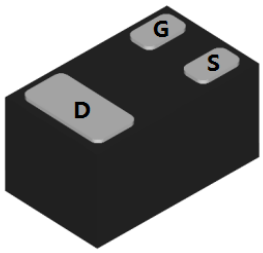
➢ Ordering Information

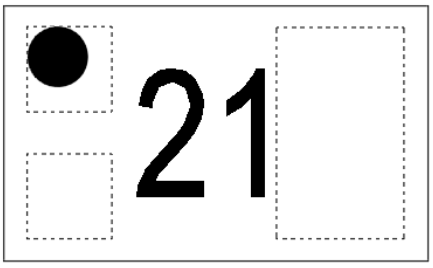
Device	Package	Shipping
SSC8021GN1	DFN1006-3L	10K/Reel

➢ Pin configuration



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]	-1	A
I_{DM}	Pulsed Drain Current [b]	-3	A
P_D	Power Dissipation [c]	0.45	W
P_{DSM}	Power Dissipation [a]	0.2	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	Maximum	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]	625	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	277	

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.

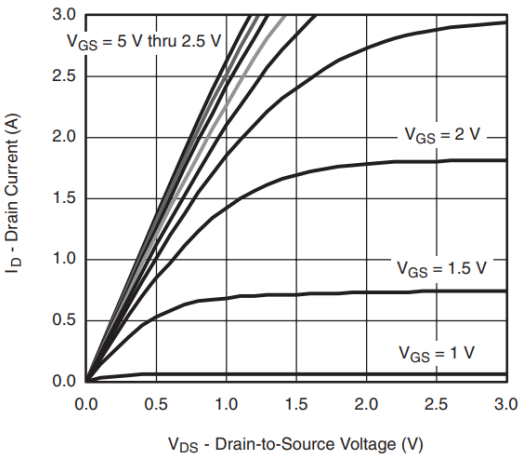
b. Repetitive rating, pulse width limited by junction temperature.

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.

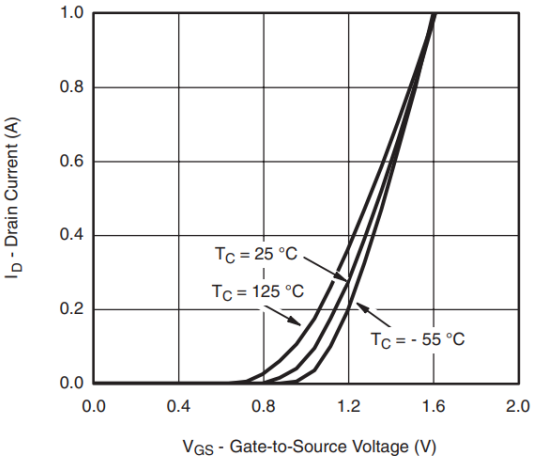
➢ **Electronics Characteristics**(T_A=25℃ unless otherwise noted)

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	-0.4	-0.7	-1	V
$R_{DS(on)}$	Drain-Source On-Resistance	VGS=-4.5V, ID=-0.5A		450	650	mR
		VGS=-2.5V, ID=-0.3A		600	900	
		VGS=-1.8V, ID=-0.1A		800	1500	
I_{DSS}	Zero Gate Voltage Drain Current	VDS=-16V, VGS=0V			-1	uA
I_{GSS}	Gate-Source leak current	VGS=±10V, VDS=0V			±10	uA
G_{FS}	Transconductance	VDS=-5V, ID=-0.5A		1		S
V_{SD}	Forward Voltage	VGS=0V, IS=-0.15A			-1.3	V
Ciss	Input Capacitance	VDS=-10V, VGS=0V, f=1MHz		25		pF
Coss	Output Capacitance			12		
Crss	Reverse Capacitance			5		
$T_{D(ON)}$	Turn-on delay time	VGS=-4.5V, VDS=-10V, RL=20R, RG=3R		5		ns
Tr	Rise time			4		
$T_{D(OFF)}$	Turn-off delay time			12		
Tf	Fall time			7		

