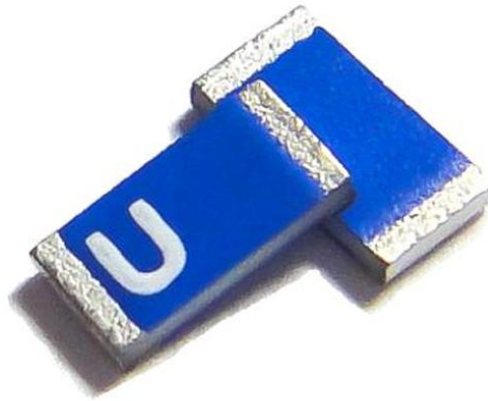


3.2 x 1.6 x 0.5 (mm) WiFi Dual Band Chip Antenna

Engineering Specification



Features

- *Stable and reliable performances in both 2.4 and 5 GHz bands
- *Low profile and compact size
- *RoHS compliance
- *SMT processes compatible

Applications

- *Wi-Fi CERTIFIED ac applications
- *Wireless communication devices when IEEE802.11 a/b/g/n/ac functions are needed.
- *IoT applications

Manufacturer: Zhejiang Haitong Communication Electronics Co., Ltd.

Address of Manufacturer: No. 1607, Binhai 1st Road, Binhai Park, Wenzhou Economic and Technological Development Zone, Zhejiang Province, China

Electrical Specifications (Evaluation Board Dimensions: 80 x 40 mm²)

Electrical Table (2400~2500 MHz Band)

Characteristics		Specifications	Unit
Outline Dimensions		3.2 x 1.6 x 0.5	mm
Ground Plane Dimensions		80 x 40	mm
Working Frequency		2400~2500	MHz
VSWR(@ center frequency)*		2 Max.	
Characteristic Impedance		50	Ω
Polarization		Linear Polarization	
Peak Gain	(@2442 MHz)	1.4 (typical)	dBi
Efficiency		76 (typical)	%

*Center frequency means the frequency with the lowest value in return loss of the chip antenna on the evaluation board.

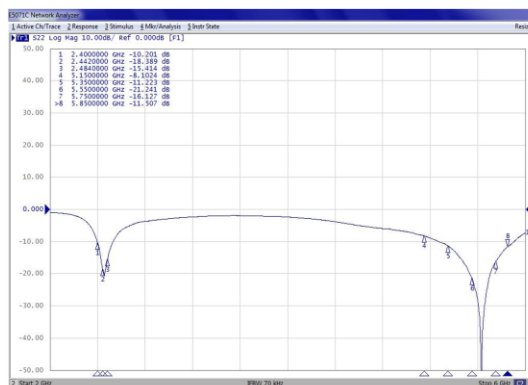
Electrical Table (5150~5850 MHz Band)

Characteristics		Specifications	Unit
Working Frequency		5150~5850	MHz
VSWR(@ center frequency)*		2 Max.	
Characteristic Impedance		50	Ω
Polarization		Linear Polarization	
Peak Gain	(@5550 MHz)	2.3 (typical)	dBi
Efficiency		67 (typical)	%

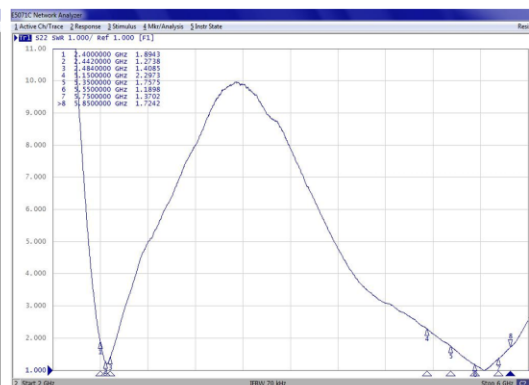
*Center frequency means the frequency with the lowest value in return loss of the chip antenna on the evaluation board.

