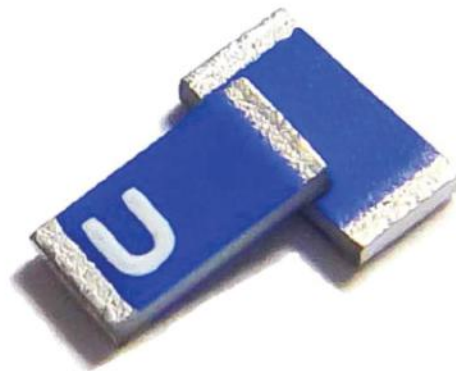


3.2 x 1.6 x 0.5 (mm) WiFi Dual Band Chip Antenna (AA077)

Engineering Specification

1. Product Number

H 2 U 8 4 W 1 H 1 S 0 3 0 0



2. Features

- *Stable and reliable performances in both 2.4 and 5 GHz bands
- *Low profile and compact size
- *RoHS 2.0 compliance
- *SMT processes compatible
- *AEC-Q200 compliant

3. Applications

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

4. Description

Unictron's AA077 ceramic chip antenna is designed for Wi-Fi CERTIFIED ac applications, covering both 2400~2500 MHz & 5150~5850 MHz frequency bands. Fabricated with proprietary design and processes, AA077 shows excellent performance and is fully compatible with SMT processes which can decrease the assembly cost and improve device's quality and consistency.

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Designed by : Peter

Checked by : Mike

Approved by : Herbert

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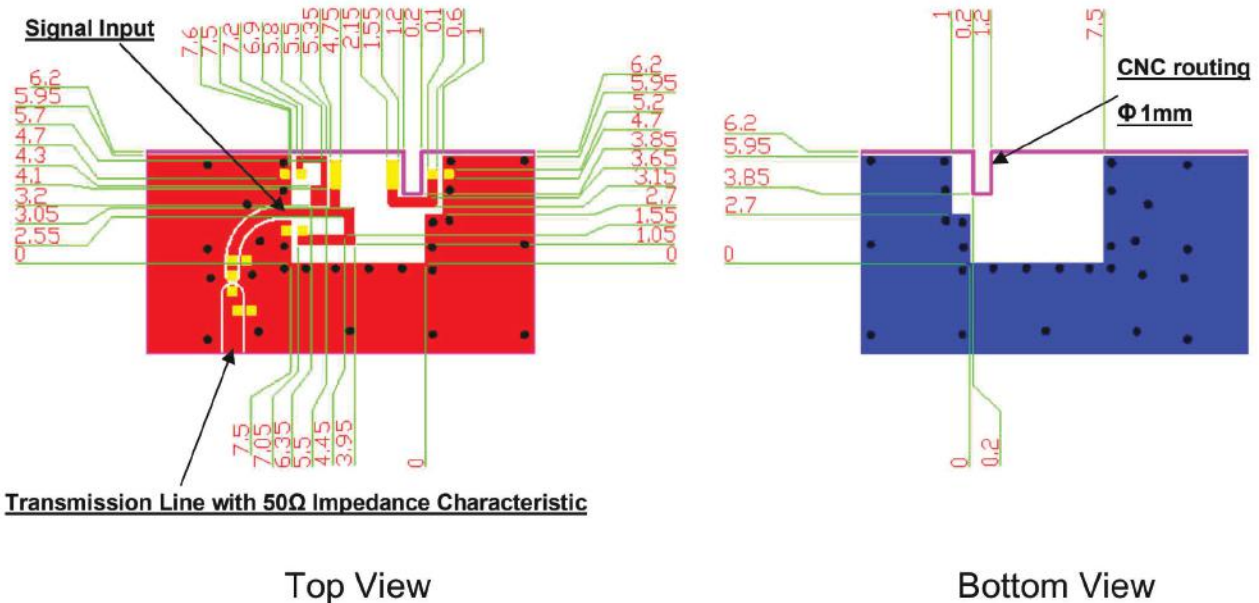
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5. Layout Guide & Electrical Specifications

5-1. 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.



