

Features

- Stable and reliable performance
- Supports 2.4 GHz Band
- High performance, small size
- RoHs Complaint

Applications

- SM 2.4 GHz applications
- ZigBee/BLE applications
- Bluetooth earphone systems
- Hand-held devices when WiFi / Bluetooth functions are needed, e.g., Smart phones
- IEEE802.11 b/g/n



Specifications

Electrical	
Frequency Range	2400 ~ 2484 MHz
Return Loss	< - 10 dB
Peak Gain	2.0 dBi
Average Gain	-2.1 dB
Efficiency	62%
Maximum Input Power	2 W
Polarization	Linear
Impedance	50Ω
Environmental	
Operating Temperature	-40°C~+105°C
Storage Temperature	-5°C~+40°C -40°C~+85°C : After mounting on PCB
Relative Humidity	10% to 70% : Operating & Storage after mounting on PCB 20% to 70% : Storage
Shelf Life	1 year
RoHs Compliant	Yes

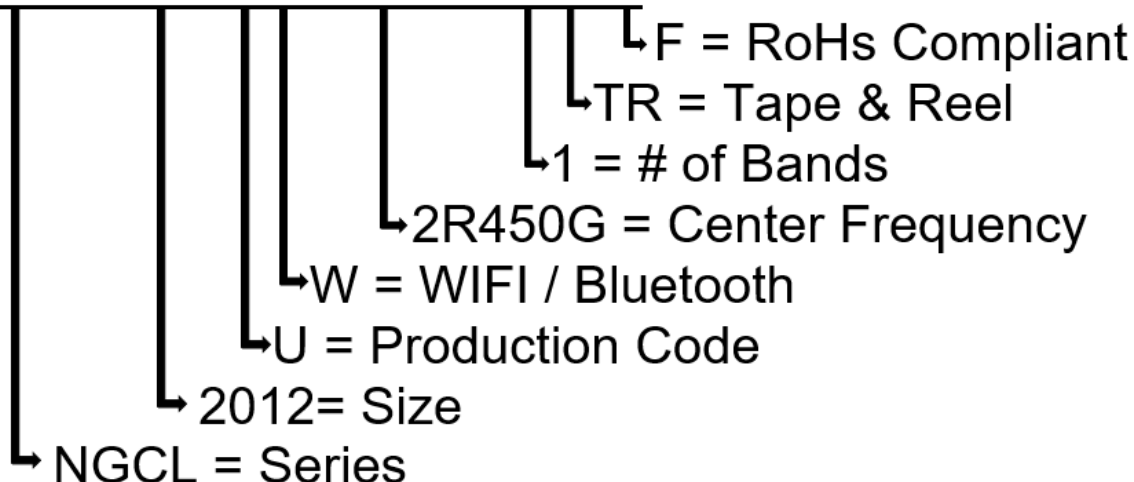
NGCL2012UW2R450G1TRF

2.4 GHz WiFi/Bluetooth Chip Antenna

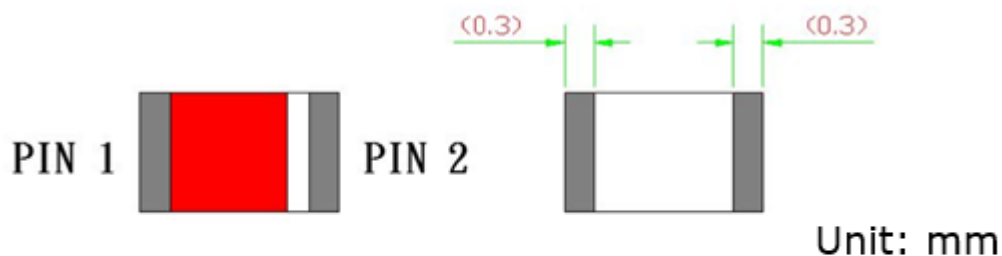


Part Number Breakdown

NGCL2012UW2R450G1TRF



Pin Definition



PIN	1	2
Soldering Pad	Signal Input	Tuning/Signal Output

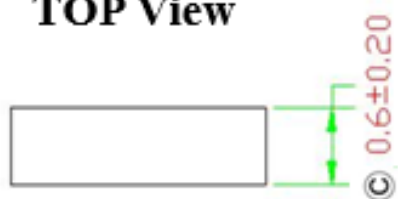
Dimension Drawing



TOP View



Bottom View



Side View

Unit: mm

Dimensions (mm) & Mechanical

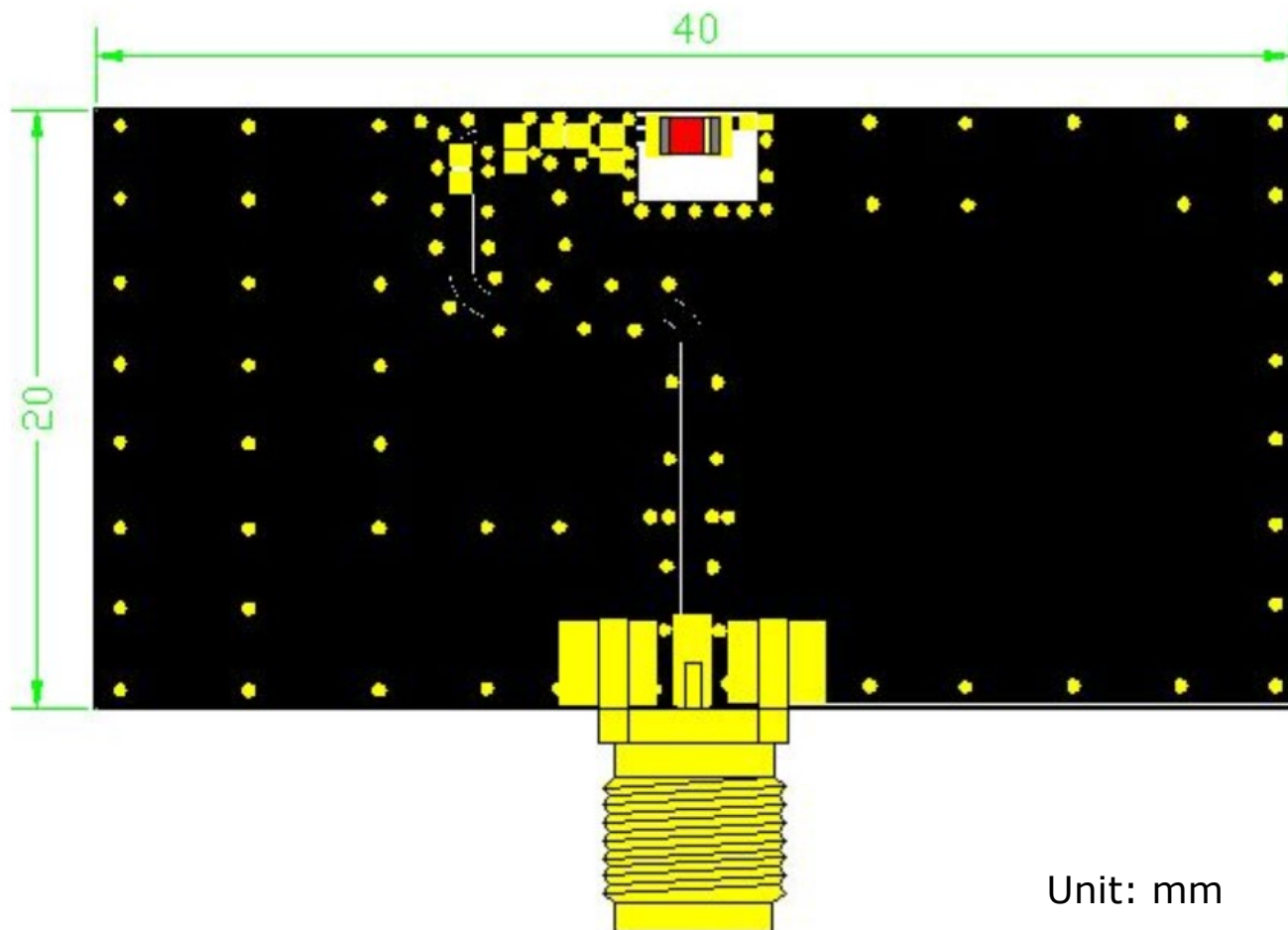
Body Length (A)	2.0 ± 0.2
Width (B)	1.2 ± 0.2
Thickness (C)	0.6 ± 0.2
Connection Type	SMT
Ground Plane	40 mm x 20 mm
Material	Ceramic

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2.4 GHz WiFi/Bluetooth Chip Antenna



