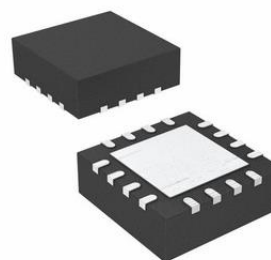


Four-Channel, Sub-1GHz, Low Noise Amplifier

PRORODUCT DESCRIPTION

The MS2634 is a parallel four-channel, Sub-1 GHz low power dissipation and low noise amplifier (LNA). The chip adopts advanced manufacture technology and is available in QFN16 package.



QFN16

FEATURES

- Typical Noise Figure: 1.57dB/Channel
- Typical Power Gain: 16.3dB/Channel
- Typical Output P1dB: -9.2dBm/Channel
- Operating Frequency: 100MHz ~ 1000MHz
- Current Consumption: 16.8mA@3V
- Wide Power Supply Range: 1.6V ~ 5.5V
- 2kV HBM ESD Pin Protection Circuit
- Simple External Circuit

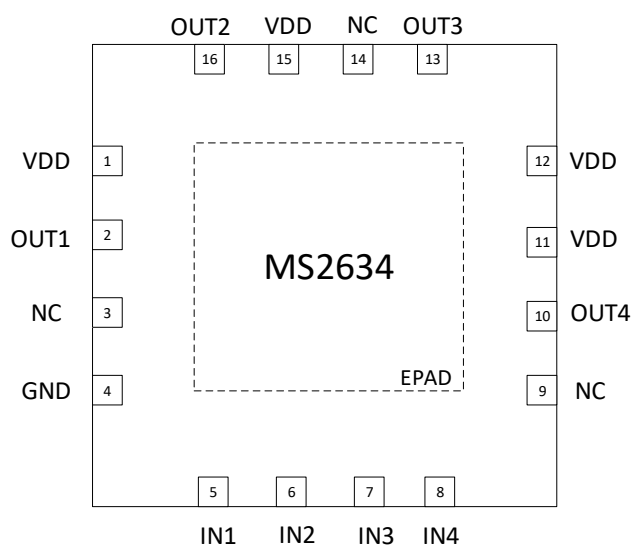
APPLICATIONS

- Remote Keyless Entry(RKE)
- Tire Pressure Monitoring System(TPMS)
- Telemetry Receivers
- Garage Door Openers

PRODUCT SPECIFICATION

Part Number	Package	Marking
MS2634	QFN16	MS2634

PIN CONFIGURATION



PIN DESCRIPTION

Pin	Name	Type	Description
1	VDD	-	Power Supply
2	OUT1	O	Channel 1 Output
3	NC	-	Not Connection
4	GND	-	Ground
5	IN1	I	Channel 1 Input
6	IN2	I	Channel 2 Input
7	IN3	I	Channel 3 Input
8	IN4	I	Channel 4 Input
9	NC	-	Not Connection
10	OUT4	O	Channel 4 Output
11	VDD	-	Power Supply
12	VDD	-	Power Supply
13	OUT3	O	Channel 3 Output
14	NC	-	Not Connection
15	VDD	-	Power Supply
16	OUT2	O	Channel 2 Output
-	EPAD	-	Thermal Pad, Must connect to ground

ABSOLUTE MAXIMUM RATINGS

Any exceeding absolute maximum rating application causes permanent damage to device. Because long-time absolute operation state affects device reliability. Absolute ratings just conclude from a series of extreme tests. It doesn't represent chip can operate normally in these extreme conditions.

Parameter	Symbol	Ratings	Unit
VDD to GND		-0.3 ~ 6.0	V
IN to GND		-0.3 ~ 2.0	V
OUT to GND		-0.3 ~ 5.0	V
RF Input Power	P _{IN}	+20	dBm
Operating Temperature Range	T _{opr}	-40 ~ +120	°C
Lead Temperature (10s)		+260	°C

ELECTRICAL CHARACTERISTICS

DC Electrical Characteristics

At room temperature

Parameter	Min	Typ	Max	Unit
Power Supply	1.6	2.85	5.5	V
Digital Input Logic High Level	1.2			V
Digital Input Logic Low Level			0.5	V
RFIN DC Bias Voltage	0.80	0.87	0.90	V

Note: Under normal conditions, the chip is in the normal operating state from -40°C to +120°C. If there is no additional AC signal, DC operating current does not exceed the maximum operating value. If this happens, it is necessary to check S parameter to ensure whether the module is in unstable state.