5-2. Electrical Specifications (Evaluation Board Dimensions: 80 x 40 mm²)

5-2-1. Electrical Table

Characteristics	Specifications	
Outline Dimension (mm)	3.2 x 1.6 x 0.5	
Working Frequency (MHz)	2400 ~ 2500	5150 ~ 5850
Peak Gain (dBi) (typical)**	1.4	2.3
Radiation Efficiency (%) (typical)**	76	67
VSWR (@ center frequency)*	< 2 : 1	< 2 : 1
Characteristic Impedance (Ω)	50	
Polarization	Linear Polarization	

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

**A typical value is for reference only, not guaranteed.



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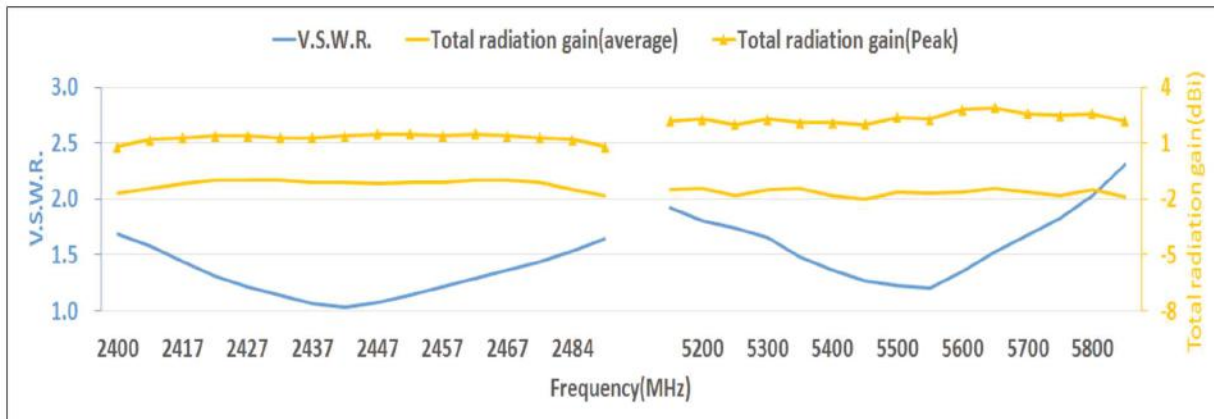
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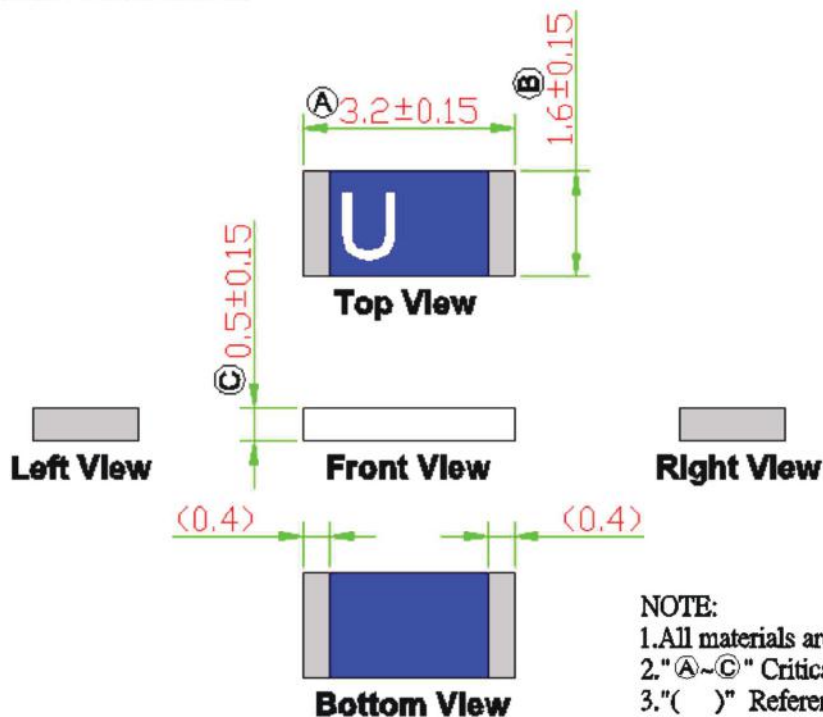
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5-2-2. Frequency vs. V.S.W.R. and Total Radiation Gain



