



Wistron NeWeb Corp.

APPROVAL SHEET

Customer Name:

Date: 15/11/2018

Doc. Version: 1

Customer P/N	
WNC P/N	08.32322.002
Description	35.0 x 5.0 x 4.0 (mm) LTE Full-Band Ceramic Chip Antenna (CC35D8C)
Version	A01

Provided By Wistron NeWeb Corp	Reviewed By Wistron NeWeb Corp	Approved By Customer
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Revision History

Date	Version	Change Description
11/15/2018	A01	First Version

1. Product Specification



Dimension: 35.0*5.0*4.0mm

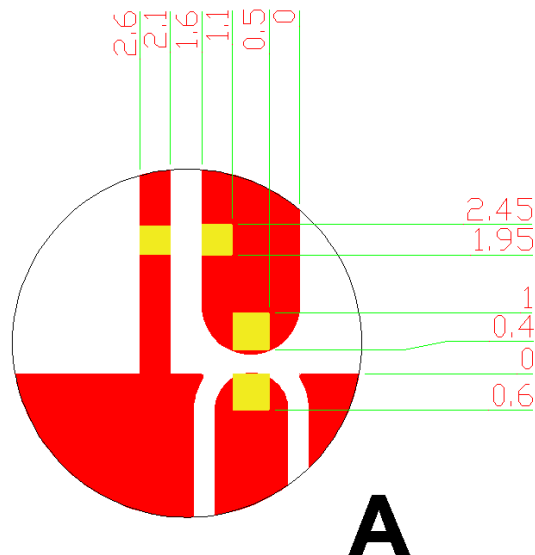
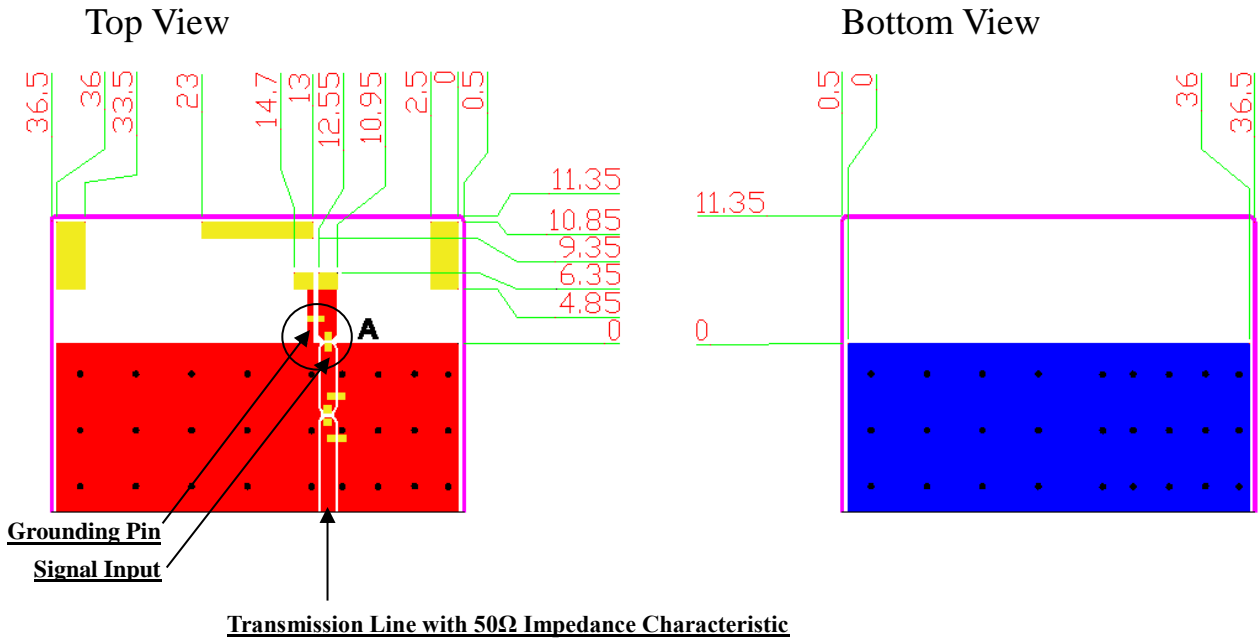
A. Electrical Characteristics	
Frequency	698MHz ~ 960MHz 1710MHz~2690MHz
V.S.W.R.	<3.5:1
Polarization	Monopole
Impedance	50 Ohm
Ground Plane	126.5*40mm(with EVB)
B. Material & Mechanical Characteristics	
Material of Substrate	Ceramic
Assembly	SMT
Connector Type	Standard Evaluation Board with SMA
C. Environmental	
Maximum Input Power	5W
Relative Humidity	10% to 70%
Operating Temperature	- 40 °C ~ + 85 °C
Storage life	1 year
Storage Temperature	- 5 °C ~ + 40 °C

