



Product Name: UWB Ceramic Chip Antenna

Part Number: YTCTX-L4W1H3A0100

Features:

- SMD Chip Antenna
- Frequency: 6000 ~ 8250 MHz
- Dimensions: 3.2 x 1.6 x 0.5mm
- RoHS 2.0 Compliant
- AEC-Q200 Compliant

Applications:

- Automotive sensors
- Ultra-wideband radios
- Precision surveying
- Remote controls
- Centimeter Level Positioning

UWB Ceramic Chip Antenna

MODEL: CR321

Version: A

I. Specifications:

Items	Specifications			
Frequencies (MHz)	6000 ~ 8250			
Return loss (dB)	<-10 Typ.			
Efficiency (%)	@6500 MHz	56 Typ.	@8000 MHz	51 Typ.
Average Gain (dB)		-2.5 Typ.		-3.0 Typ.
Peak Gain (dBi)		4.3 Typ.		4.2 Typ.
Test Condition	30 x 20 mm ² (Evaluation board)			
Impedance (Ω)	50			
Polarization	Linear Polarization			

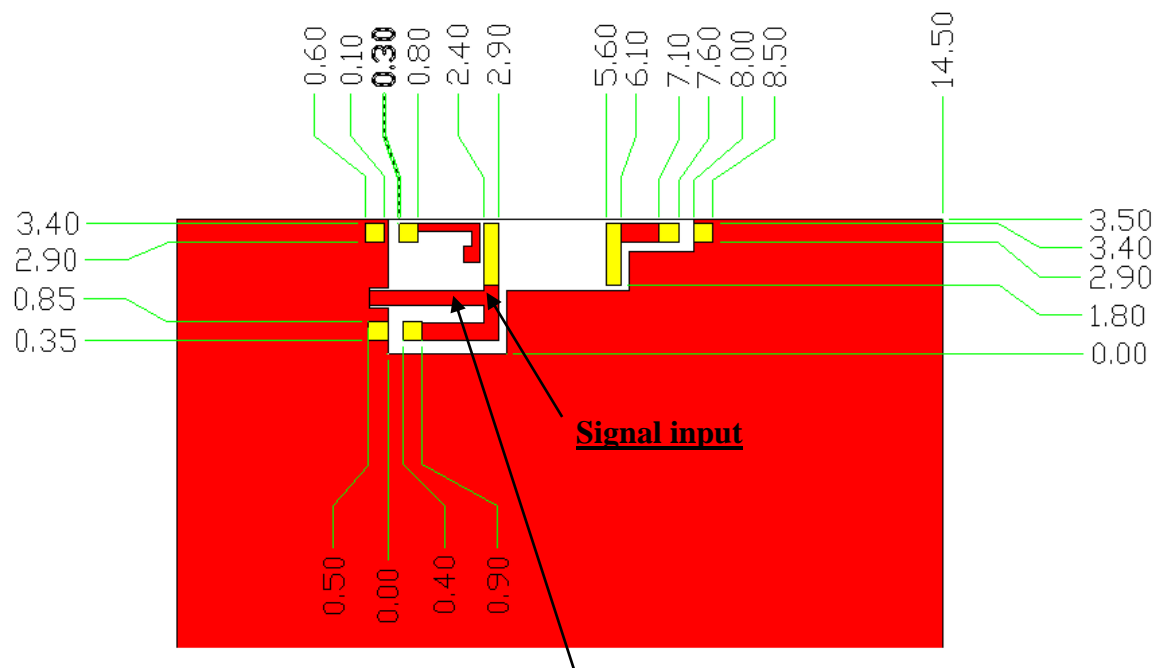
All specifications subject to change without notice.

Mechanical Specifications	
Dimensions (mm)	3.2 (L) x 1.6 (W) x 0.5 (H)
Material	Ceramic
Environmental Conditions	
Operation Temperature (°C)	-40 ~ +125
Storage Temperature (°C)	-40 ~ +85
Storage Temperature (°C) (Antenna with packing sealed)	-5 ~ +40
Relative Humidity	10 ~ 70 %

II. Layout Guide (Unit: mm):

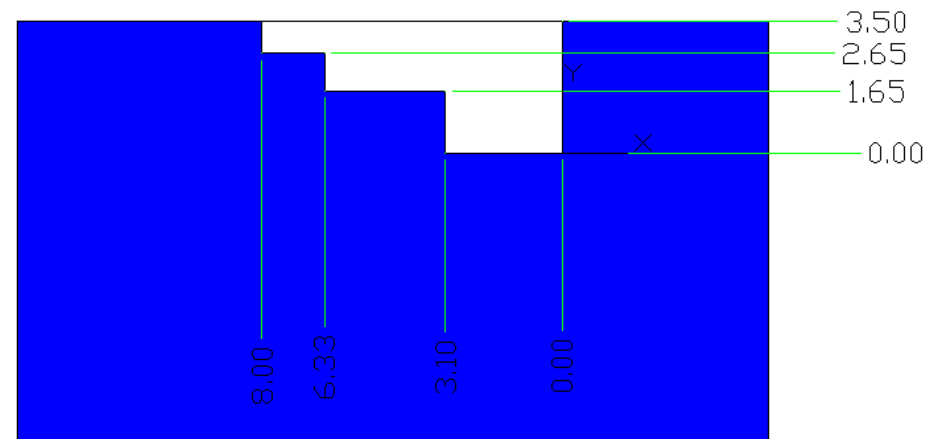
The solder land pattern (gold marking areas) is shown below. Recommendation on matching circuit will be provided according to customer's installation conditions.

All specifications subject to change without notice.