Return Loss & VSWR

Return Loss (S₁₁)



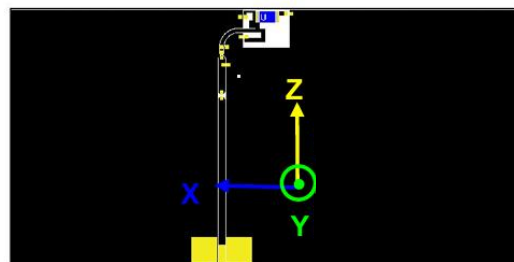
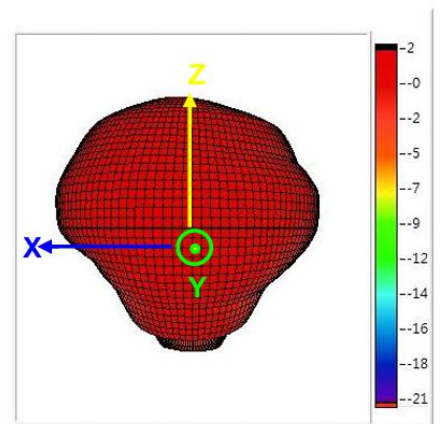
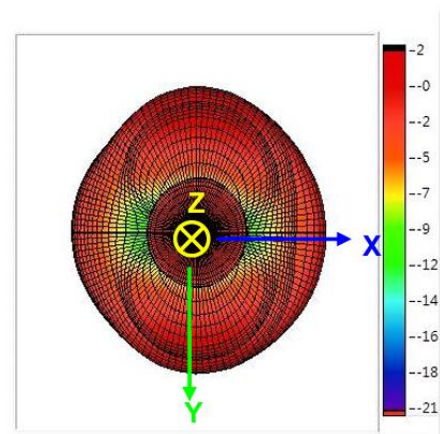
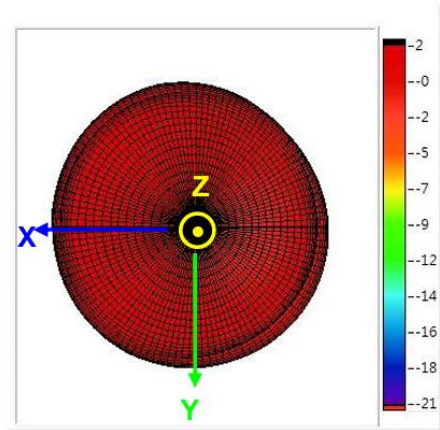
VSWR (S₁₁)



Radiation Pattern (with 80 x 40 mm² Evaluation Board)

2400~2500 MHz Band

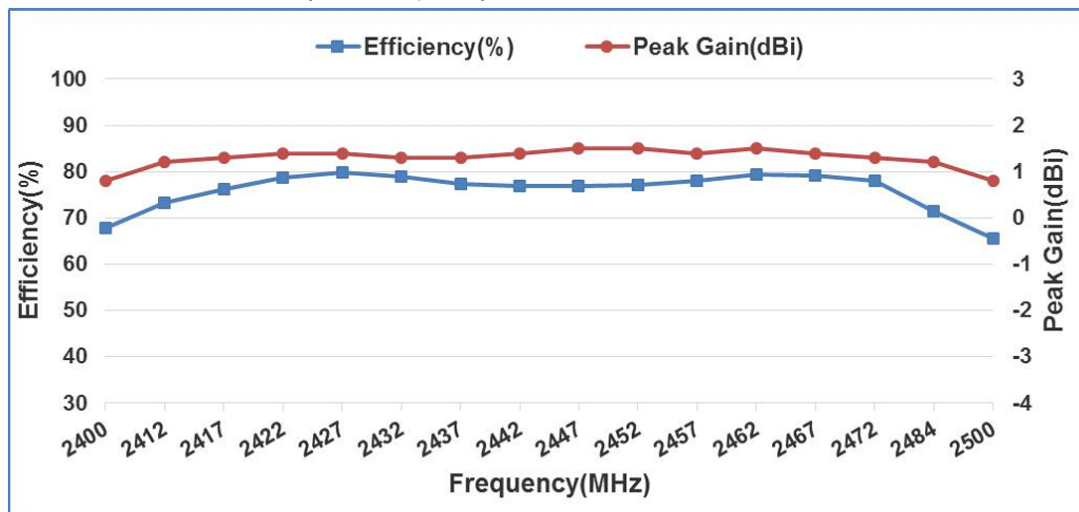
3D Gain Pattern @ 2442 MHz (unit: dBi)



