

A3216H2G50M200-03 IC ANT



※ Product features:

The whole device is
surface mounted

Features: small size, low profile and light weight

Wide frequency band

Lead-free certification

Dimensions: 3.2x1.6x0.4mm

※ Application:

Bluetooth/Wireless LAN/Home RF technology

ISM band 2.4GHz application

Technical indicators:

Center frequency	2.50GHz
Bandwidth	100MHz(typ.)
Maximum gain	2.71dBi(typ.) (XZ-V)
Average gain	0.5dBi(typ.) (XZ-V)
VSWR	<2
impedance	50Ω
Power capacity	3 W(max)
Operating temperature	-40 ~ +85 °C
Storage temperature	-40 ~ +85 °C

Part Number Information:

A 3216 H 2G50 M200 - 03

A	ANT	2G50	Center frequency2.5G
3216	尺寸3.2x1.6	M200	Bandwidth 100M
H	Inductive	03	Product Model

Structure Description:



Pin No.	1	2
Pin Assignment	Feeder	Fixed end
Note: One of these two pads is connected to the RF signal, and the other is used for fixing without receiving any signal. The left and right sides of these two pads are completely symmetrical, without distinguishing between positive and negative and left and right.		

Size Description :



unit (mm)	L	W	H	A1
Dimensions	3.2±0.05	1.6 ± 0.05	0.4 ± 0.05	0.35 ± 0.05

Schematic diagram of antenna placement, clearance processing and matching network



Matching device value	Parallel Devices Shunt 1	1.7nH
	Series Devices Series 1	2.4nH
	Parallel Devices Shunt 2	NC

Any type of antenna needs impedance matching to ensure that the antenna performance meets the requirements of the impedance specification.

The A3216H2G50M200-03 patch antenna also needs to add a matching network to ensure that the antenna performance meets the standard.

The 3 matching devices together form a π -type matching network for impedance matching of the A3216H2G50M200-03 patch antenna.

The specific device values of these matching devices need to be obtained after the antenna impedance is matched and debugged. The device values shown in the above figure are the values of our test circuit board and can be used as reference values. If you do not have high requirements for antenna performance, you can also use the above reference values directly.

The line width should be designed to match the 50 ohm characteristic impedance according to the PCB material and thickness.

It is recommended to place the antenna at the edge or corner of the circuit board, not in the middle of the circuit board, and do not let the antenna be surrounded by conductors.

A gap is required near the antenna area of the circuit board. As shown in the above figure, the blank area (white area) on the circuit board is the gap area of the antenna. The so-called clearance area refers to the area that cannot be paved and wired except for the antenna pad and antenna signal wiring. The clearance treatment of this area should be for all layers of the PCB board, not just the surface layer.

The clearance area of the antenna should be as large as possible, and the antenna should be placed as close to the edge of the circuit board as possible, so that the antenna body is away from the circuit board. The larger the clearance, the better the antenna

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efficiency and gain performance.

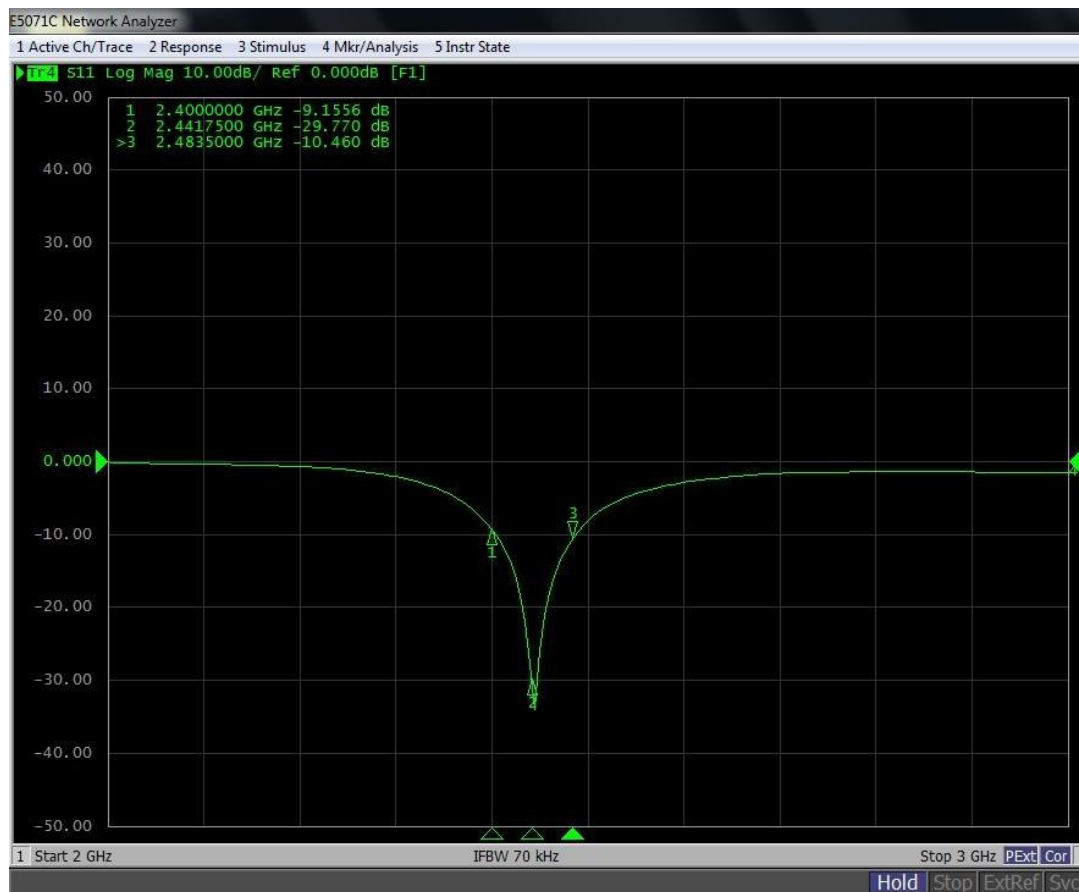
In the structure of the whole machine, it is recommended that there should be no conductors in the overhead area above or below the PCB direction, otherwise it will affect the antenna performance.