Transmission Line with 50 Ω Impedance Characteristic

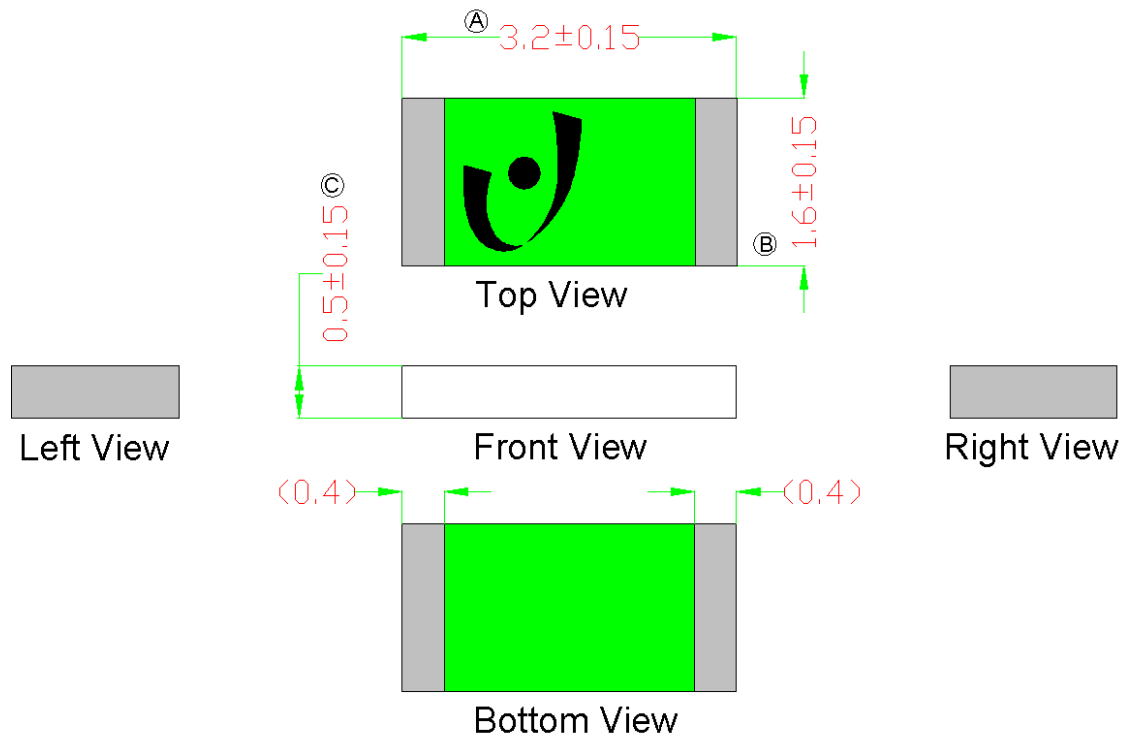
Top View



Bottom View

III. Mechanical Dimensions (Unit: mm):

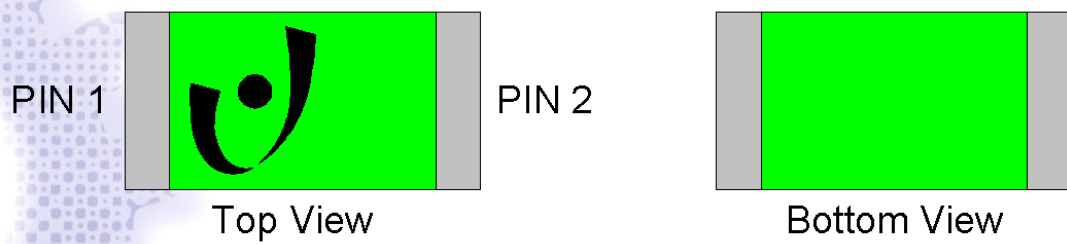
a) Antenna Dimensions



NOTE:

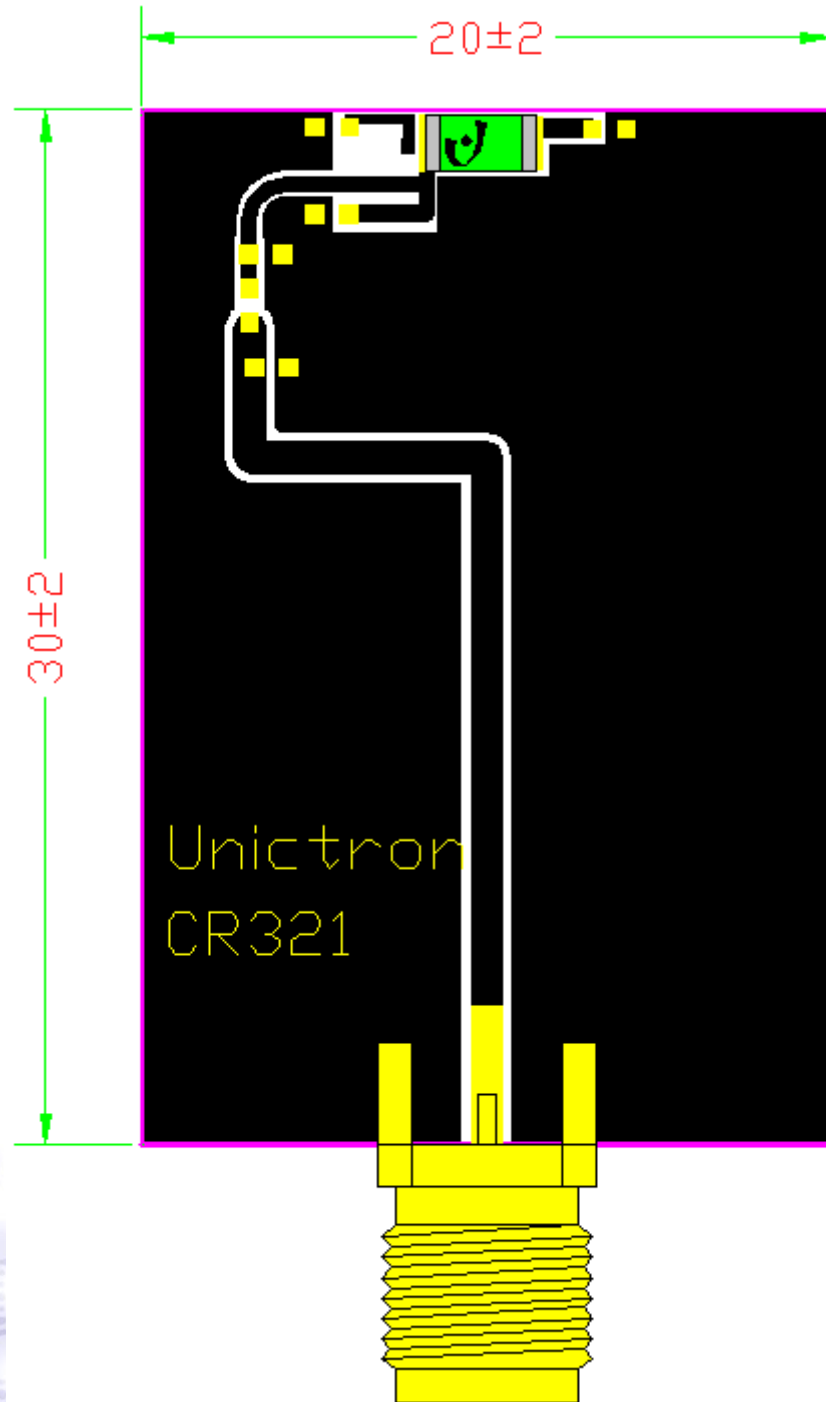
1. All materials are RoHS 2.0 compliant.
2. "A~C" Critical Dimensions.
3. "()" Reference Dimensions.