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

6-1. Antenna Dimensions



NOTE:

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



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PIN Definition



PIN	1	2
Soldering PAD	Signal	Tuning / Ground

6-2. Evaluation Board with Antenna



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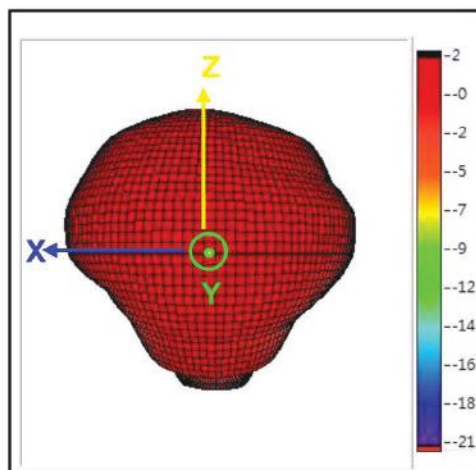
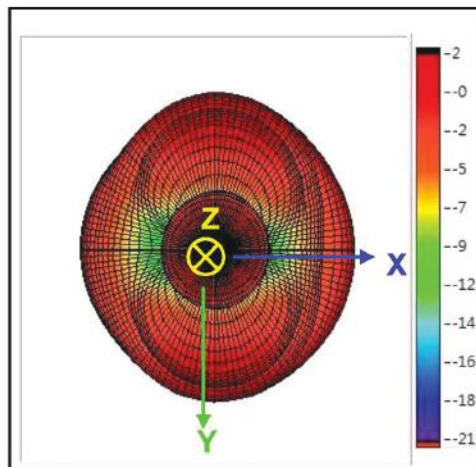
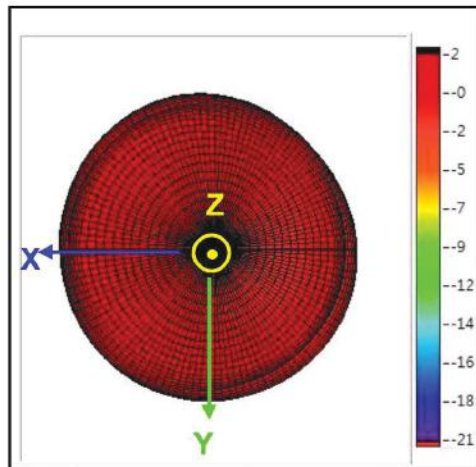
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7. 3D Radiation Gain Pattern (with 80 x 40 mm² Evaluation Board)