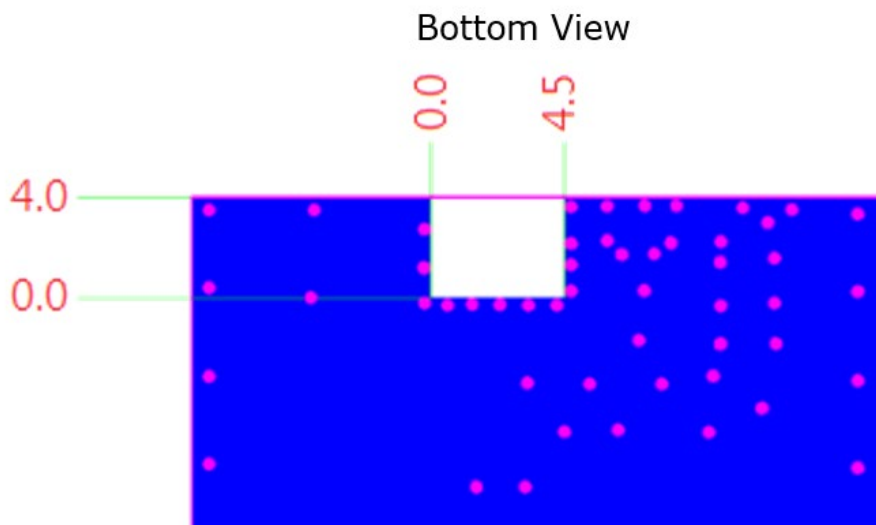
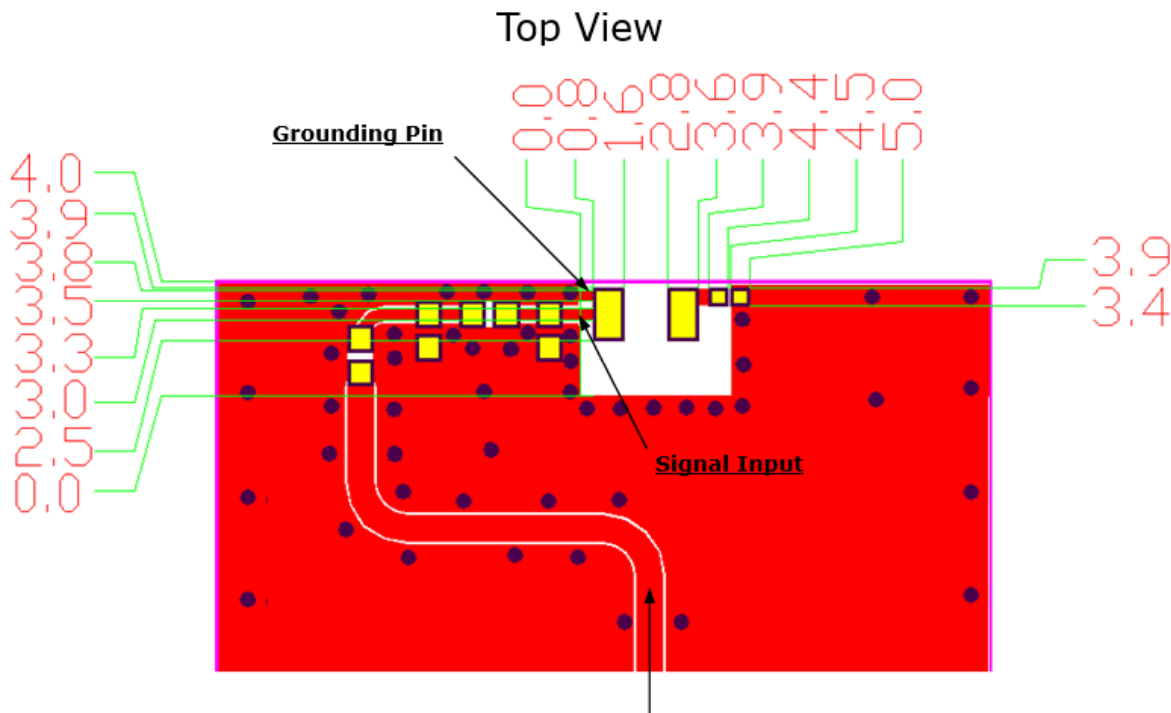
Evaluation Board