b) PIN Definition



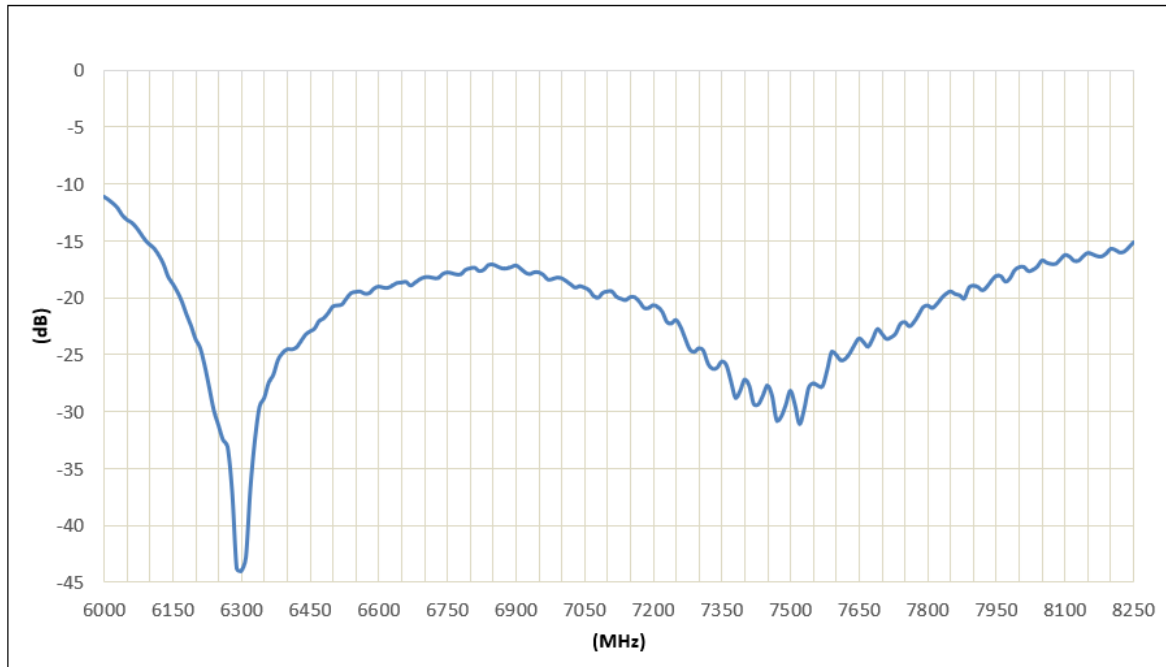
PIN	1	2
Soldering PAD	Signal	Tuning / Ground

c) Test Board with Antenna



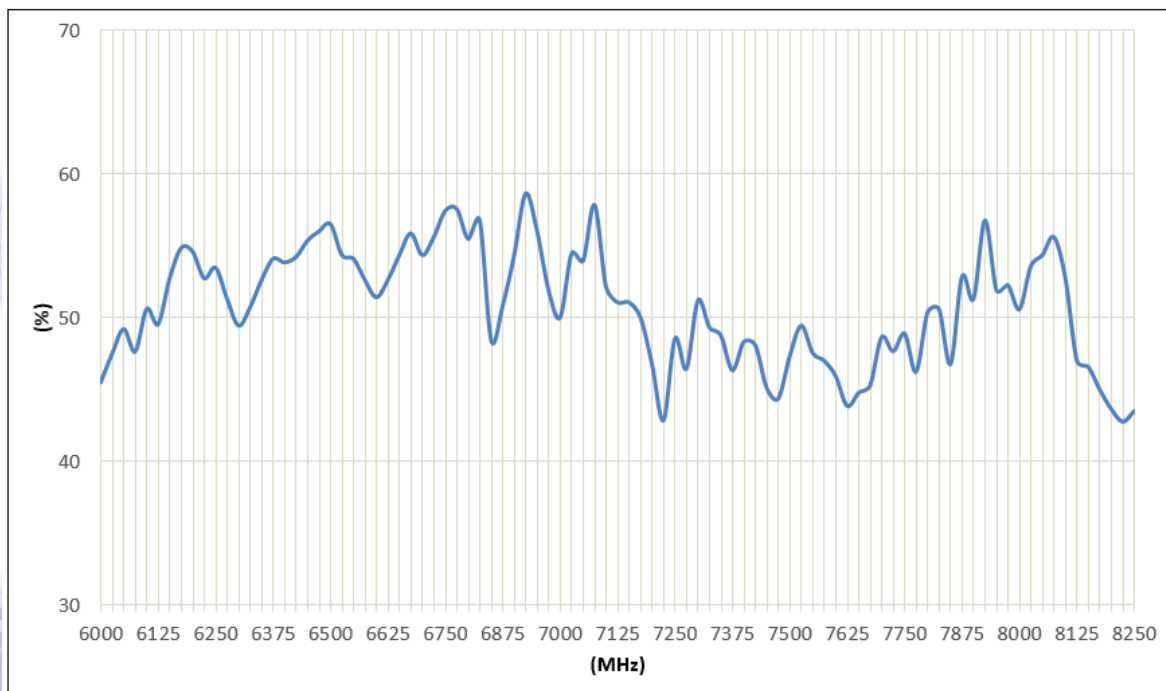
IV. Properties:

a) Return loss (dB)

