

GENERAL DESCRIPTION

The SGM13001C is a low noise amplifier (LNA) for GLONASS, Galileo, Beidou and GPS applications. The device delivers 19.1dB gain at an extremely low noise figure of 0.83dB. It also features high gain and excellent linearity performance that operates from 1550MHz to 1615MHz.

The device requires 6.4mA from a single 1.6V to 3.6V supply, dropping to below 2.3 μ A in power down mode.

No external DC blocking capacitors are required on the RF paths as long as no external DC voltage is applied, which can save PCB area and cost.

The SGM13001C is available in a Green UTDFN-1.5 \times 1.0-6AL package.

APPLICATIONS

Car Navigation
 Personal Navigation Equipment
 Mobile Phone with GPS
 RF Front End Modules
 Digital Video Camera, Digital Camera

FEATURES

- **High Gain: 19.1dB at 1575.42MHz**
- **Low Noise Figure: 0.83dB at 1575.42MHz**
- **Low Operation Current: 6.4mA**
- **Current Less than 2.3 μ A in Power Down Mode**
- **Operating Frequency Range: 1550MHz to 1615MHz**
- **Single Supply Voltage Range: 1.6V to 3.6V**
- **Low Cost BOM**
- **Lead-Free and RoHS Compliant**
- **Available in a Green UTDFN-1.5 \times 1.0-6AL Package**

BLOCK DIAGRAM

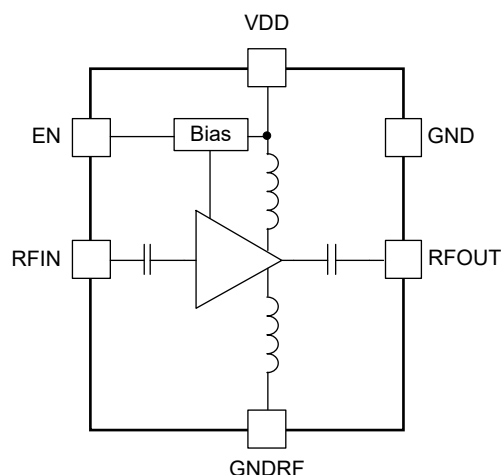


Figure 1. SGM13001C Block Diagram

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM13001C	UTDFN-1.5×1.0-6AL	-40°C to +85°C	SGM13001CYUGF6G/TR	6R XX	Tape and Reel, 4000

MARKING INFORMATION

NOTE: XX = Date Code.

YY — Serial Number
 X X
 └── Date Code - Week
 └── Date Code - Year

Green (RoHS & HSF): SG Micro Corp defines "Green" to mean Pb-Free (RoHS compatible) and free of halogen substances. If you have additional comments or questions, please contact your SGMICRO representative directly.

ABSOLUTE MAXIMUM RATINGS

Supply Voltage, V_{DD} -0.3V to 4.0V
 EN to GND..... -0.3V to 4.0V
 RFIN, RFOUT to GND -0.3V to 0.3V
 RF Input Power, P_{IN} 10dBm
 Junction Temperature..... +150°C
 Storage Temperature Range -55°C to +150°C
 Lead Temperature (Soldering, 10s)..... +260°C
 ESD Susceptibility
 HBM..... 4000V
 CDM 500V

RECOMMENDED OPERATING CONDITIONS

Operating Temperature Range -40°C to +85°C
 Supply Voltage Range, V_{DD} 1.6V to 3.6V
 Operating Frequency Range, f_0 1550MHz to 1615MHz
 Control Voltage High, V_{CTL_H} 1.35V to V_{DD}
 Control Voltage Low, V_{CTL_L} 0V to 0.45V

OVERSTRESS CAUTION

Stresses beyond those listed in Absolute Maximum Ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect reliability. Functional operation of the device at any conditions beyond those indicated in the Recommended Operating Conditions section is not implied.

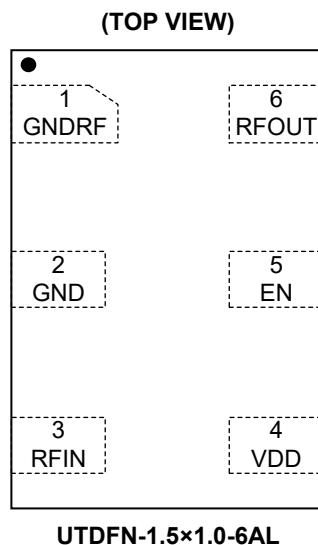
ESD SENSITIVITY CAUTION

This integrated circuit can be damaged if ESD protections are not considered carefully. SGMICRO recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because even small parametric changes could cause the device not to meet the published specifications.