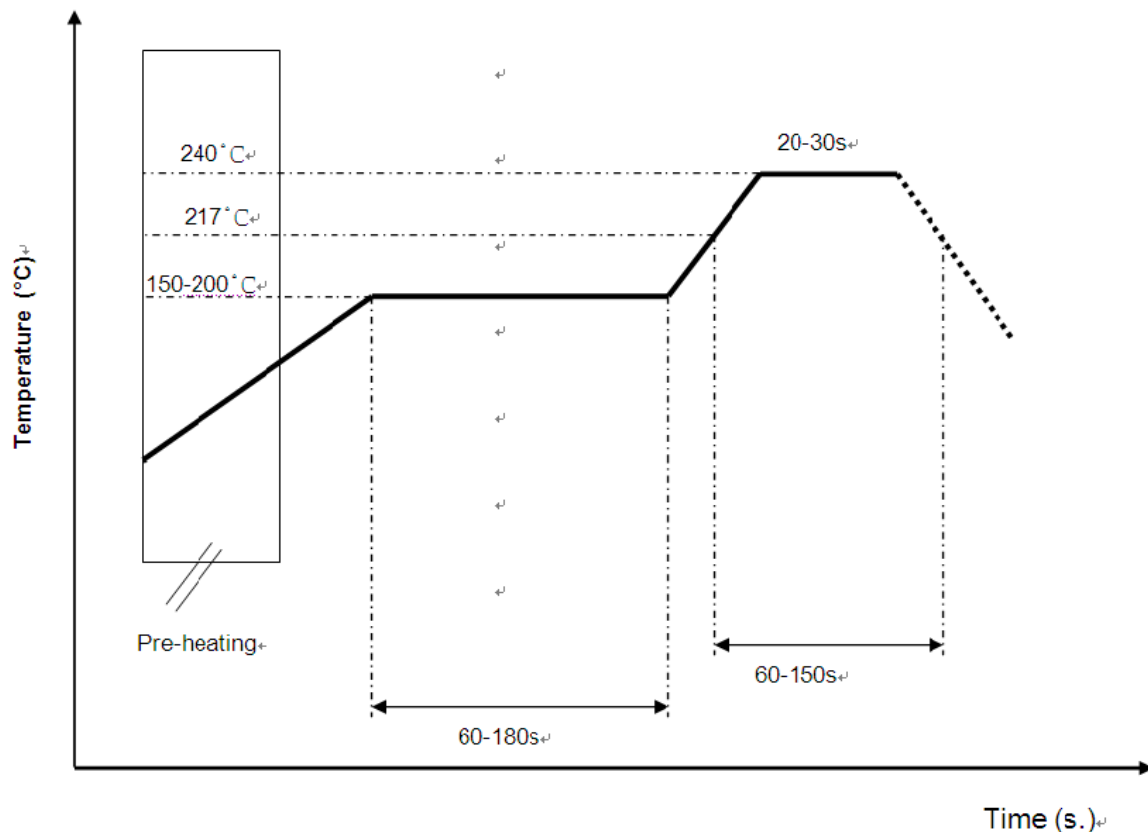
Unit: mm

Solder Land Pattern

The black areas represent the solder land pattern. Any recommendations on the matching circuit will be provided according to the customer's installation conditions.