Non-clearance areas need to be paved, and the layers are connected by holes to increase the ground as much as possible.

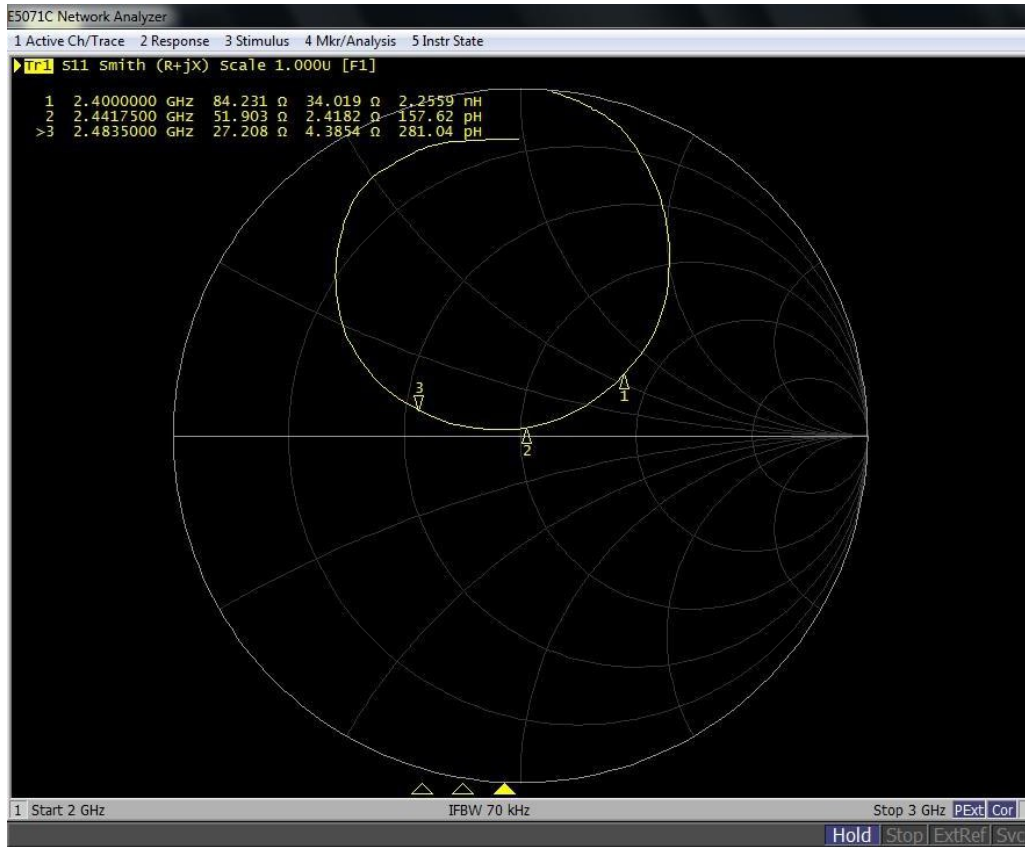
The equipment used for antenna matching debugging is a network analyzer. If you are an antenna professional technician, you can use your own network analyzer to perform antenna matching debugging. If you do not have relevant technology, please contact us and we can provide professional antenna impedance debugging services for your product. Antenna matching debugging requires the entire product to be provided (no need to open it). Please note that the antenna impedance matching debugging mentioned here has nothing to do with RF line impedance control. RF line impedance control is only for RF line wiring in the paving area, and the antenna impedance matched here is the antenna. Please do not confuse the two.