2. Layout Guide

Layout Guide (Unit: mm)

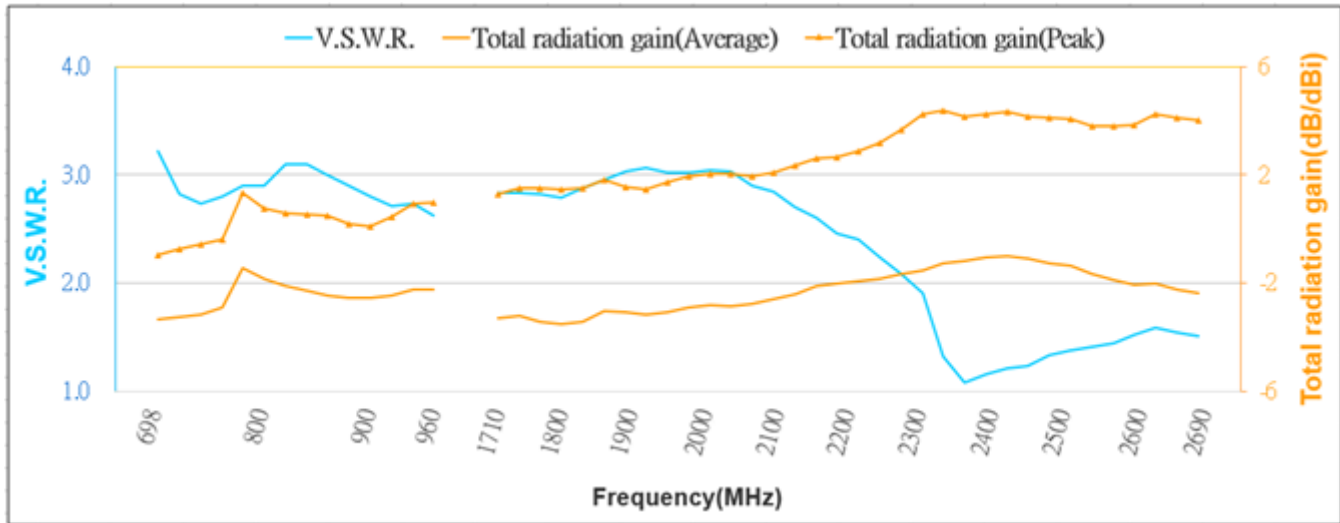
Solder Land Pattern:

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



3. Antenna Performance

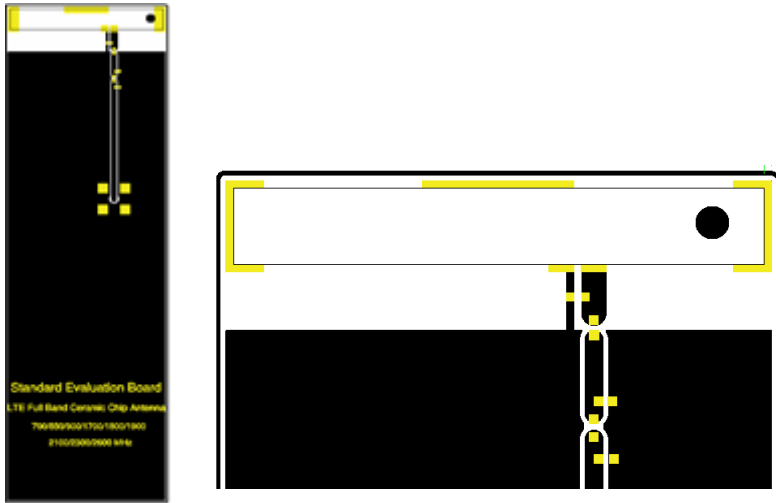
3.1 V.S.W.R. and Total Radiation Gain (with 126.5 x 40 mm² Evaluation Board)