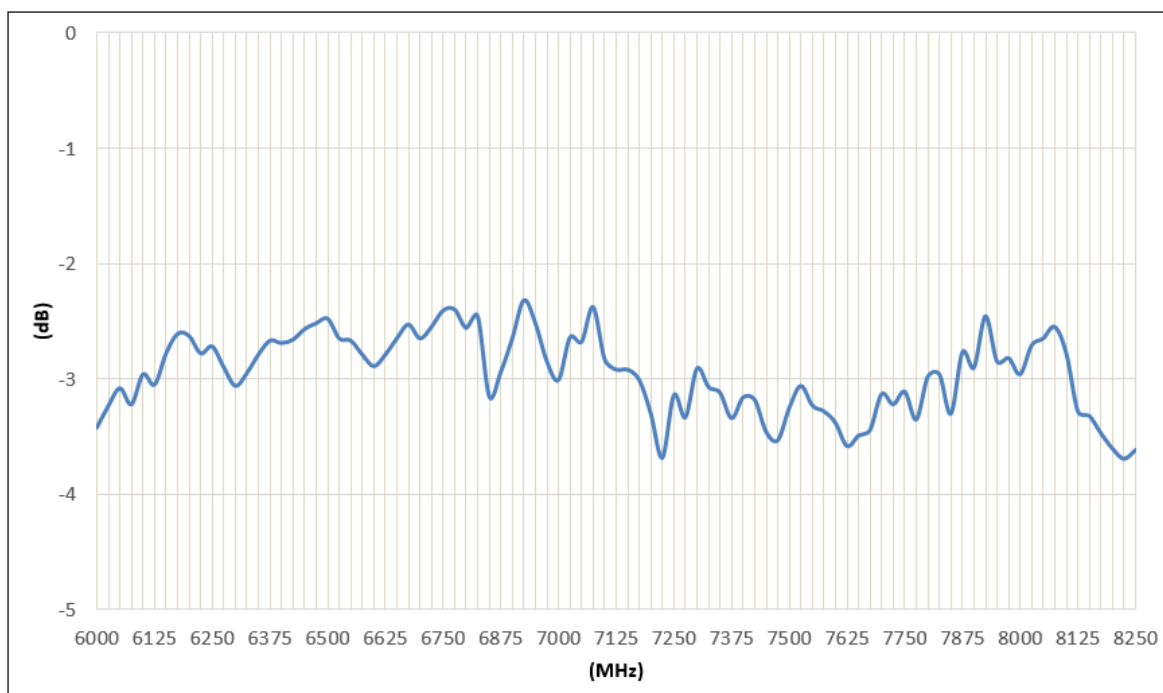


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b) Efficiency (%)

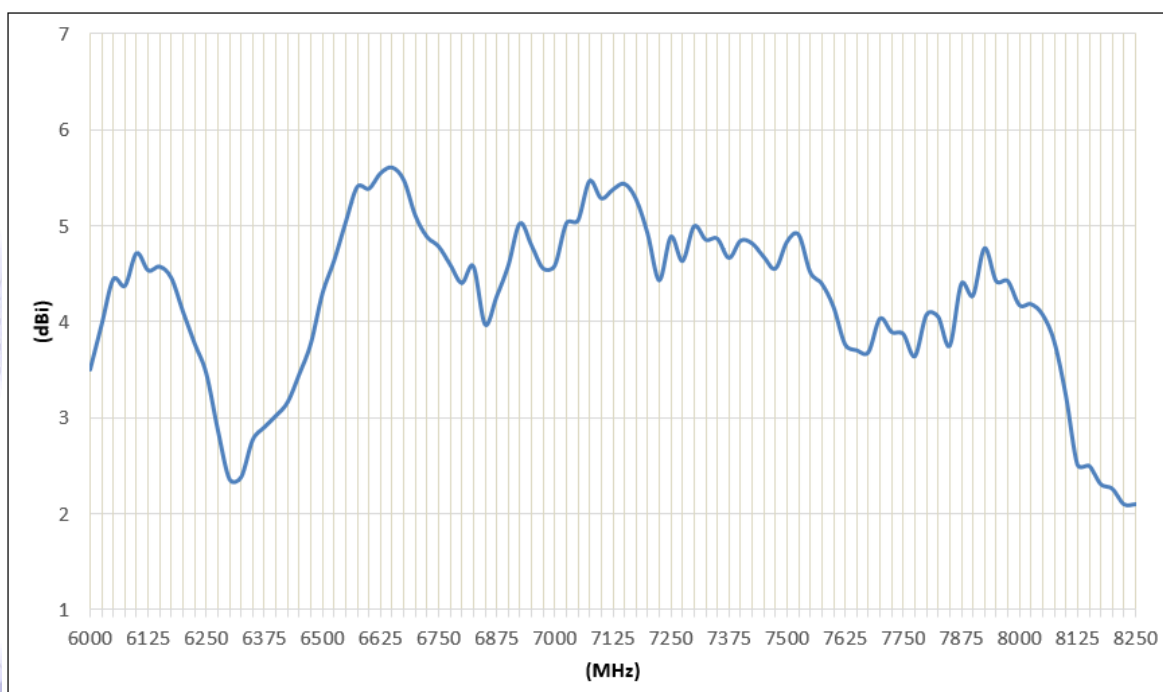


c) Average Gain (dB)



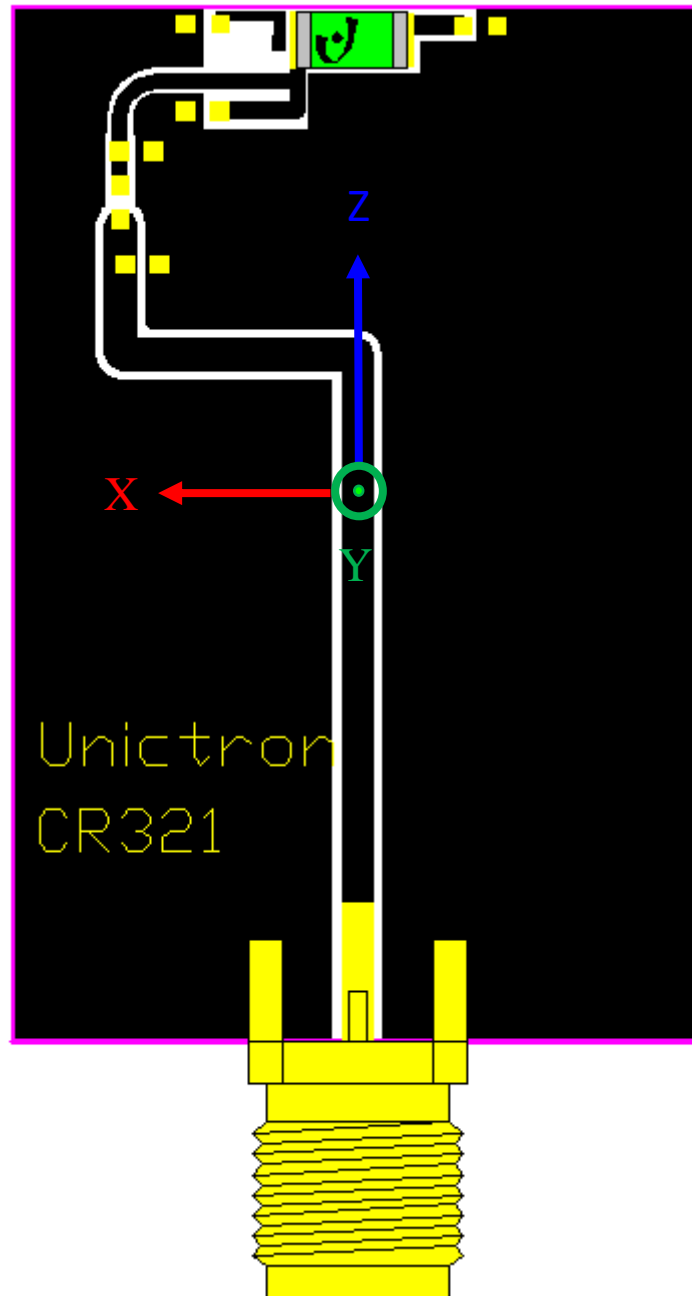
All specifications subject to change without notice.

d) Peak Gain (dBi)