7-1. 2400~2500 MHz Band

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



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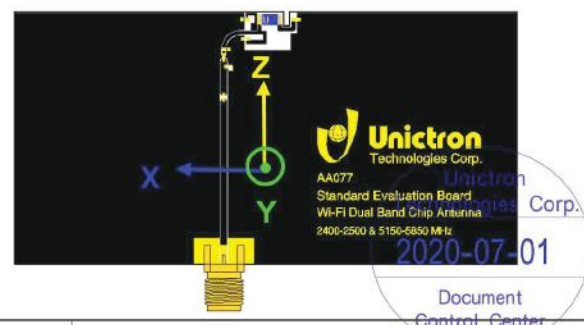
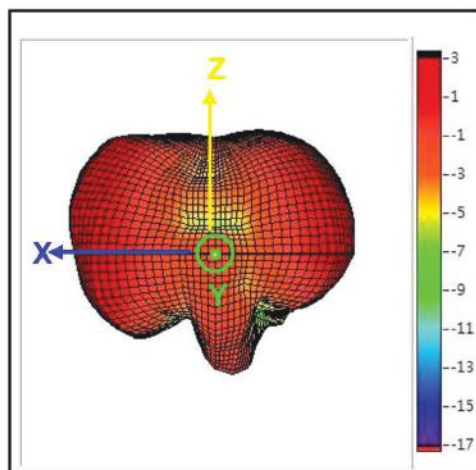
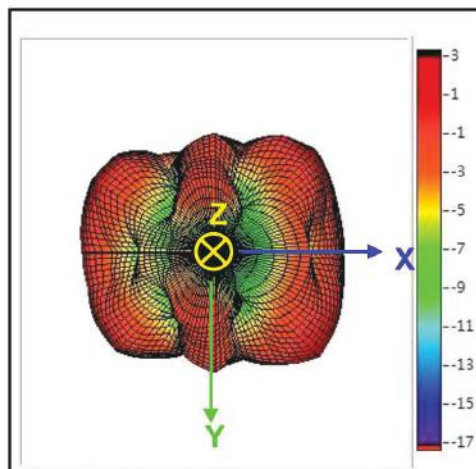
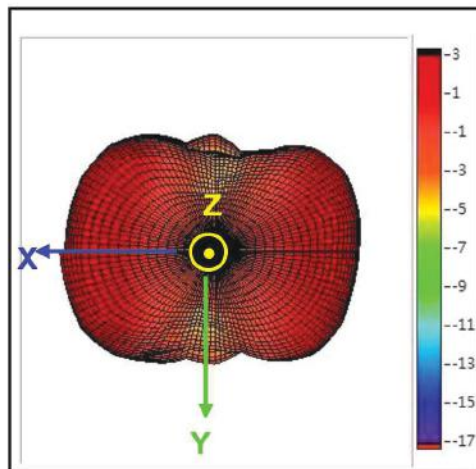
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7-2. 5150~5850 MHz Band

7-2-1. 3D Radiation Gain Pattern @ 5150 MHz (unit: dBi)



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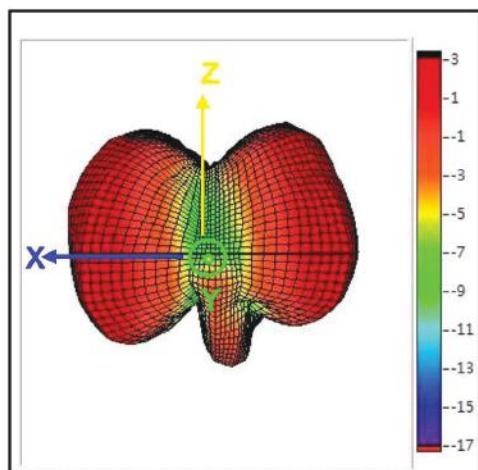
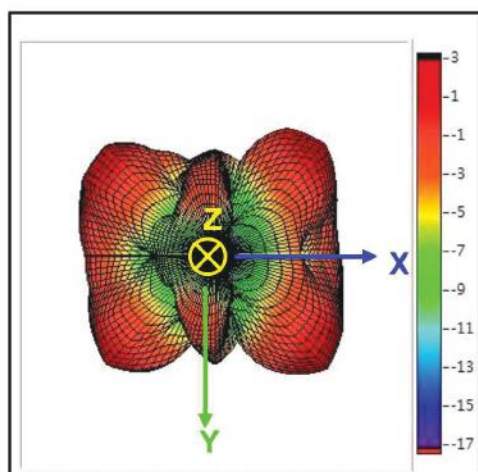
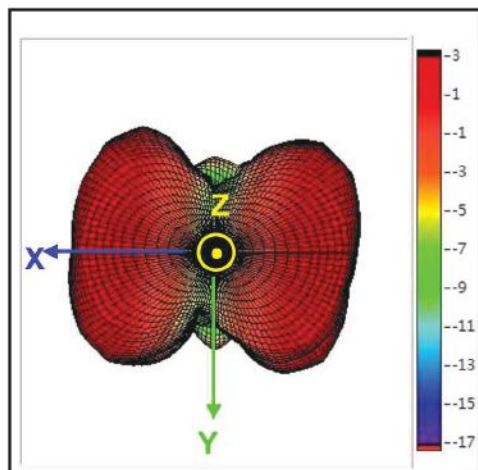
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7-2-2. 3D Radiation Gain Pattern @ 5550 MHz (unit: dBi)