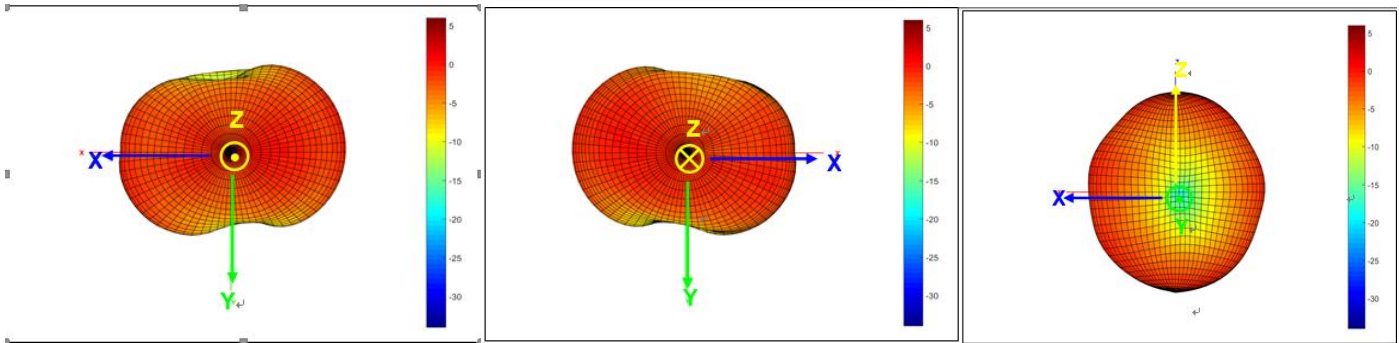
3.2. Antenna Gain (with 126.5 x 40 mm² Evaluation Board)

Frequency (MHz)	Antenna	
	Efficiency	
	Efficiency (%)	Peak(dBi)
698~798	54%	1.3
824~960	58%	1.0
1710~2170	55%	2.6
2300~2400	75%	4.4
2490~2690	65%	4.2

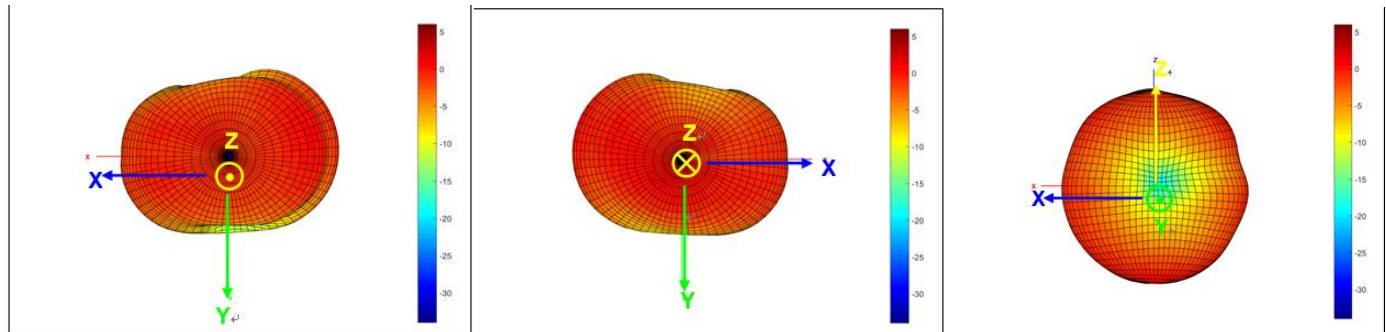
3.3 Antenna Pattern (with 126.5 x 40 mm² Evaluation Board)