V. Antenna Radiation Pattern Measurement:

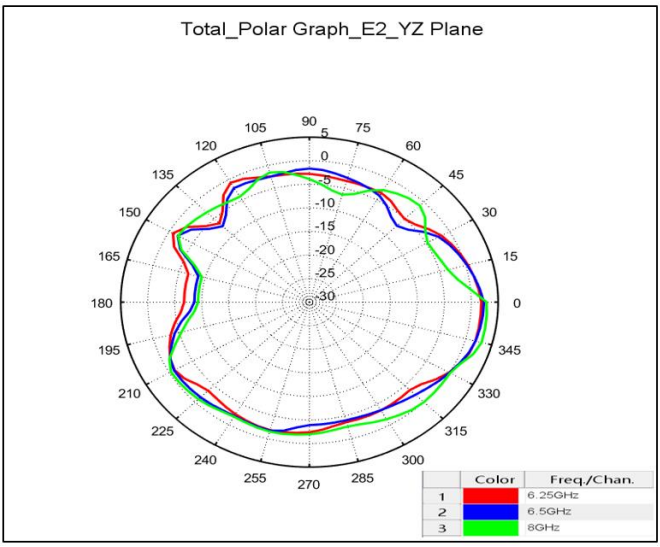
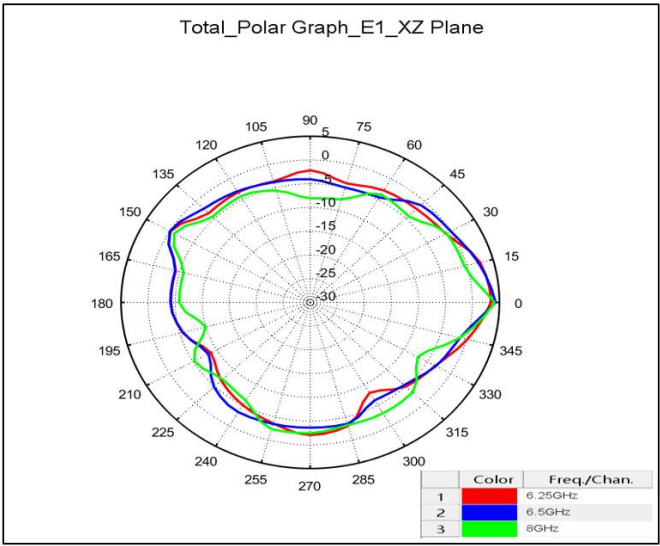
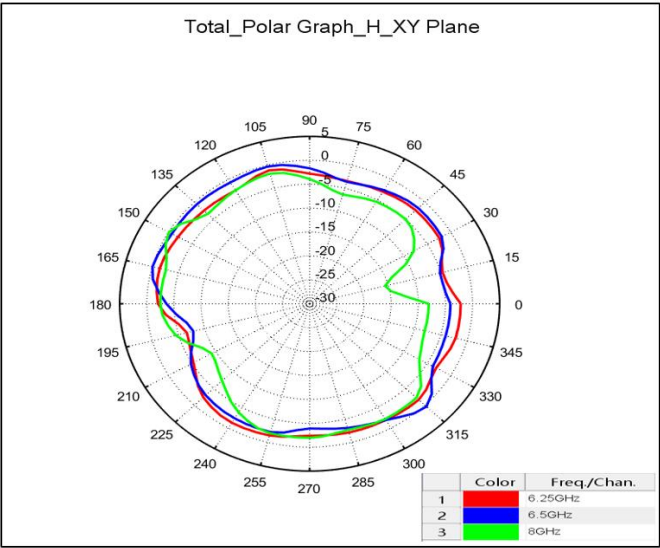
The antenna radiation patterns are measured in 3D Anechoic Chamber.
The measurement setup is as show below.



All specifications subject to change without notice.

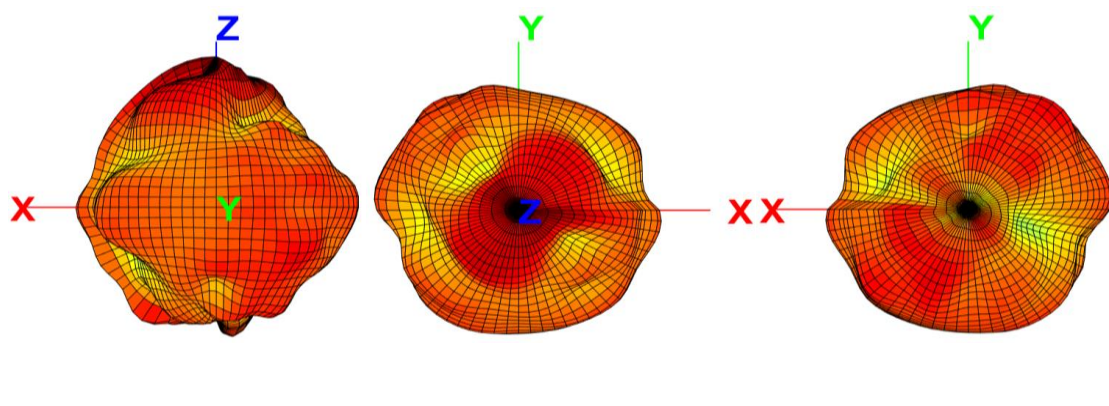
2D Radiation Gain Pattern

All specifications subject to change without notice.