3D Efficiency Table

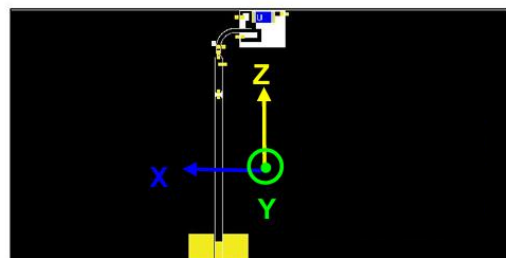
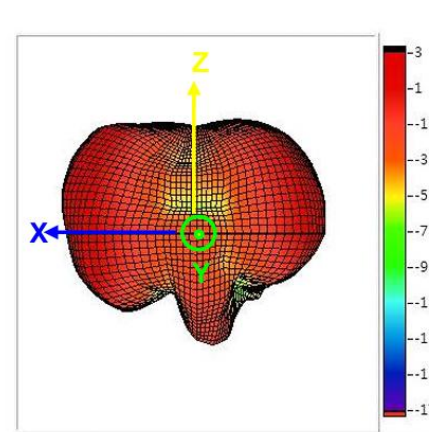
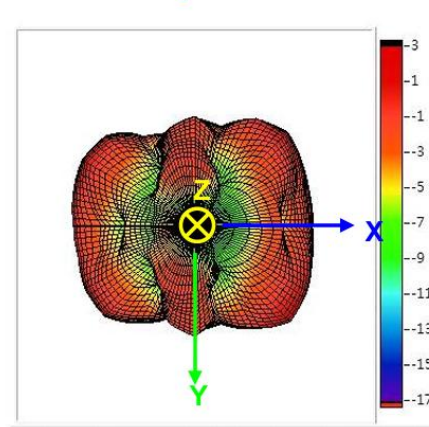
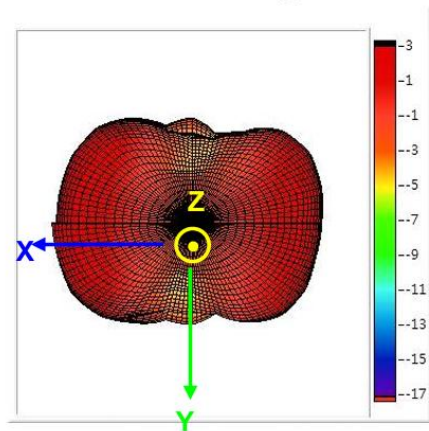
Frequency(MHz)	2400	2412	2417	2422	2427	2432	2437	2442	2447	2452	2457	2462	2467	2472	2484	2500
Efficiency(dB)	-1.7	-1.4	-1.2	-1.0	-1.0	-1.0	-1.1	-1.1	-1.2	-1.1	-1.1	-1.0	-1.0	-1.1	-1.5	-1.8
Efficiency(%)	67.9	73.2	76.1	78.7	79.9	78.8	77.4	76.8	76.8	77.2	78.1	79.3	79.2	78.1	71.5	65.5
Peak Gain(dBi)	0.8	1.2	1.3	1.4	1.4	1.3	1.3	1.4	1.5	1.5	1.4	1.5	1.4	1.3	1.2	0.8

3D Efficiency vs. Frequency

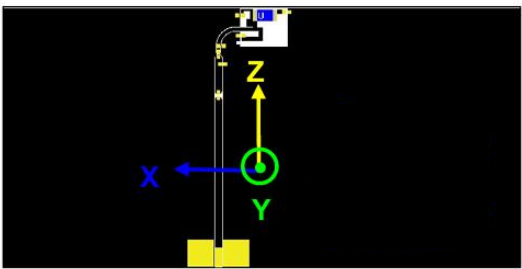
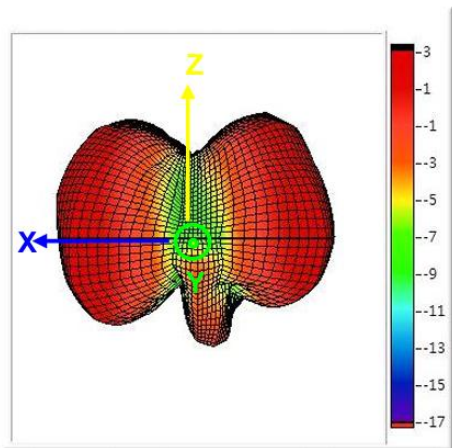
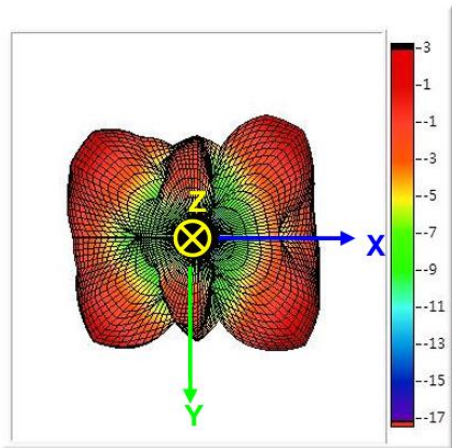
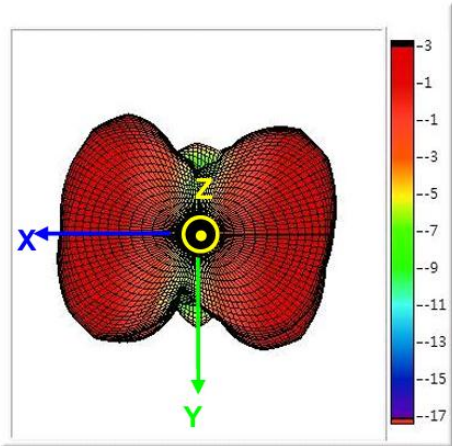