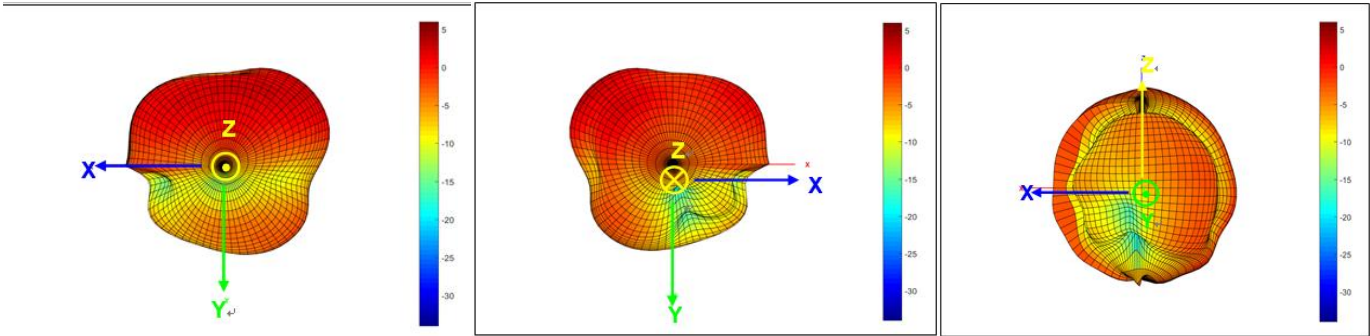
3D Radiation Gain Pattern @ 748 MHz (Unit: dBi)



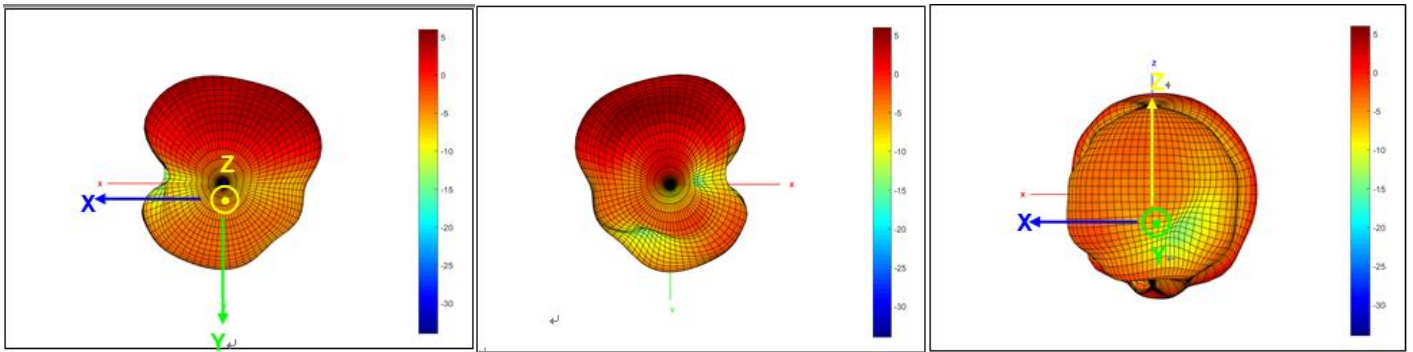
3D Radiation Gain Pattern @ 890 MHz (Unit: dBi)