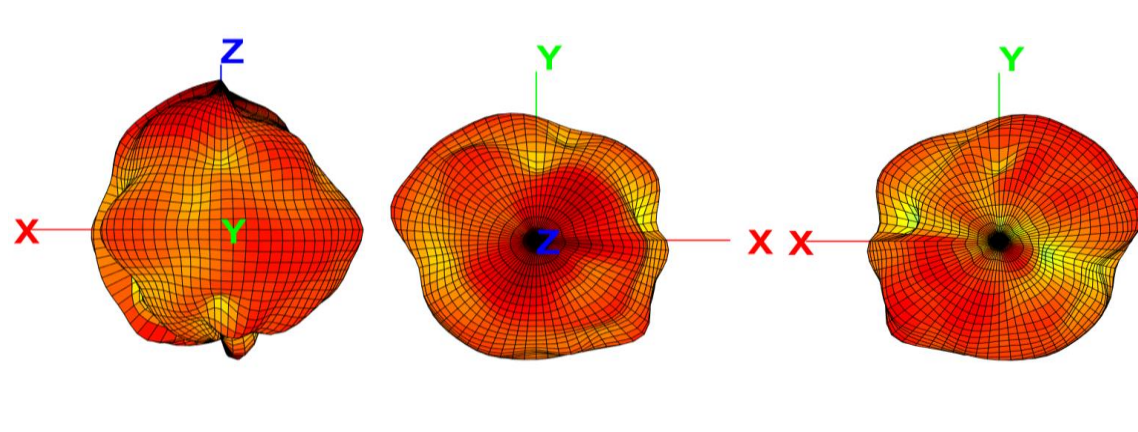
3D Radiation Gain Pattern

@6250MHz

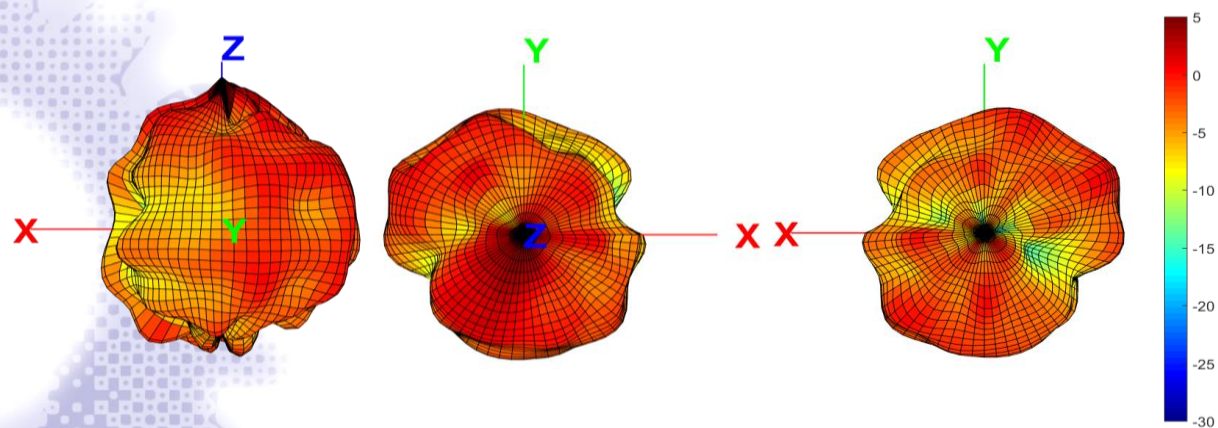


All specifications subject to change without notice.