5150~5850 MHz Band

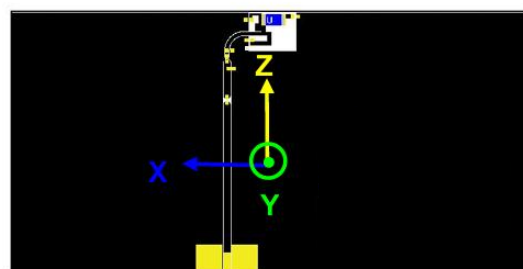
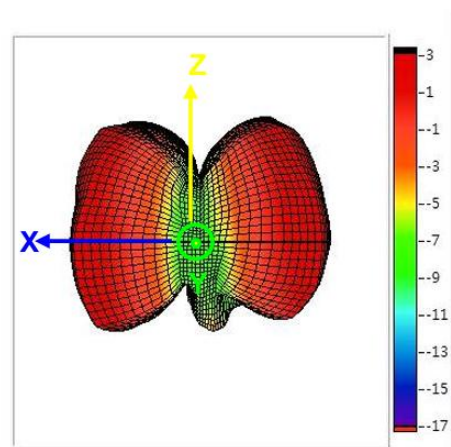
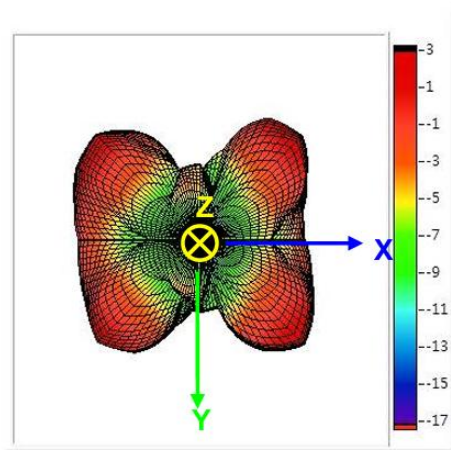
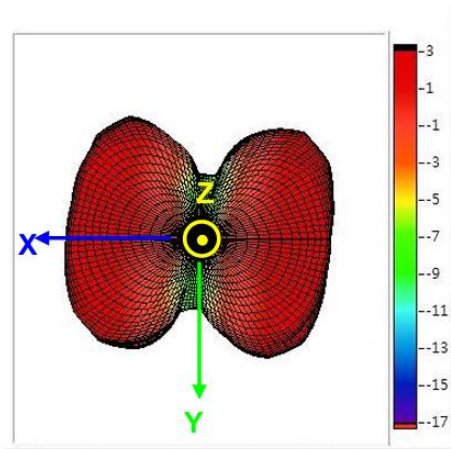
3D Gain Pattern @ 5150 MHz (unit: dBi)



3D Gain Pattern @ 5550 MHz (unit: dBi)