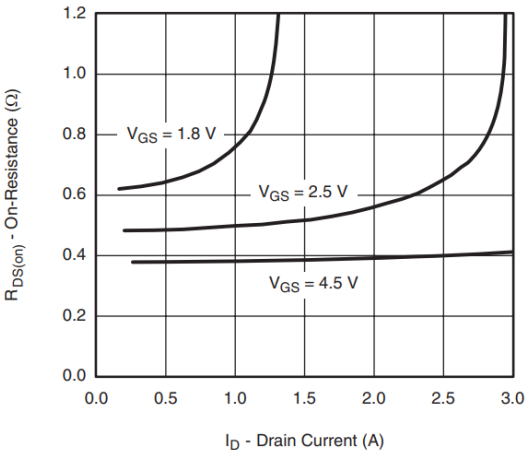
➢ Typical Characteristics(T_A=25℃ unless otherwise noted)



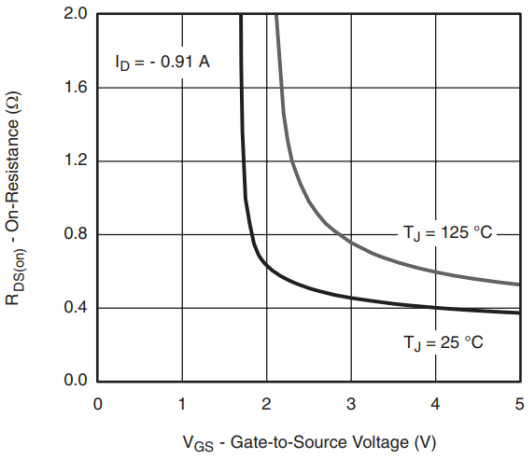
Output Characteristics



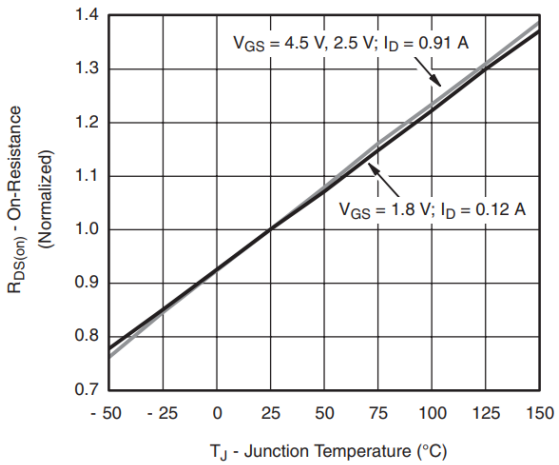
Transfer Characteristics



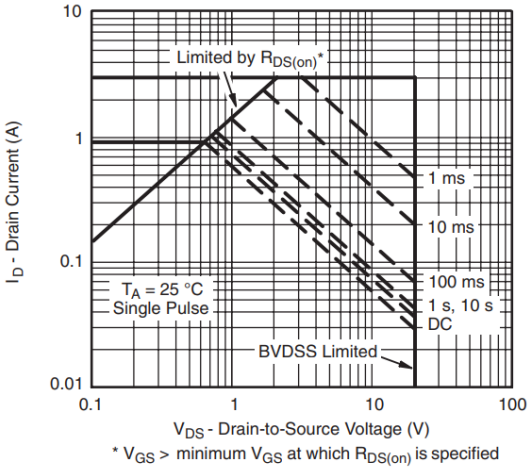
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage



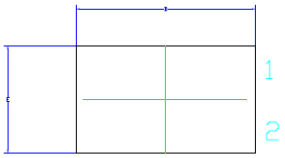
On-Resistance vs. Junction Temperature



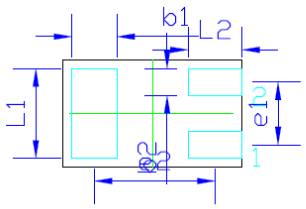
* VGS > minimum VGS at which RDS(on) is specified

Safe Operating Area, Junction-to-Ambient

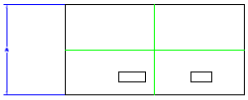
➢ Package Information



TOP VIEW



BOTTOM VIEW



SIDE VIEW

COMMON DIMENSION (MM)			
PKG	DFN1006		
REF.	MIN.	NOM.	MAX
A	0.45	0.50	0.55
D	0.95	1.00	1.05
E	0.55	0.60	0.65
b1	0.20	0.25	0.30
b2	0.10	0.15	0.20
L1	0.45	0.50	0.55
L2	0.25	0.30	0.35
e1	0.350 BSC		
e2	0.675 BSC		

DISCLAIMER

AFSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. AFSEMI 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.