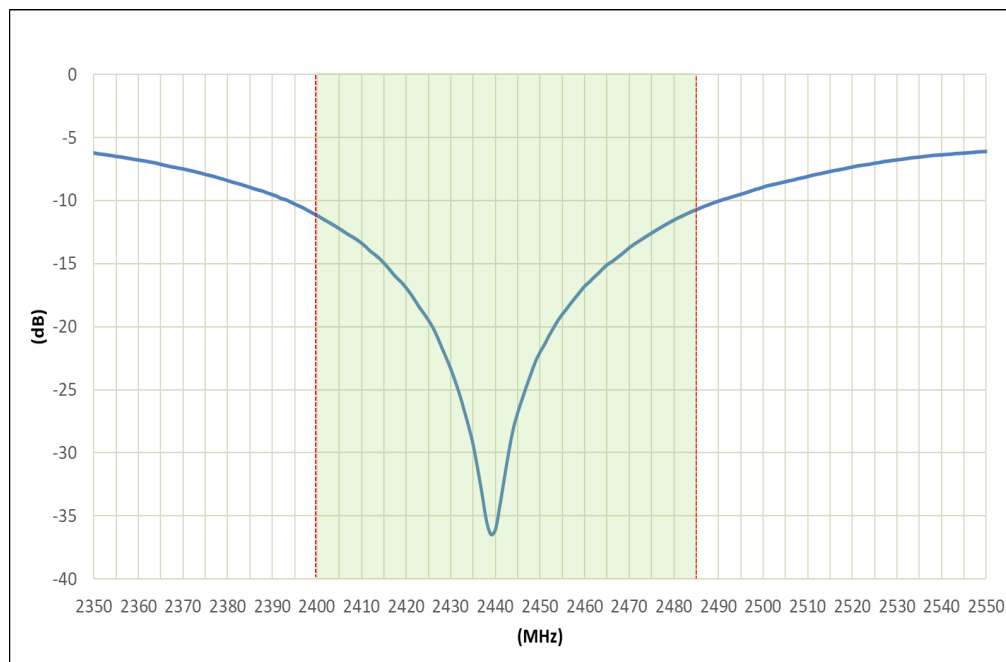


Soldering Conditions

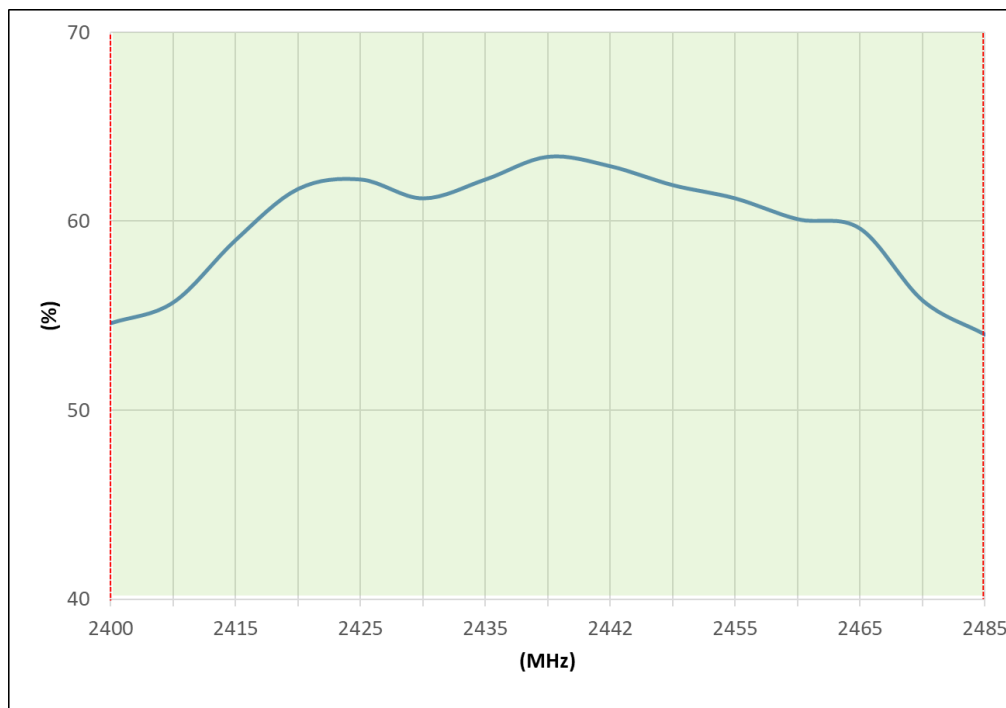


*Recommended solder paste alloy: SAC305 (Sn96.5 /Ag3 /Cu0.5) Lead Free solder paste

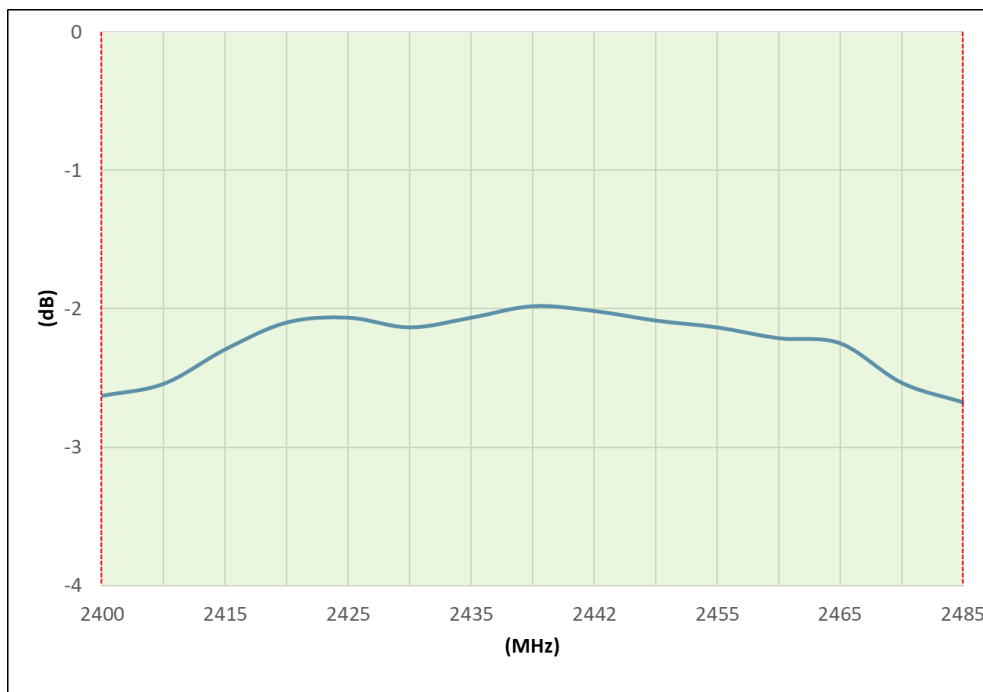
Return Loss (dB)