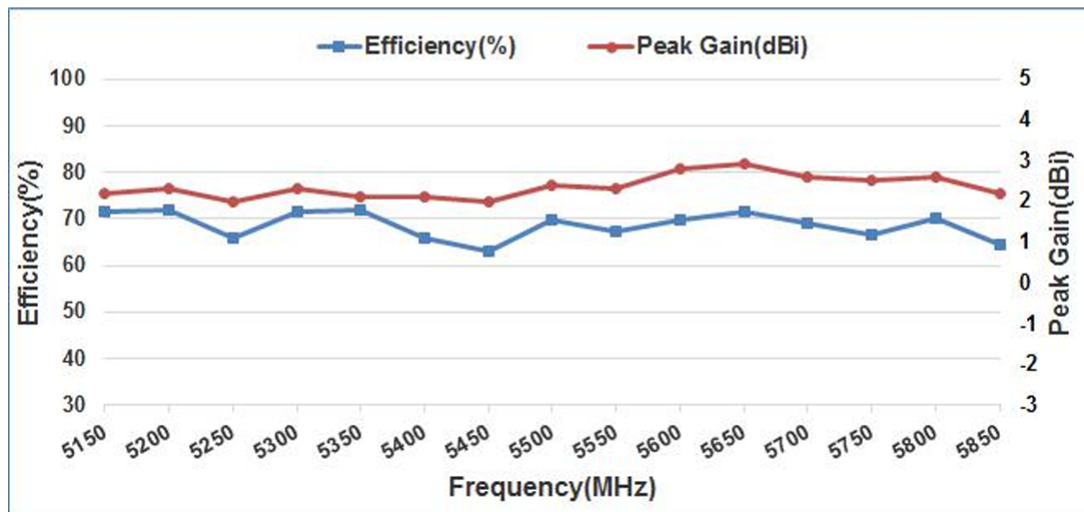
3D Gain Pattern @ 5850 MHz (unit: dBi)



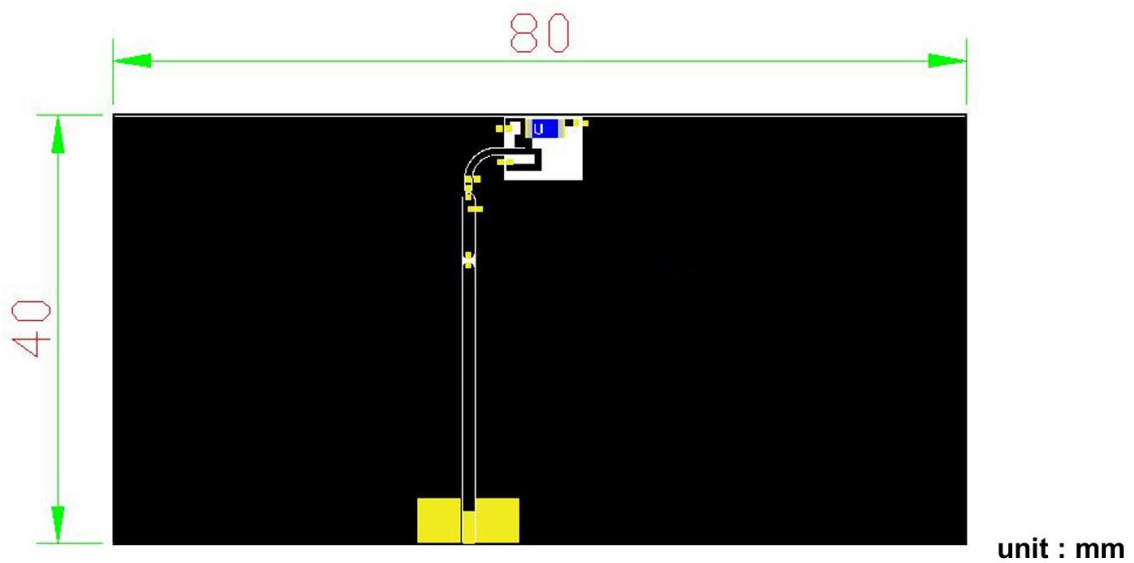
3D Efficiency Table

Frequency(MHz)	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850
Efficiency(dB)	-1.5	-1.4	-1.8	-1.5	-1.4	-1.8	-2.0	-1.6	-1.7	-1.6	-1.4	-1.6	-1.8	-1.5	-1.9
Efficiency(%)	71.5	71.9	65.7	71.6	71.9	65.8	63.2	69.9	67.3	69.6	71.7	68.9	66.6	70.1	64.6
Peak Gain(dBi)	2.2	2.3	2.0	2.3	2.1	2.1	2.0	2.4	2.3	2.8	2.9	2.6	2.5	2.6	2.2