2、The performance parameters of the antenna after matching and debugging are shown in the figure below:

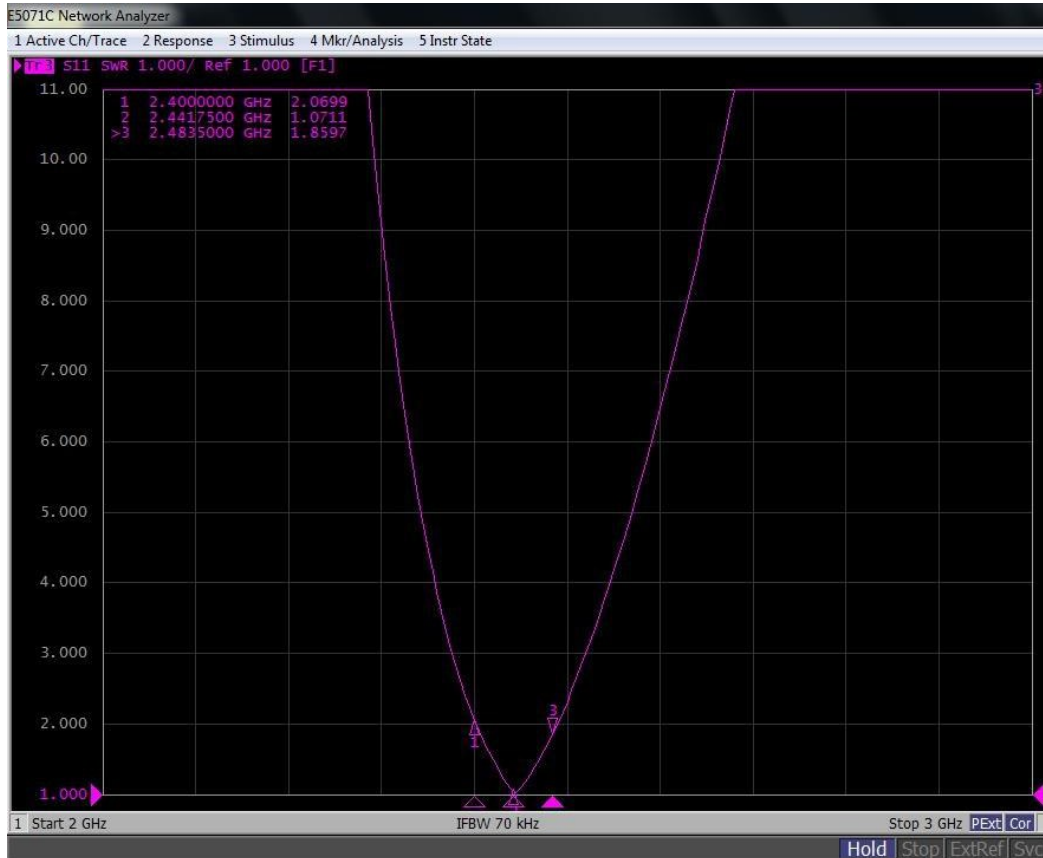
S11 Log Mag :

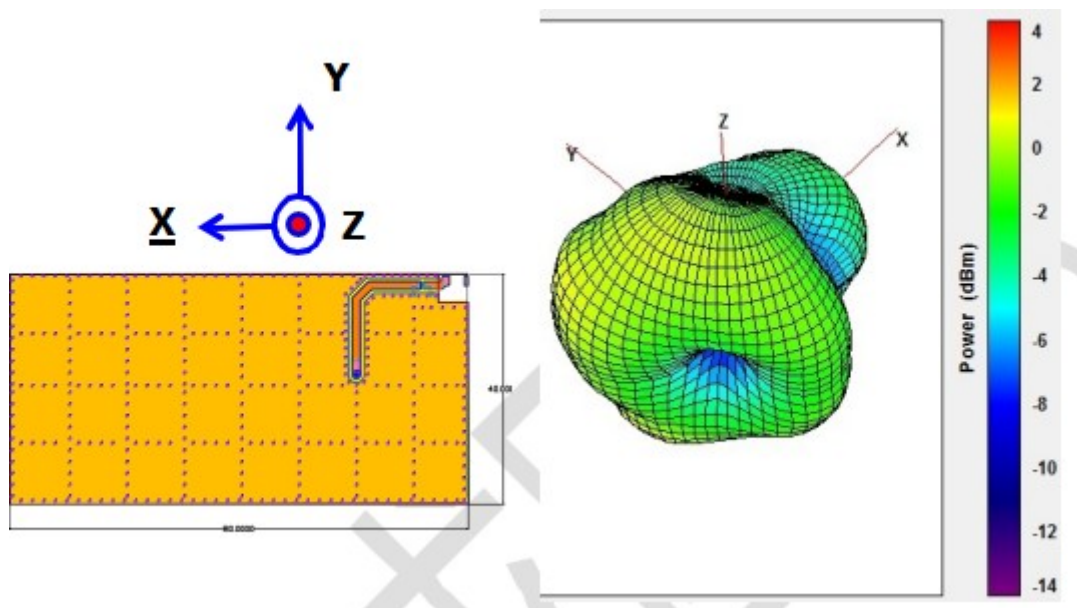


S11 Smith R+jx :



S11SWR :





	Efficiency	Peak Gain	Directivity
2400MHz	55.21 %	1.45 dBi	5.32 dBi
2450MHz	66.45 %	2.71 dBi	5.21 dBi
2500MHz	57.53 %	1.98 dBi	5.29 dBi