AC Electrical Characteristics

670MHz center frequency, 3V power supply, single input and output for each channel at room temperature

Parameter	Typ			Unit
Operating Frequency	660	670	680	MHz
Input Matching Inductance L1	10			nH
Power Gain	16.3	16.2	16.1	dB
Noise Figure ¹	1.57	1.58	1.58	dB
Input Return Loss	11.3	11.5	11.6	dB
Output Return Loss	13.6	12.9	12.2	dB
Reverse Isolation	45.6	46.7	44.6	dB
Input IP3 ²	-15.5	-15.5	-15.5	dBm
Input P1dB	-24.5	-24.5	-24.5	dBm

Note:

1. Measured value (including PCB, SMA and other board-level access loss).
2. Adopt two signals with -2MHz and 2MHz deviating from center frequency (670MHz) respectively.

TYPICAL CHARACTERISTICS CURVE

Typical operating conditions: evaluation board test, 25°C temperature, 3V power supply, input center frequency signal, unless otherwise noted.

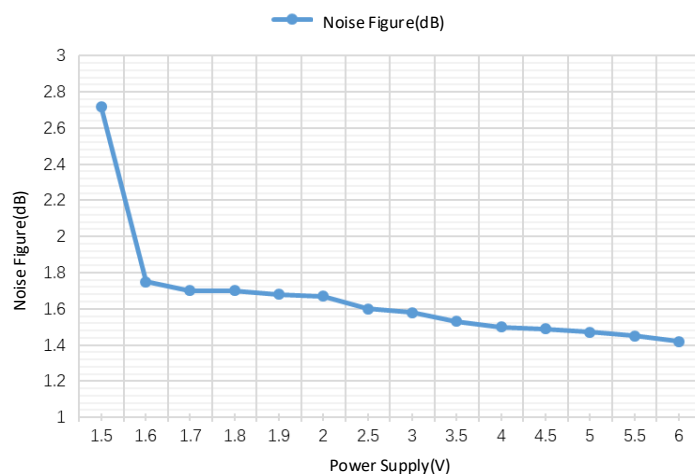


Figure 1. Noise Figure VS. Power Supply

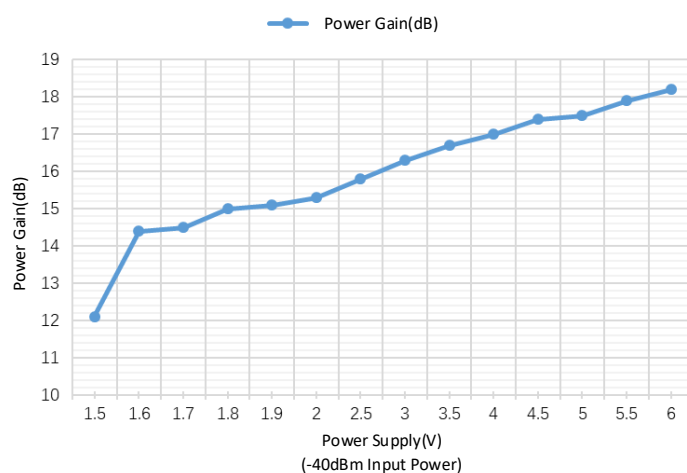


Figure 2. Power Gain VS. Power Supply

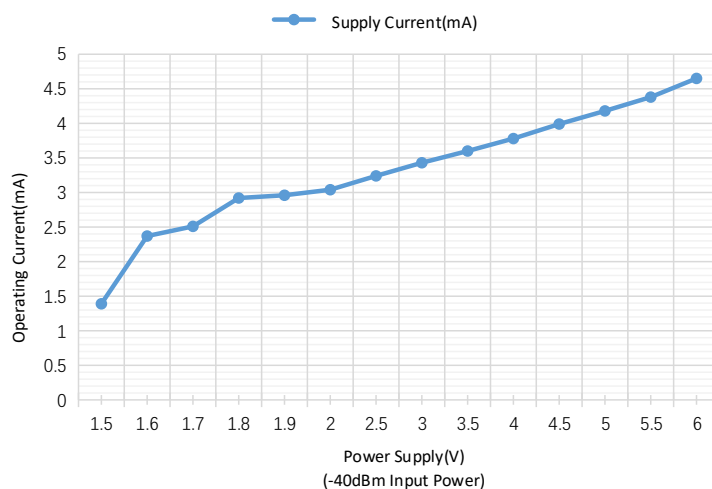
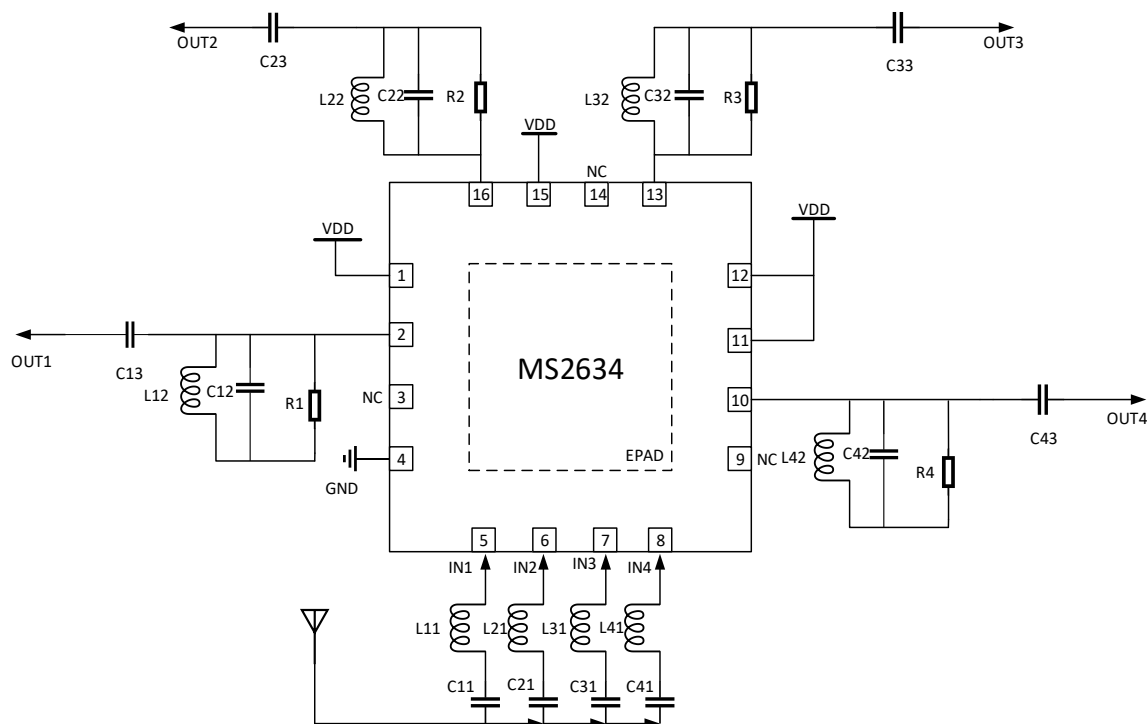


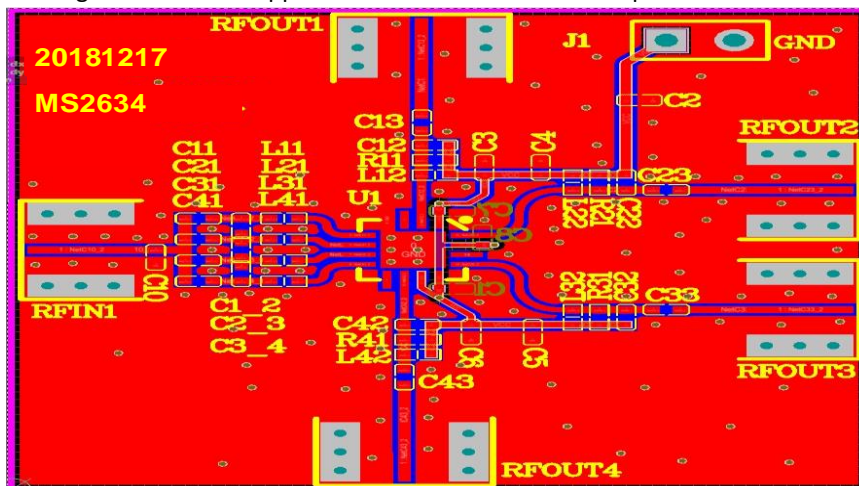
Figure 3. Operating Current VS. Power Supply