3D Efficiency vs. Frequency

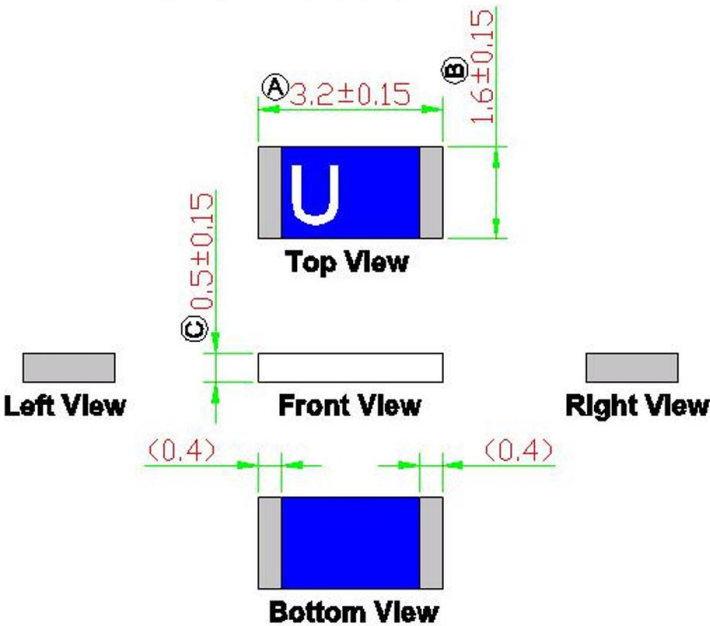


Evaluation Board with Antenna



Outline Dimensions of Antenna & Evaluation Board (unit: mm)

Antenna Dimensions



NOTE:
1.All materials are RoHS compliant.
2."A~C" Critical Dimensions.
3."()" Reference Dimensions.