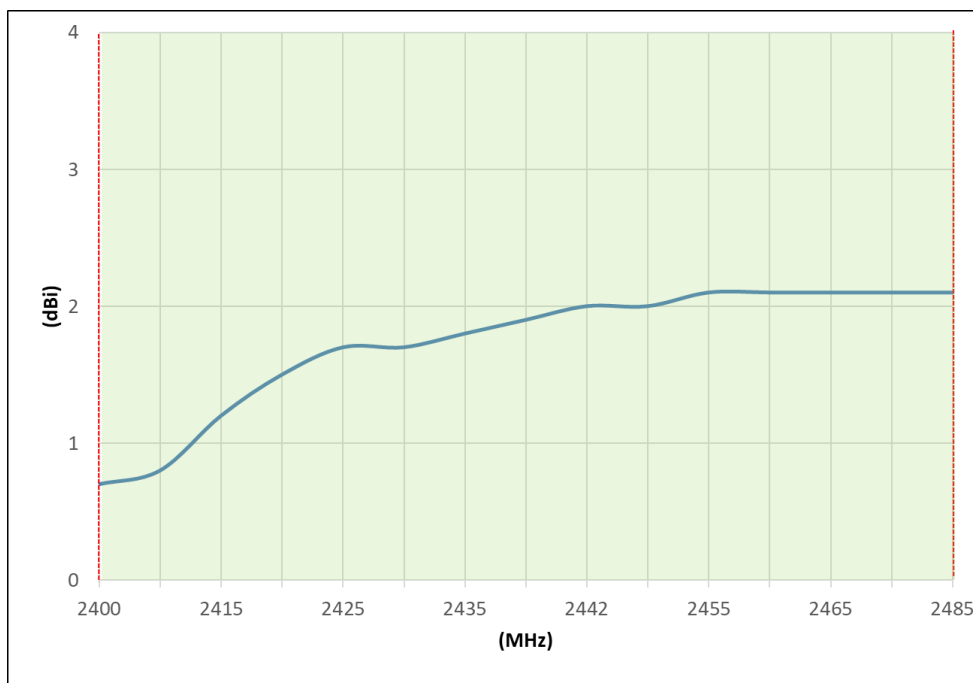
Efficiency (%)



Average Gain (dB)



Peak Gain (dBi)

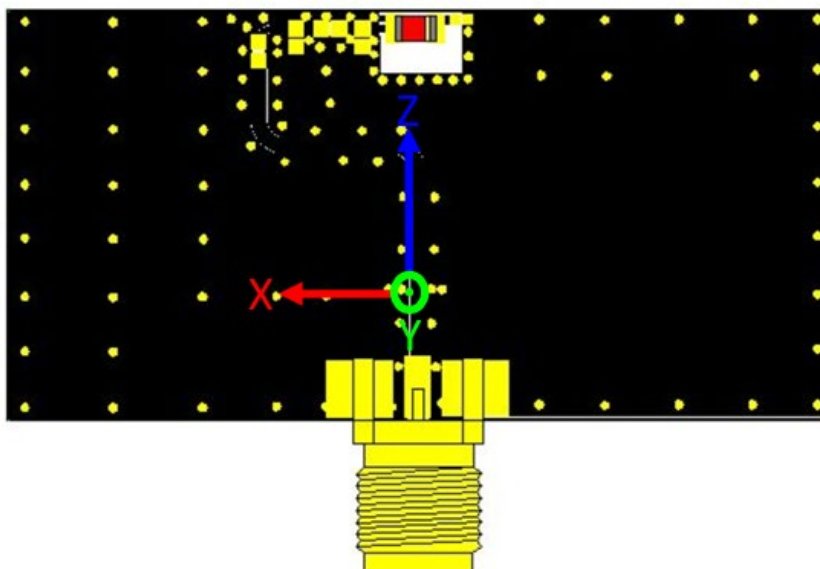


Antenna Radiation Pattern Measurement:

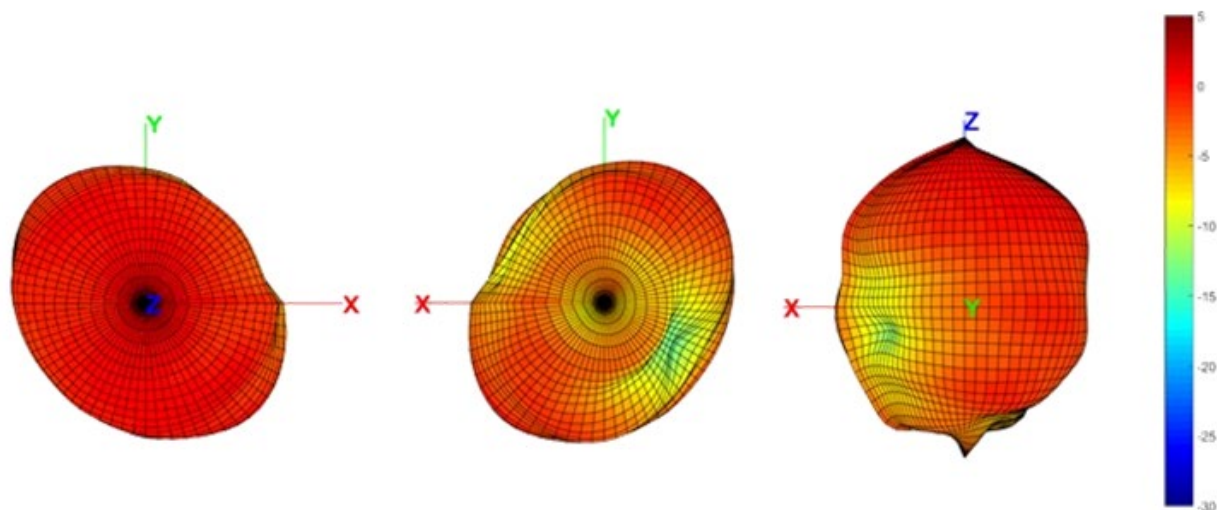
The antenna radiation patterns are measured in a 3D Anechoic Chamber. The measurement setup is as show below.