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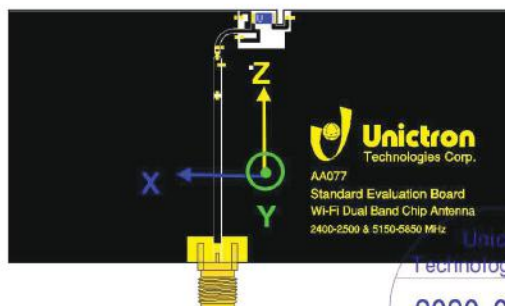
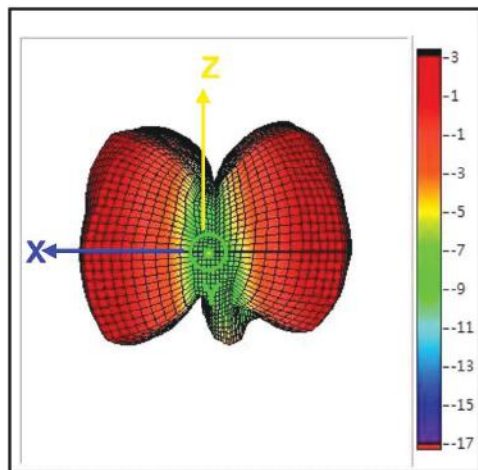
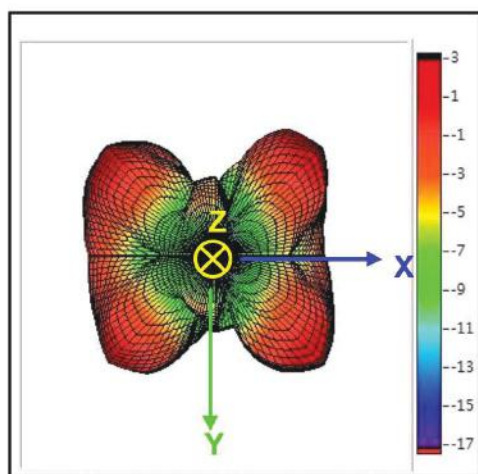
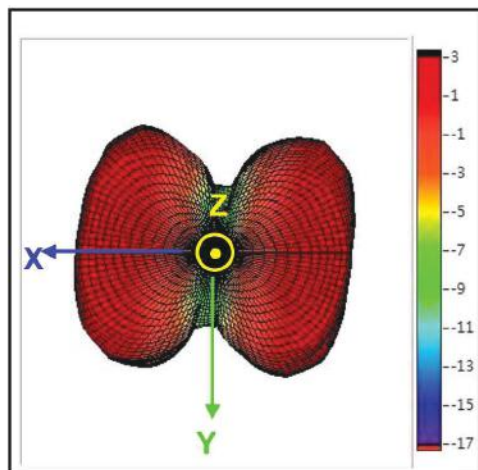
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7-2-3. 3D Radiation Gain Pattern @ 5850 MHz (unit: dBi)