PIN Definitions

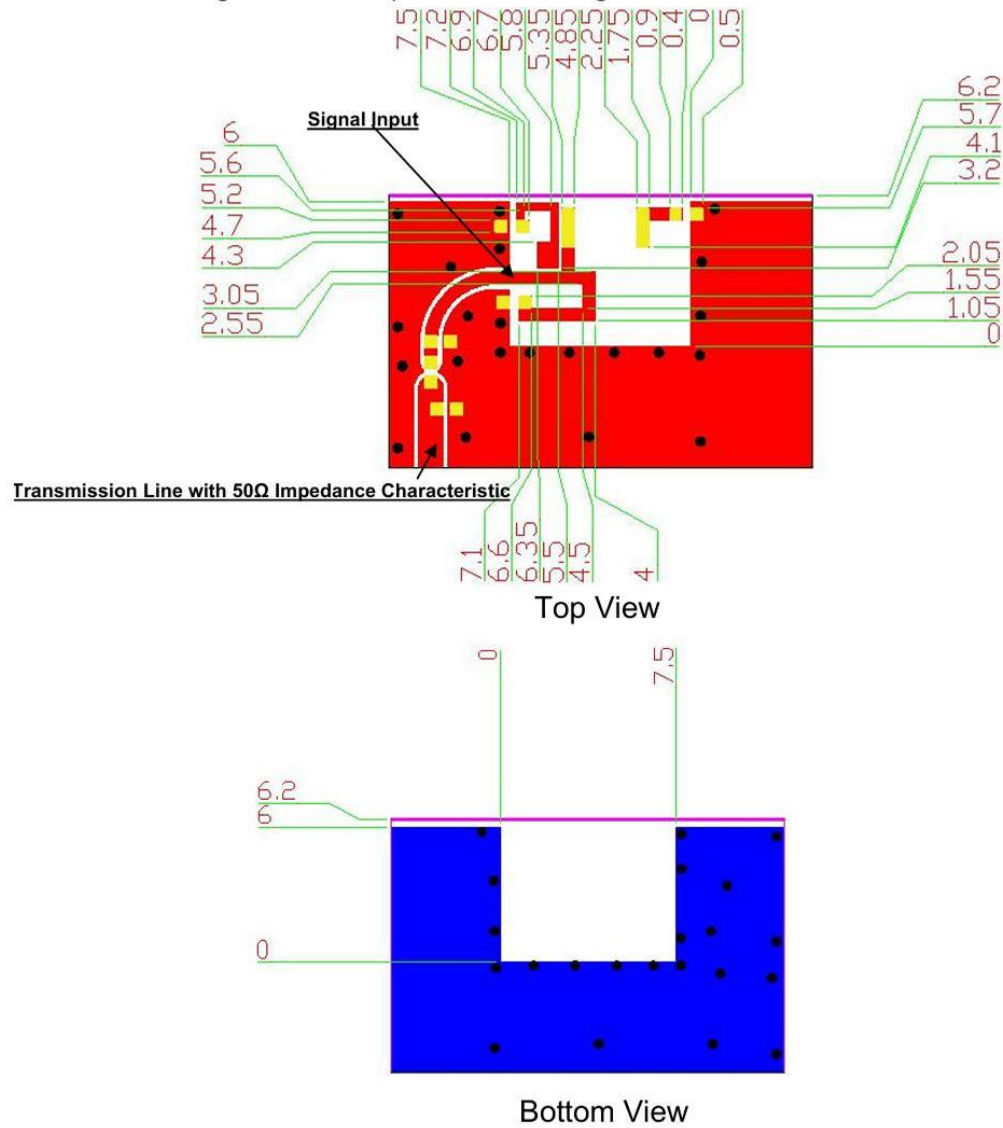


PIN	1	2
Soldering PAD	Signal	Tuning / Ground

Layout Guide (unit : mm)

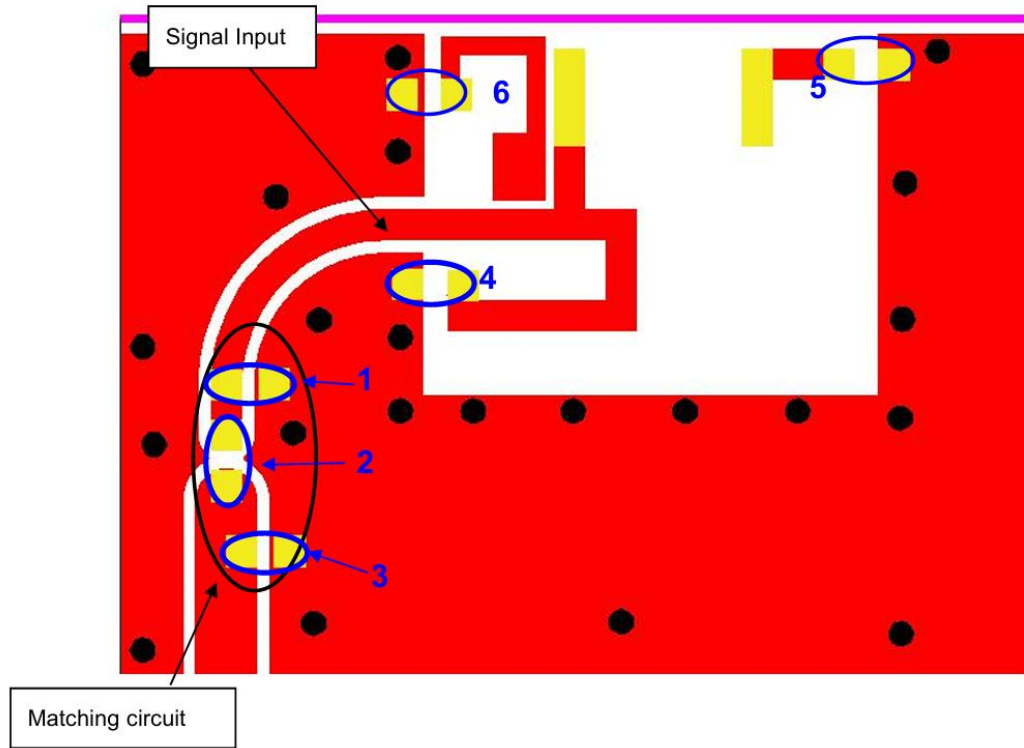
Solder Land Pattern:

The solder land pattern (gold marking areas) is shown below. Recommendation on matching circuit will be provided according to customer's installation conditions.

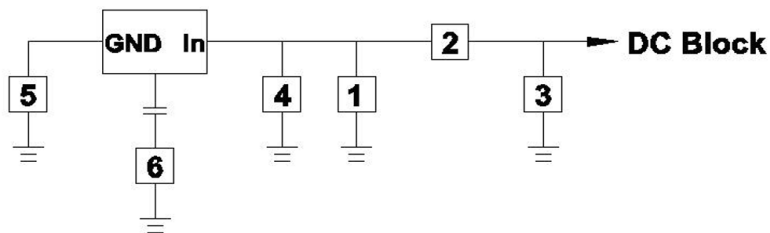


Frequency tuning and Matching circuit

Chip antenna tuning scenario :