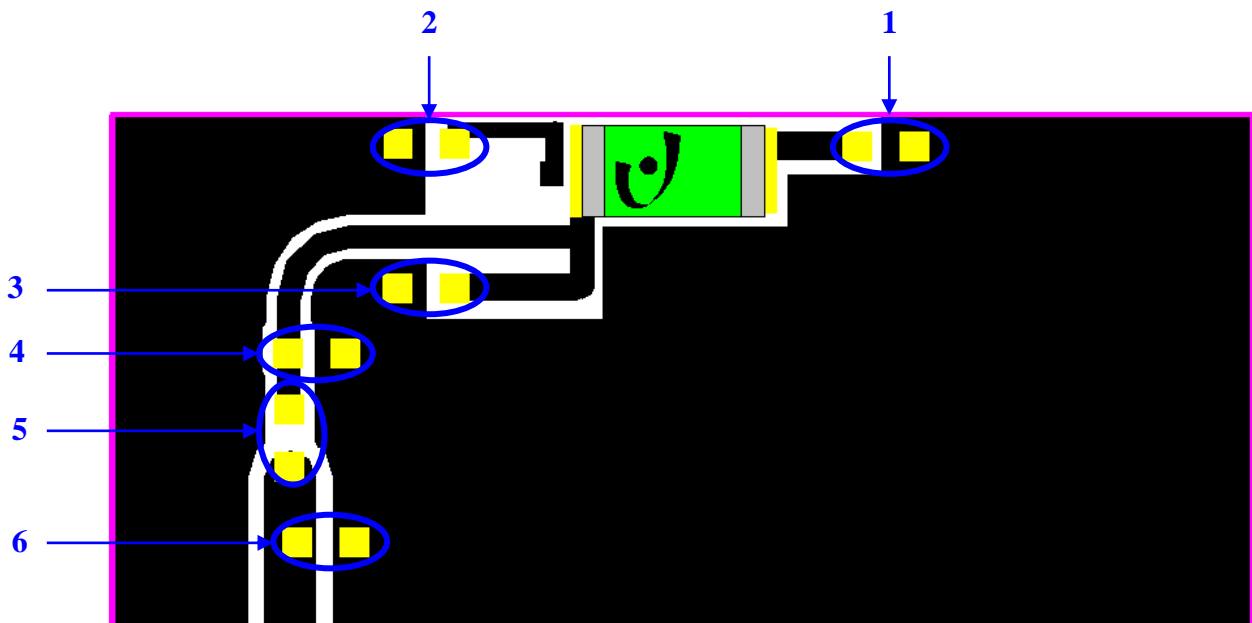
@6500MHz



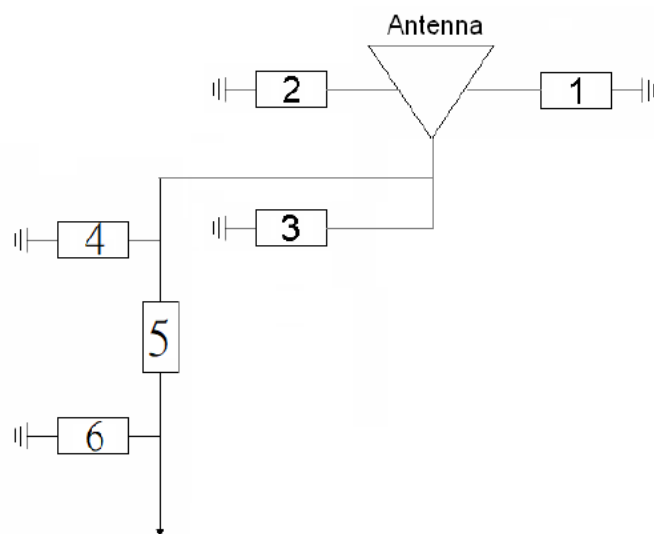
@8000MHz



VI. Frequency tuning:



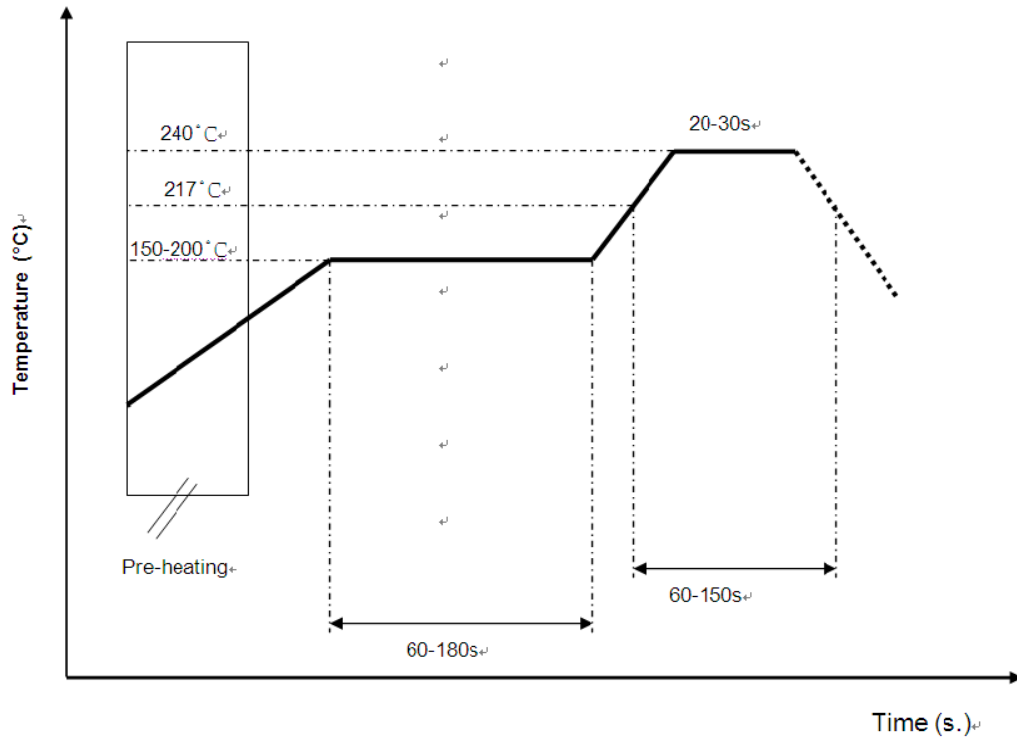
All specifications subject to change without notice.



System Matching Circuit Component			
Location	Description	Vendor	Tolerance
1	0.8pF (0402)	MURATA	±0.1 pF
2	0.5pF (0402)	MURATA	±0.1 pF
3	0Ω (0402)	MURATA	±5%
4	N/C	-	-
5	0Ω (0402)	MURATA	±5%
6	N/C	-	-

I. Soldering conditions:

Typical Soldering Profile for Lead-free Process



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

All specifications subject to change without notice.

II. Reminders for use of ceramic chip antennas:

- This chip antenna is made of ceramic materials which is relatively more rigid and brittle compared to circuit board materials. Furthermore, the length of this antenna is quite long. Bending of circuit board at the locations where chip antenna is mounted may cause the cracking of solder joints or antenna itself.
- Punching/cutting of the break-off tab of PCB panel may cause severe bending of the circuit board which may result in cracking of solder joints or chip antenna itself. Therefore break-off tab shall be located away from the installation site of chip antenna.
- Be cautious when ultrasonic welding process needs to be used near the locations where chip antennas are installed. Strong ultrasonic vibration may cause the cracking of chip antenna solder joints.

III. Operating & Storage conditions:

a) Operating

- (1) Maximum Input Power: 2 W
- (2) Operating Temperature: -40°C to 125°C
- (3) Relative Humidity: 10% to 70%

b) Storage (sealed)

- (1) Storage Temperature: -5°C to 40°C
- (2) Relative Humidity: 20% to 70%
- (3) Shelf Life: 1 year

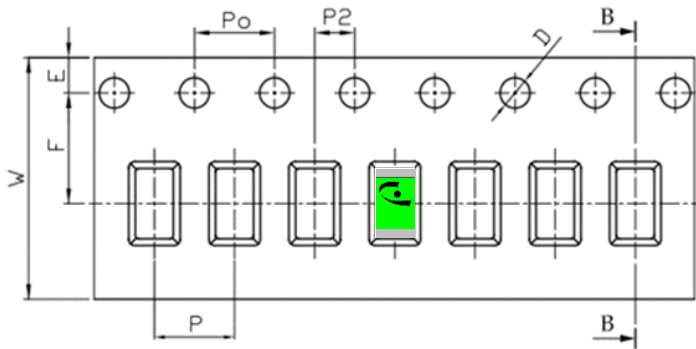
c) Storage (After mounted on customer's PCB with SMT process)

- (1) Storage Temperature: -40°C to 85°C
- (2) Relative Humidity: 10% to 70%

V. Packing

- (1) Unit Weight: 0.008 ± 0.001 (g) /pcs
- (2) Quantity/Reel: 5000 pcs/Reel
- (3) Plastic tape: Black Conductive Polystyrene.

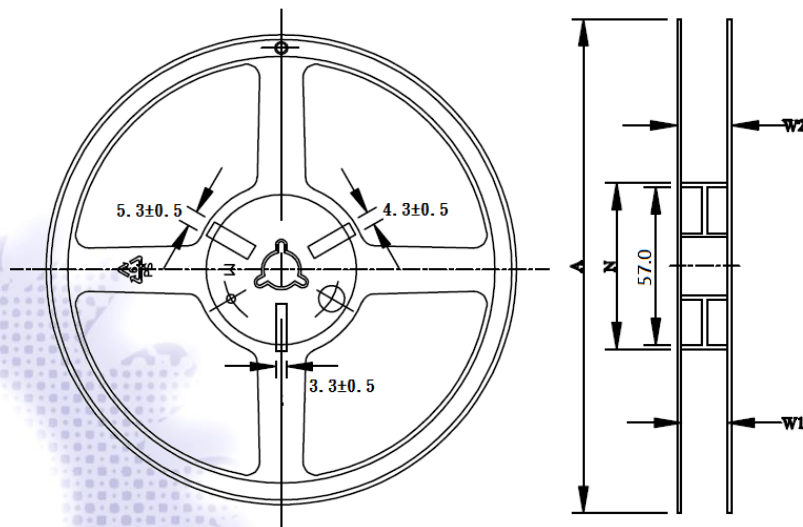
a. Tape Drawing



b. Tape Dimensions (unit: mm)