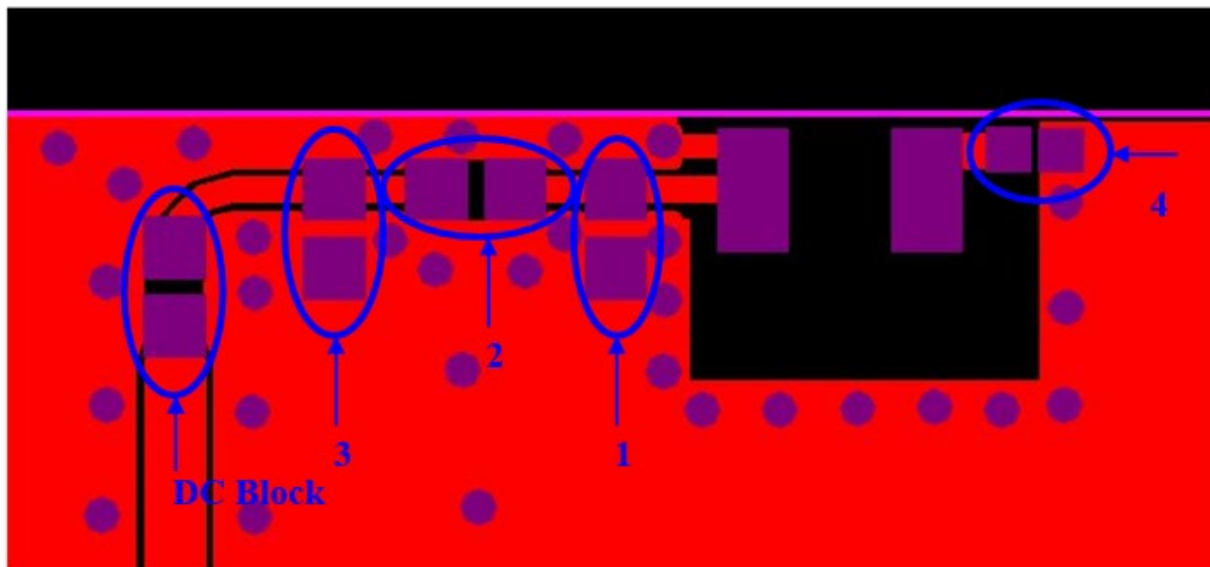
3D Radiation Patterns



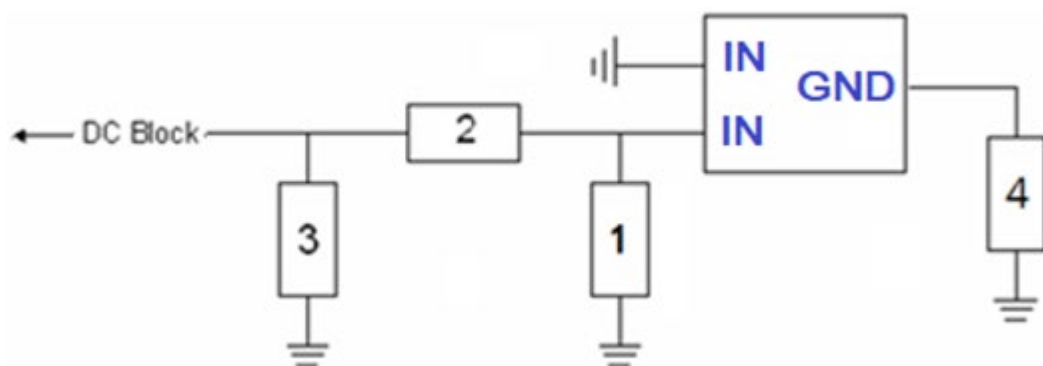
2450 MHz (unit: dBi)