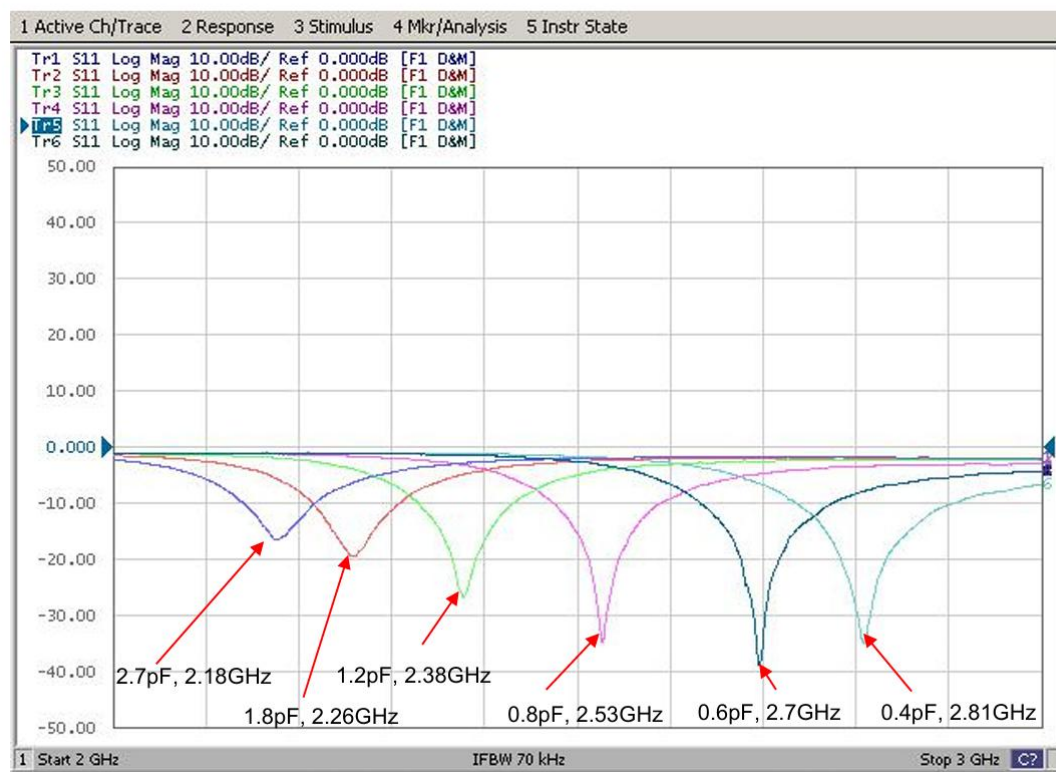
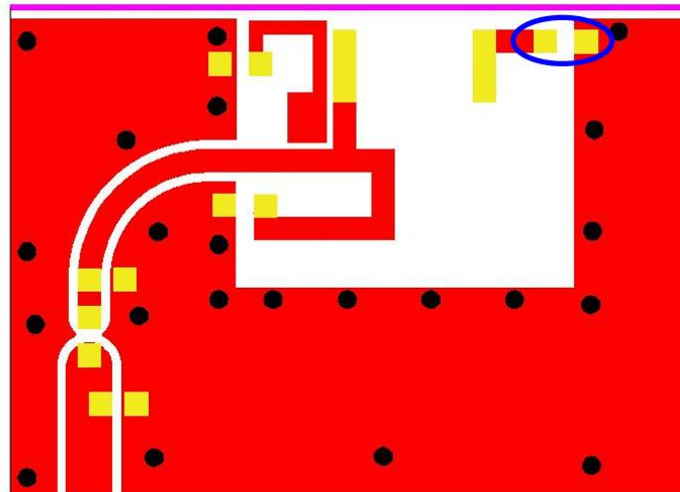


Matching circuit: With the following recommended values of matching and tuning components, the center frequencies will be about 2442 MHz for lower band & 5500 MHz for higher band at our standard 80x40 mm² evaluation board. However, these are typical reference values which may need to be changed when circuit boards or part vendors are different



System Matching Circuit Component			
Location	Description	Vendor	Tolerance
1	N/A	-	-
2	1 nH, (0402)	DARFON	±0.3 nH
3	0.2 pF, (0402)	DARFON	±0.05 pF
4	22 pF, (0402)	DARFON	±5%
5 Fine tuning element	1 pF, (0402)	DARFON	±0.05 pF
6 Fine tuning element	0.2 pF, (0402)	DARFON	±0.05 pF

Reference for frequency tuning element (2400~2500 MHz Band)



Reference for frequency tuning element (5150~5850 MHz Band)