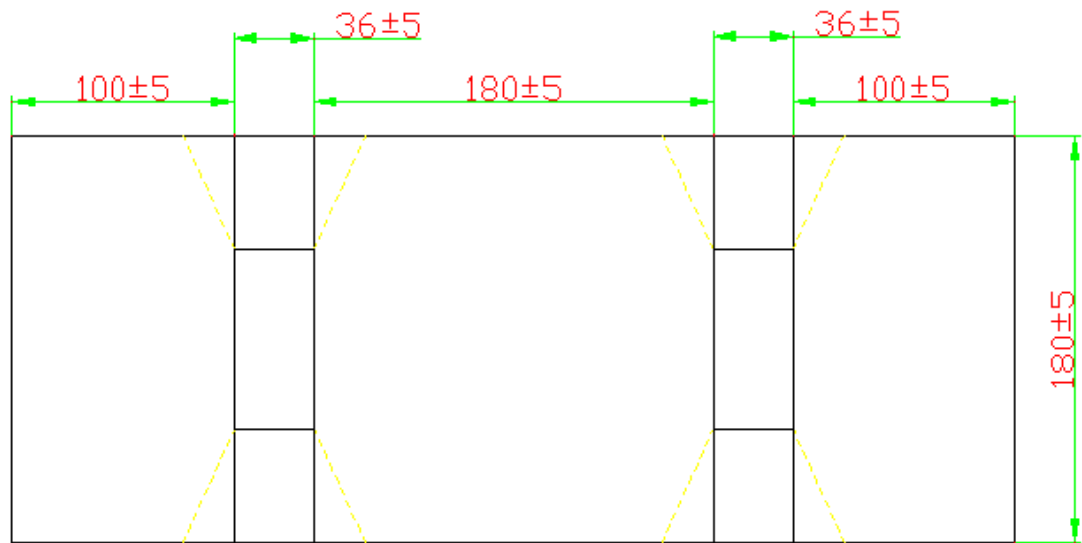
Feature	Specifications	Tolerances
W	12.00	± 0.30
P	4.00	± 0.10
E	1.75	± 0.10
F	5.50	± 0.10
P2	2.00	± 0.10
D	1.50	$+0.10$ -0.00
P0	4.00	± 0.10
10P0	40.00	± 0.20

c. Reel Drawing



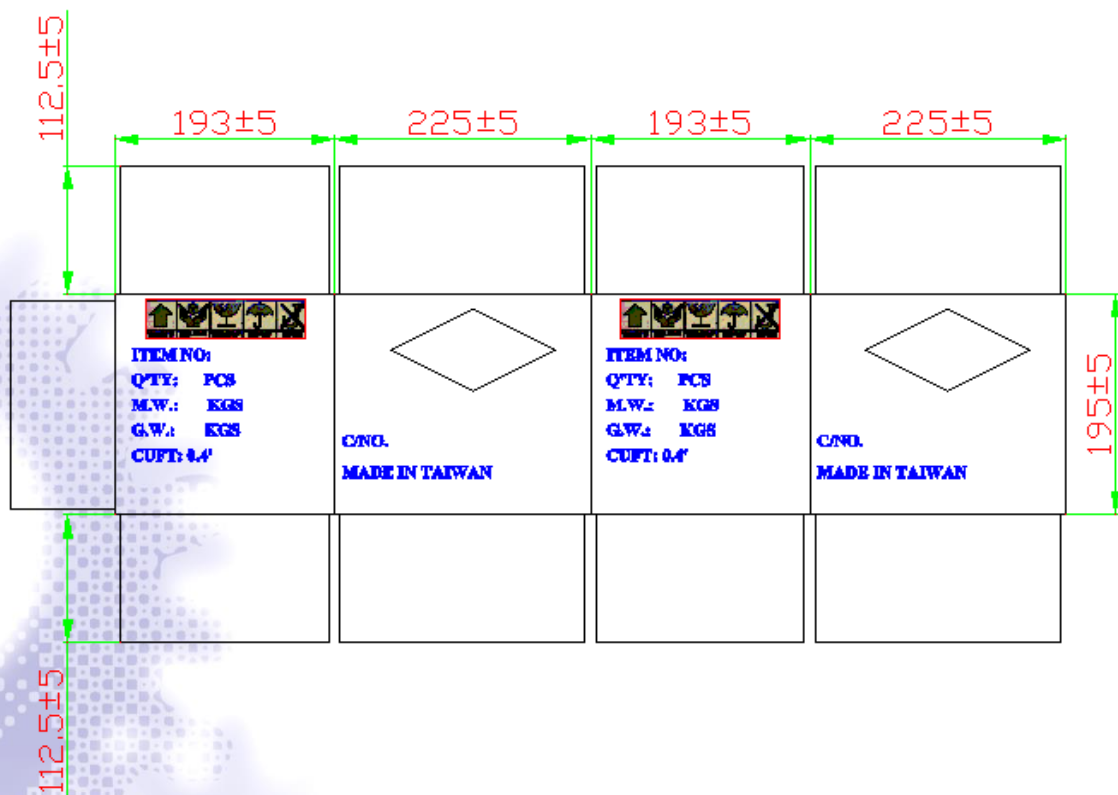
Feature	Specifications	Tolerances
A	178.0	± 1.0
B	2.7	± 0.5
C	13.3	± 0.5
N	60.0	± 0.5
W1	13.7	± 0.5
W2	16.1	± 0.5

d. Drawing of small size carton in developed view

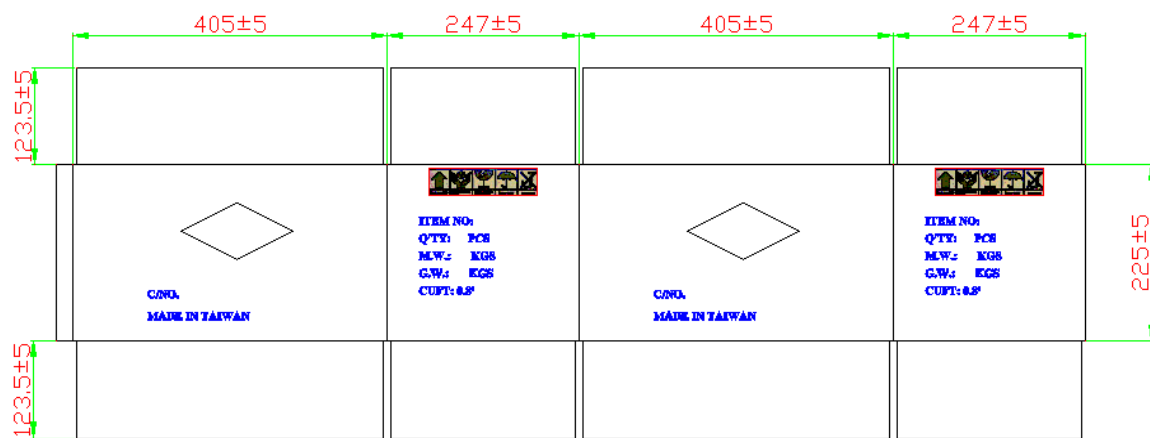


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e. Drawing of middle size carton in developed view

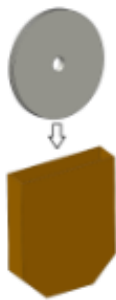


f. Drawing of large size carton in developed view



All specifications subject to change without notice.

g. Process of packing



1 reel includes 5,000pcs(max.) chip antennas



1 small size carton includes 2pcs(max.) reels



1 middle size carton includes 5pcs(max.) small cartons

1 large size carton includes 2pcs(max.) middle cartons