TYPICAL APPLICATION

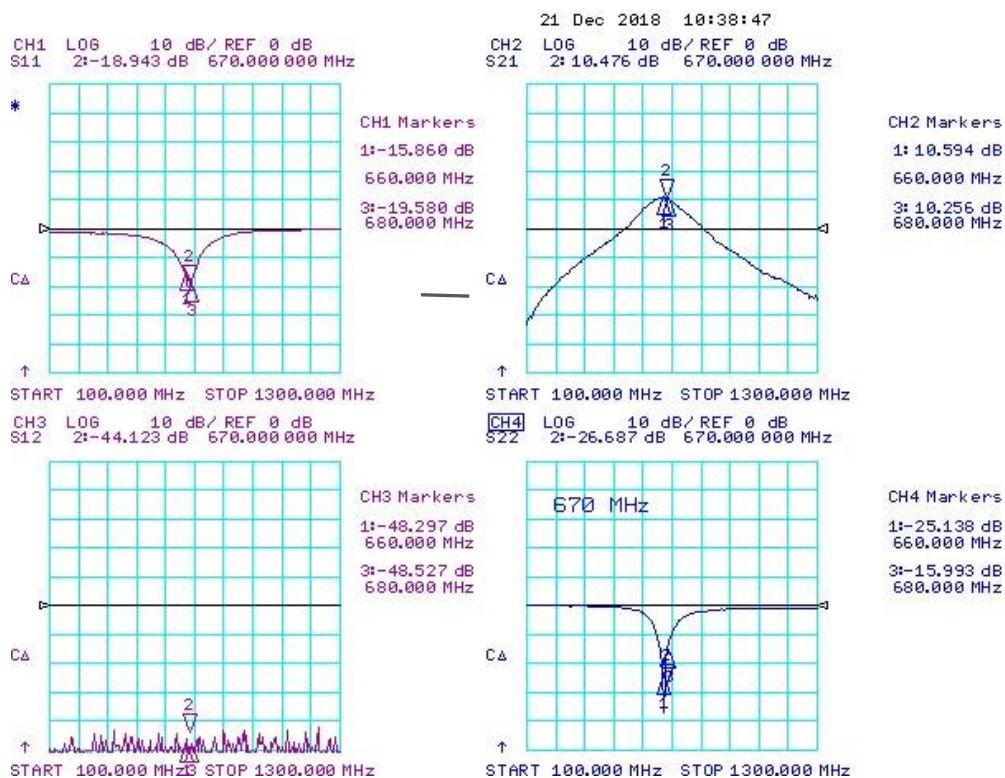


EVALUATION TEST BOARD DESCRIPTION

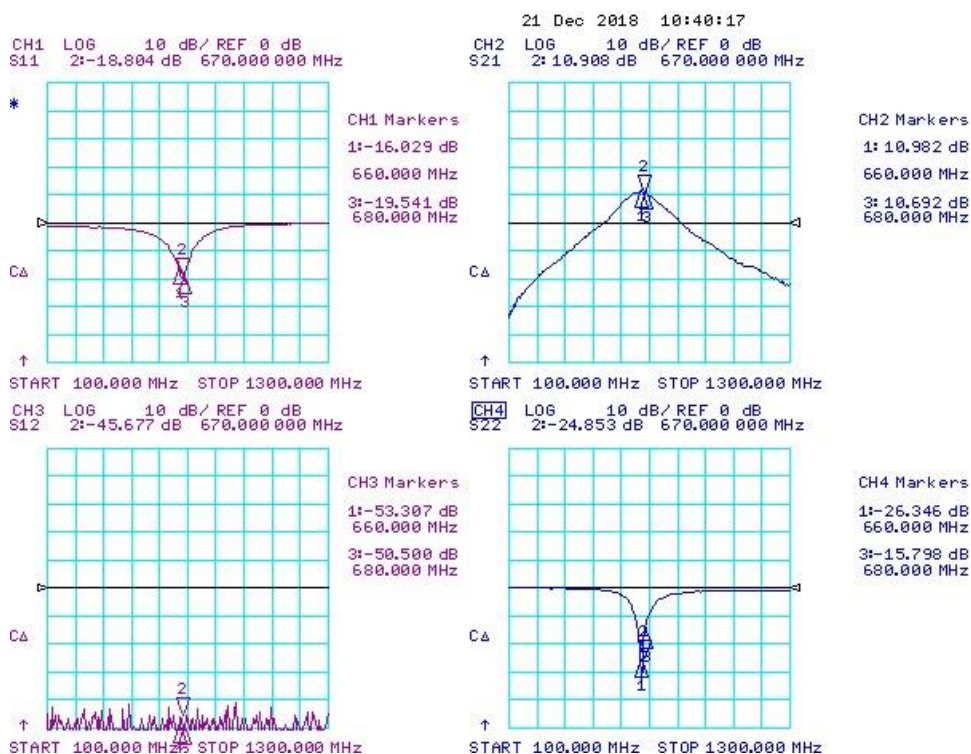
The evaluation test board of the MS2630 adopts two-layer board made of FR4 material. The thickness is 0.8mm and the average thickness of copper surface of circuit board is 30 μ m.