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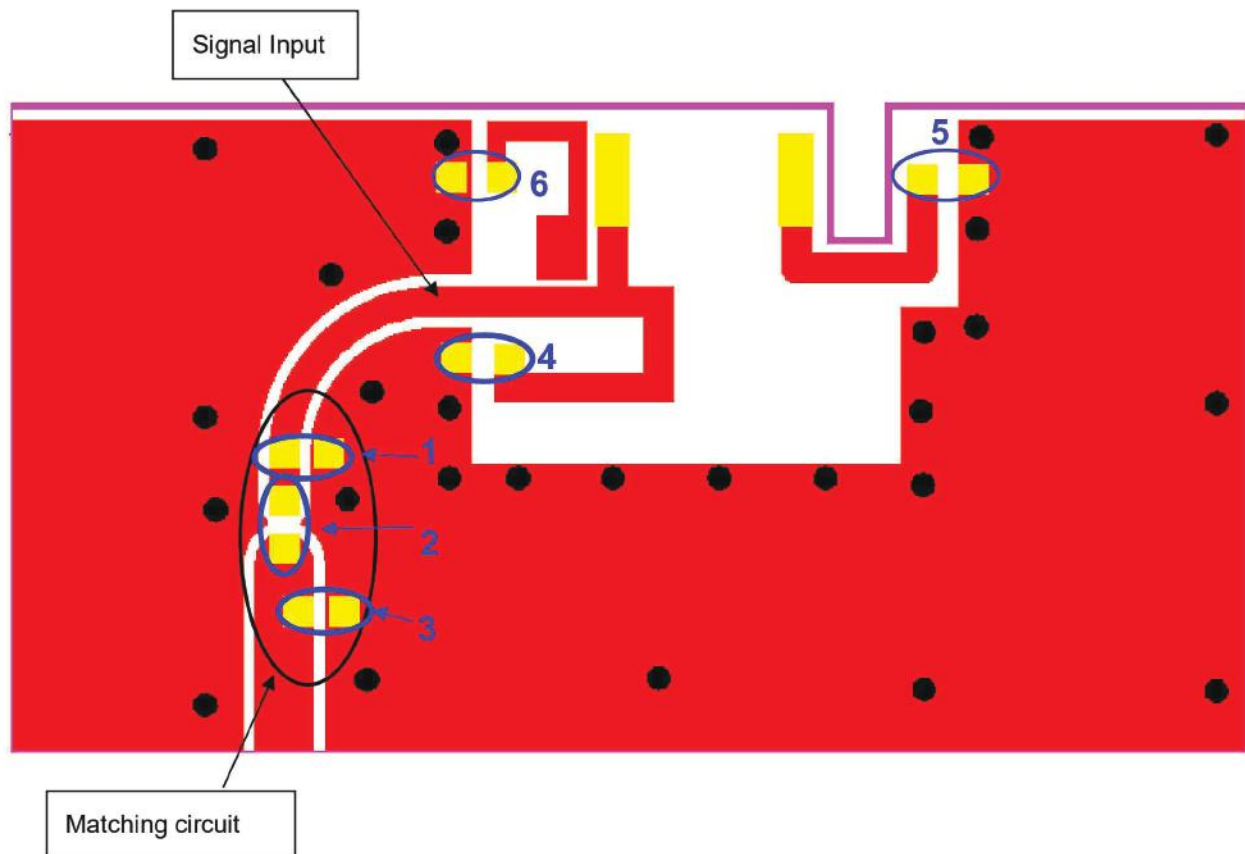
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8. Frequency tuning and Matching circuit

8-1. Chip antenna tuning scenario :



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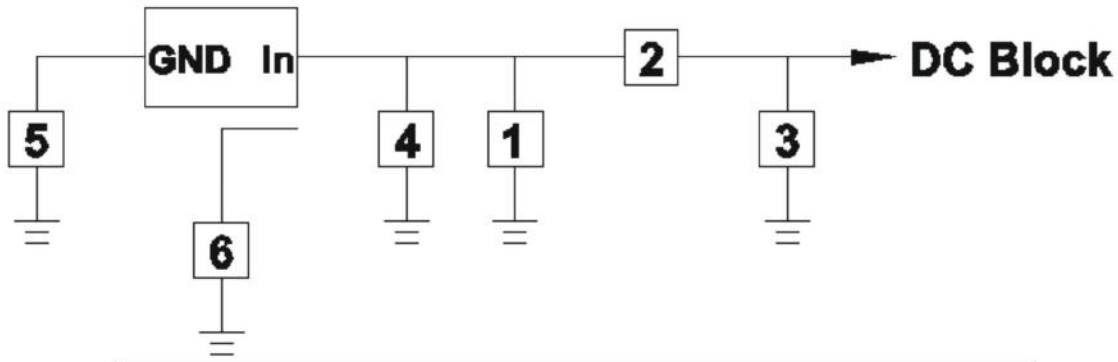
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8-2. Matching circuit :

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	0Ω, (0402)		
3	0.1 pF, (0402)	MURATA	±0.05 pF
4	12 pF, (0402)	MURATA	±5%
5 Fine tuning element	1 pF, (0402)	MURATA	±0.05 pF
6 Fine tuning element	0.8 pF, (0402)	MURATA	±0.05 pF



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