DISCLAIMER

SG Micro Corp reserves the right to make any change in circuit design, or specifications without prior notice.

PIN CONFIGURATION

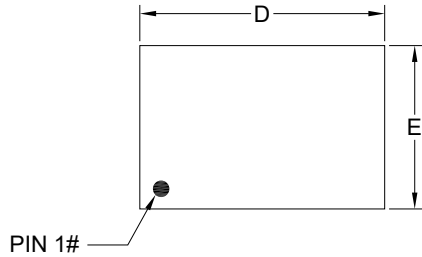


PIN DESCRIPTION

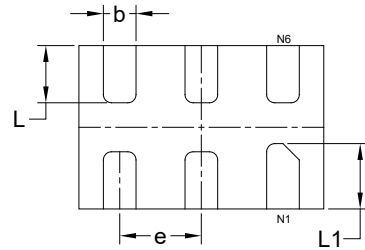
PIN	NAME	FUNCTION
1	GNDRF	RF Ground.
2	GND	Analog Ground.
3	RFIN	LNA Input from Antenna.
4	VDD	Power Supply.
5	EN	Active High Enable Input for the Device. Pull high enable, pull low into power down mode.
6	RFOUT	LNA Output.

PACKAGE OUTLINE DIMENSIONS

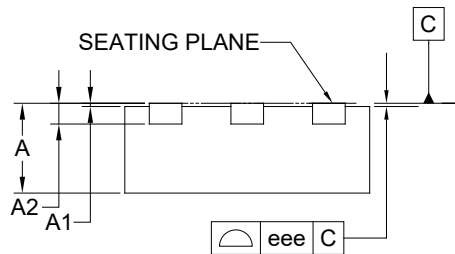
UTDFN-1.5×1.0-6AL



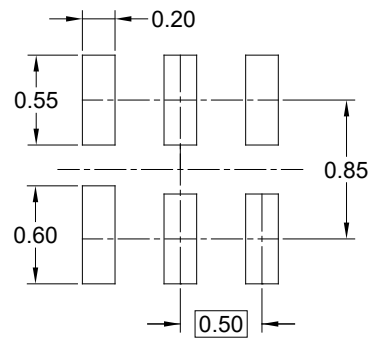
TOP VIEW



BOTTOM VIEW



SIDE VIEW



RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		
	MIN	MOD	MAX
A	0.500	-	0.600
A1	0.000	-	0.050
A2	0.127 REF		
b	0.150	-	0.250
D	1.400	-	1.600
E	0.900	-	1.100
e	0.500 BSC		
L	0.250	-	0.450
L1	0.300	-	0.500
eee	0.050		

NOTE: This drawing is subject to change without notice.

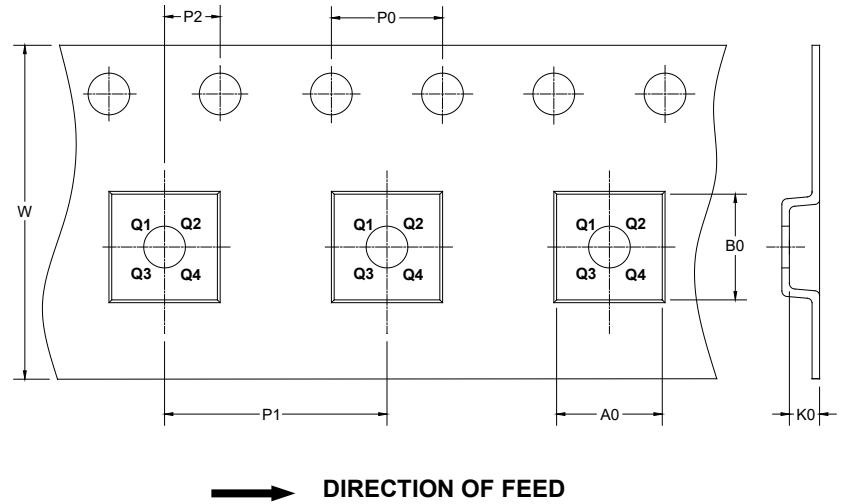
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
UTDFN-1.5×1.0-6AL	7"	9.5	1.12	1.72	0.7	4.0	4.0	2.0	8.0	Q1

DD00001

PACKAGE INFORMATION

CARTON BOX DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF CARTON BOX

Reel Type	Length (mm)	Width (mm)	Height (mm)	Pizza/Carton
7" (Option)	368	227	224	8
7"	442	410	224	18

DD0002