Frequency Tuning



Matching Circuit





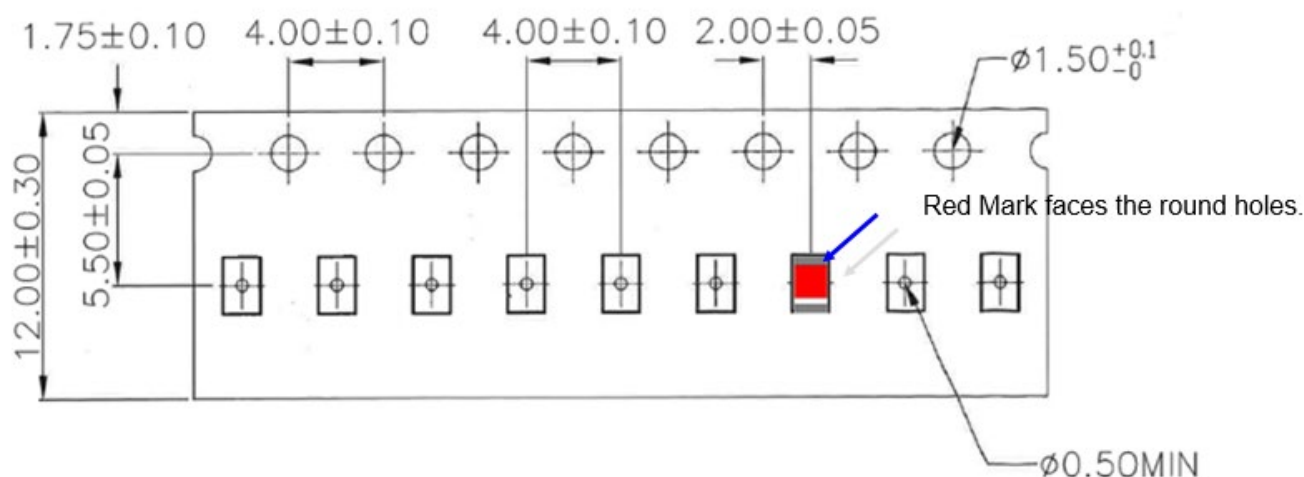
System Matching Circuit Component

Location	Description	Tolerance	NIC Part Number
1	N/A	-	-
2	5.0 pF (0402)	±0.05pF	NMLQ04B3N3TRF
3	0.8 pF (0402)	±0.05pF	NMC-Q0402NPO0R8A50TRPF
4	2.7 pF (0201)	±0.05pF	NMC-Q0201NPO2R7A25TRPF
DC Block	22 pF (0402)	±5%	NMC-Q0402NPO220J50TRPF

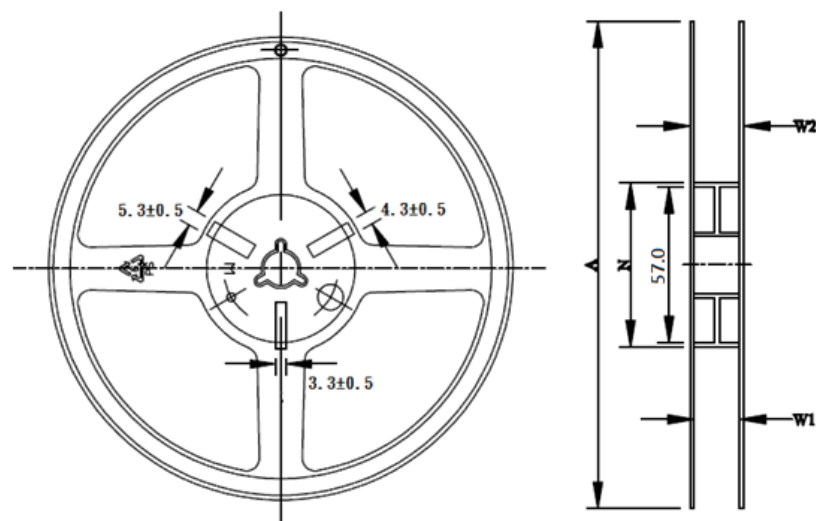
Packing

- (1) Quantity/Reel: 5000 pcs /Reel
- (2) Unit Weight: 0.004 ± 0.001 (g) / pcs
- (3) Plastic tape: Black Conductive Polystyrene.

Tape Drawing (unit: mm)



Reel Drawing (unit: mm)



Feature	Specifications	Tolerances
A	178.0	±1.0
B	2.7	±0.5
C	13.3	±0.5
N	60.0	±0.5
W1	13.7	±0.5
W2	16.1	±0.5