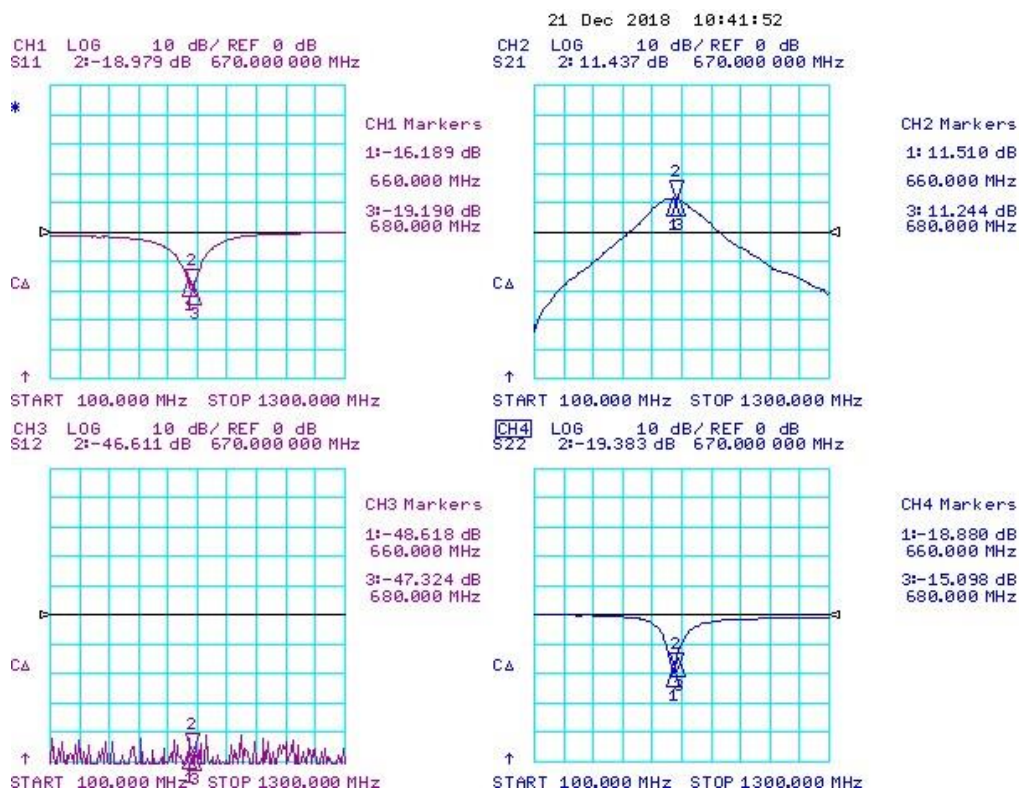
The following figures show the measured value of S parameter for CH1 in 3V power supply. .



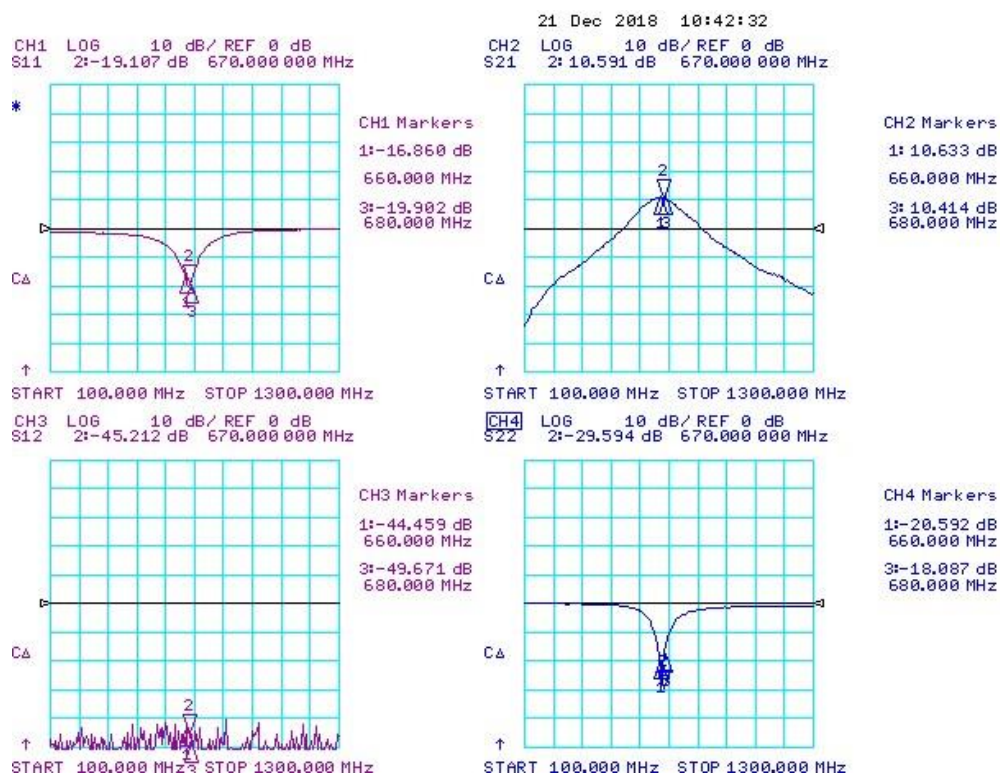
The measured value of S parameter for CH2:



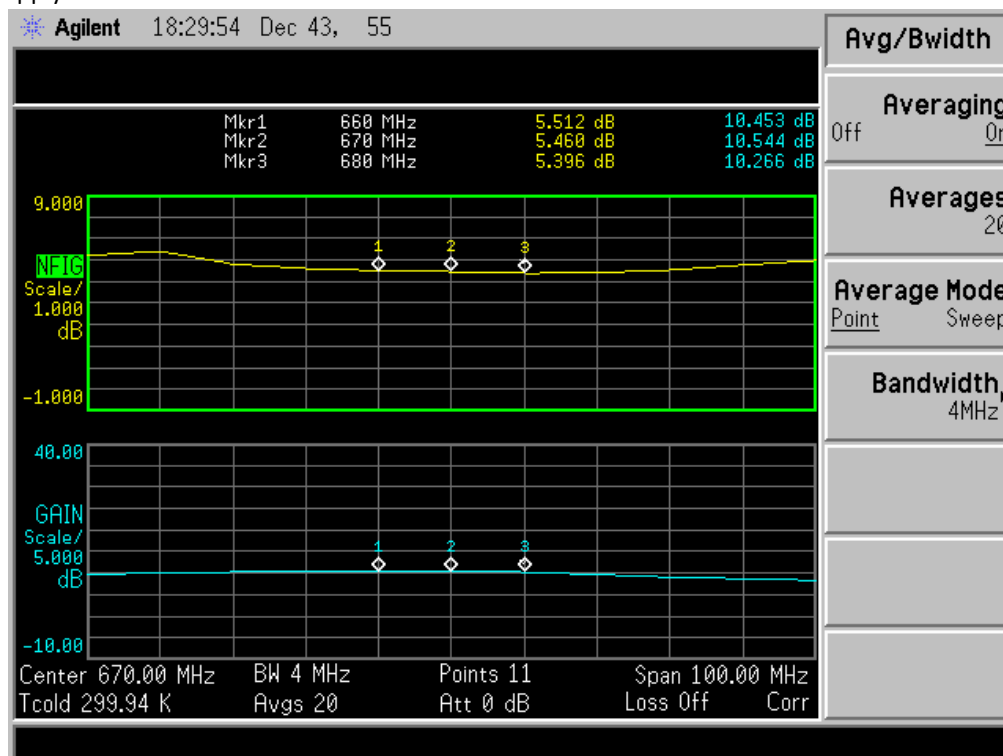
The measured value of S parameter for CH3:



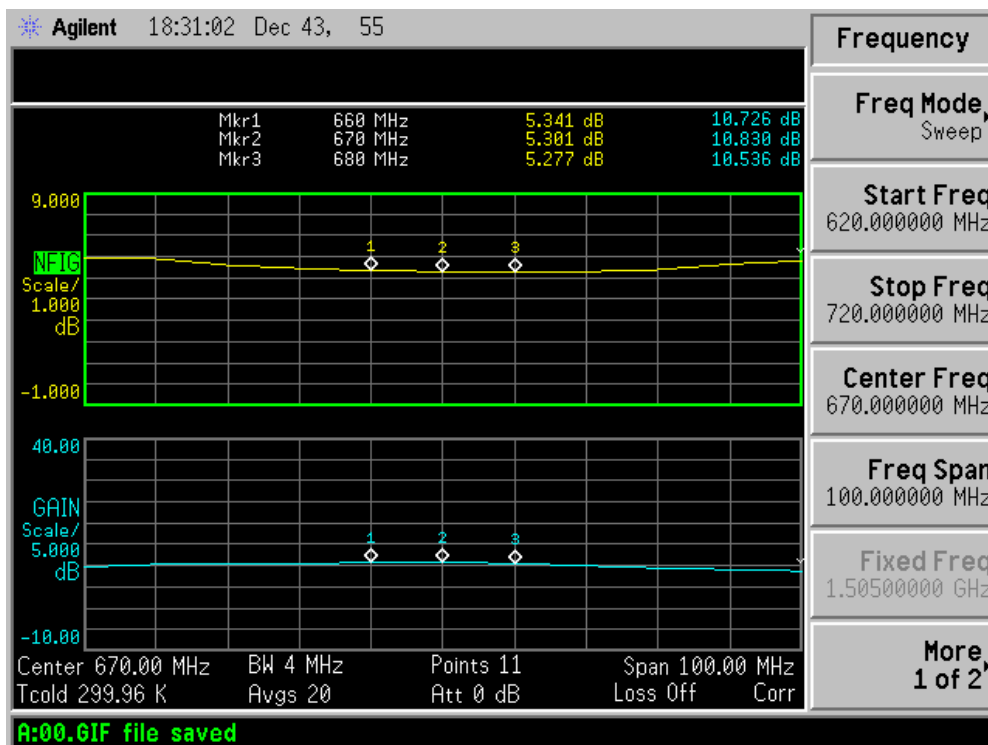
The measured value of S parameter for CH 4:



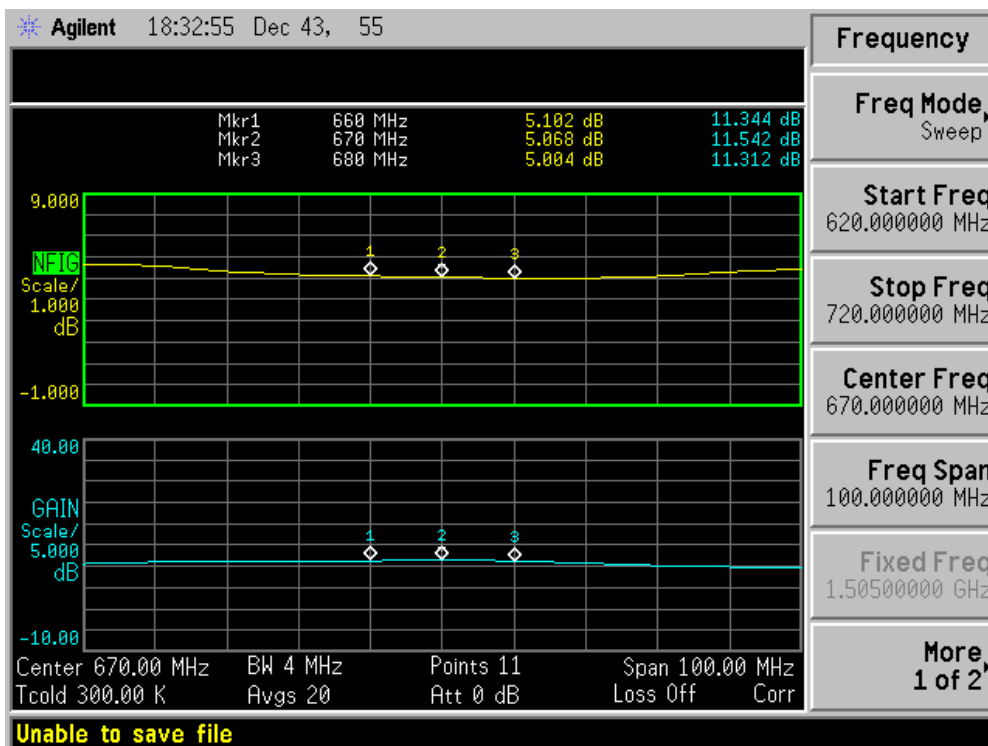
The following figure shows the noise figure and the measured value of relevant gain for input CH1 in 3V power supply.



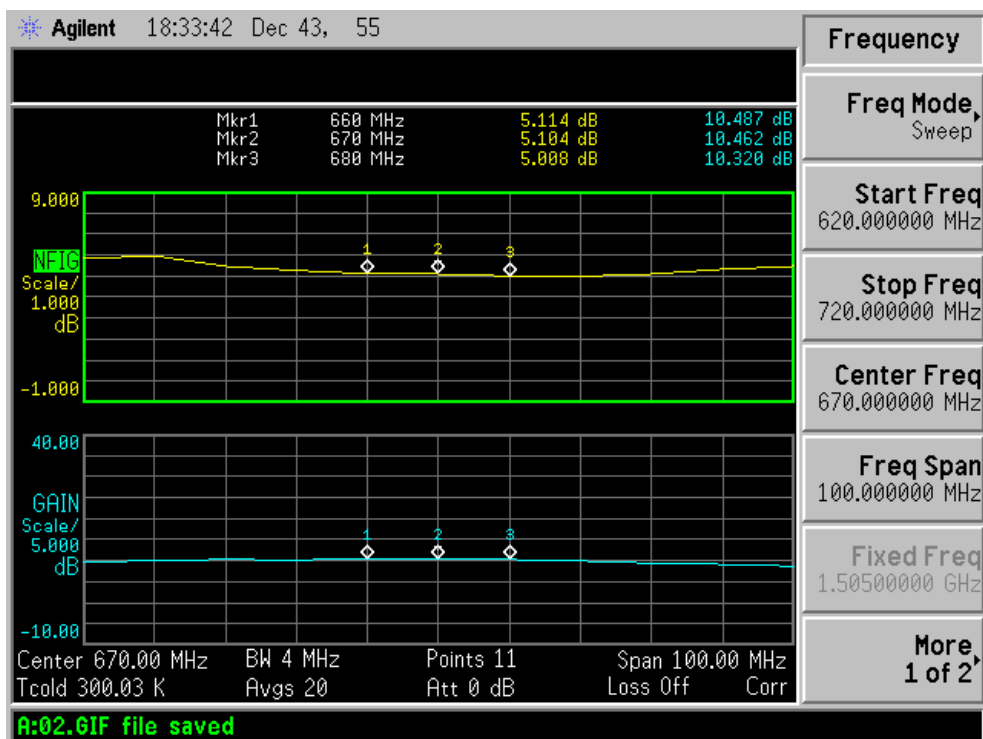
The noise figure and the measured value of relevant gain for input CH2:



The noise figure and the measured value of relevant gain for input CH3:

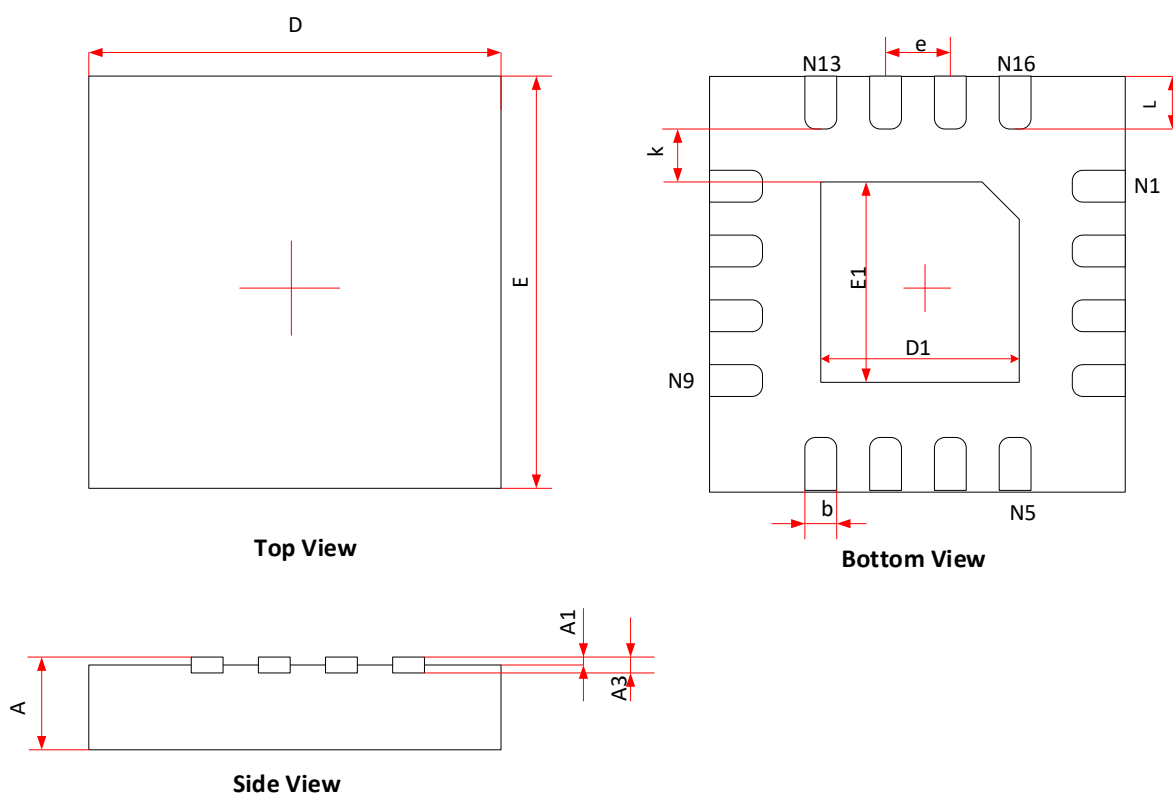


The noise figure and the measured value of relevant gain for input CH4:



PACKAGE OUTLINE DIMENSIONS

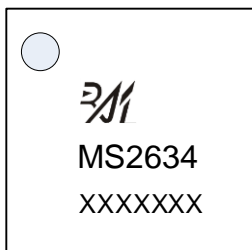
QFN16



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF		0.008REF	
D	3.900	4.100	0.154	0.161
E	3.900	4.100	0.154	0.161
D1	2.000	2.200	0.079	0.087
E1	2.000	2.200	0.079	0.087
k	0.200MIN		0.008MIN	
b	0.250	0.350	0.010	0.014
e	0.650TYP		0.026TYP	
L	0.450	0.650	0.018	0.026

MARKING and PACKAGING SPECIFICATION

1. Marking Drawing Description



Product Name: MS2634

Product Code: XXXXXXX

2. Marking Drawing Demand

Laser printing, contents in the middle, font type Arial.

3. Packaging Specification

Device	Package	Piece/Reel	Reel/Box	Piece/Box	Box/Carton	Piece/Carton
MS2634	QFN16	4000	1	4000	8	32000

STATEMENT

- All Revision Rights of Datasheets Reserved for Ruimeng. Don't release additional notice.
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- The process of improving product is endless. And our company would sincerely provide more excellent product for customer.

**MOS CIRCUIT OPERATION PRECAUTIONS**

Static electricity can be generated in many places. The following precautions can be taken to effectively prevent the damage of MOS circuit caused by electrostatic discharge:

1. The operator shall ground through the anti-static wristband.
2. The equipment shell must be grounded.
3. The tools used in the assembly process must be grounded.
4. Must use conductor packaging or anti-static materials packaging or transportation.



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