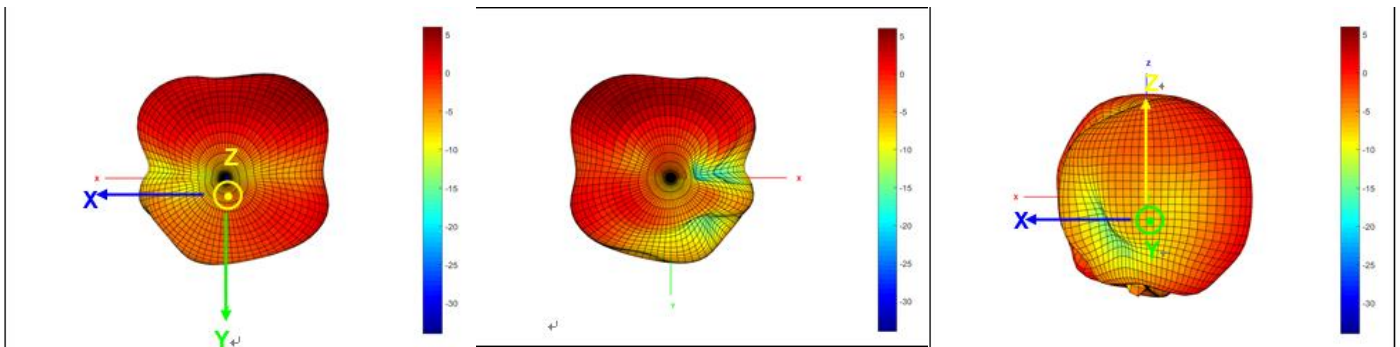
3D Radiation Gain Pattern @ 1950 MHz (Unit: dBi)



3D Radiation Gain Pattern @ 2350 MHz (Unit: dBi)



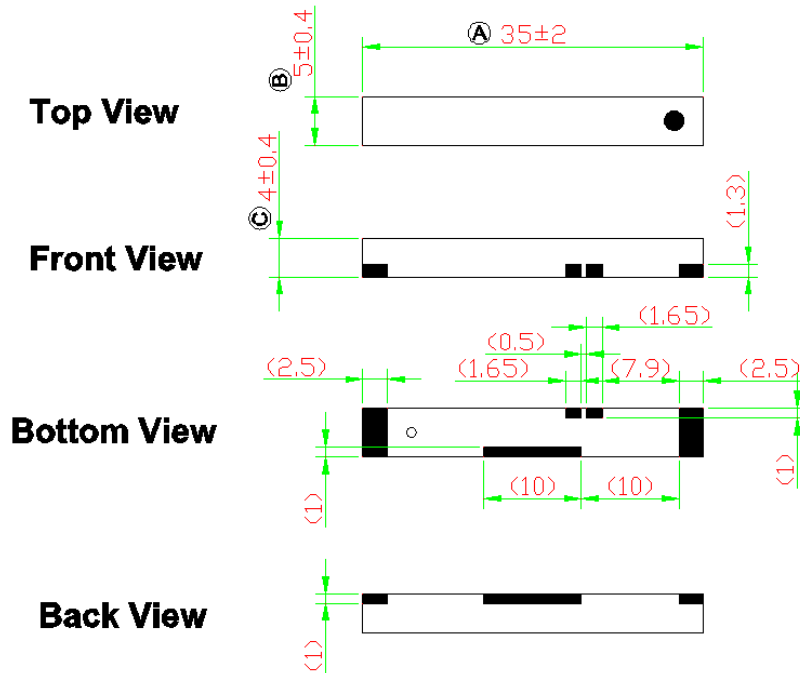
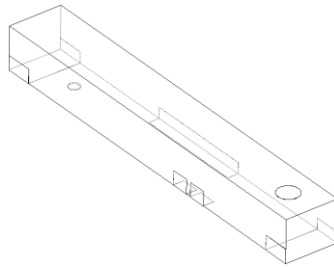
3D Radiation Gain Pattern @ 2590 MHz (Unit: dBi)





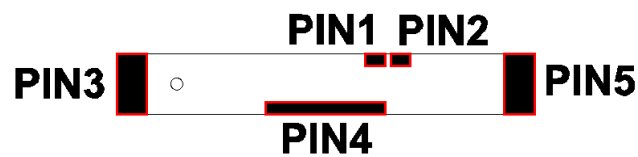
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4. Outline Dimension & Drawing



NOTE:

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

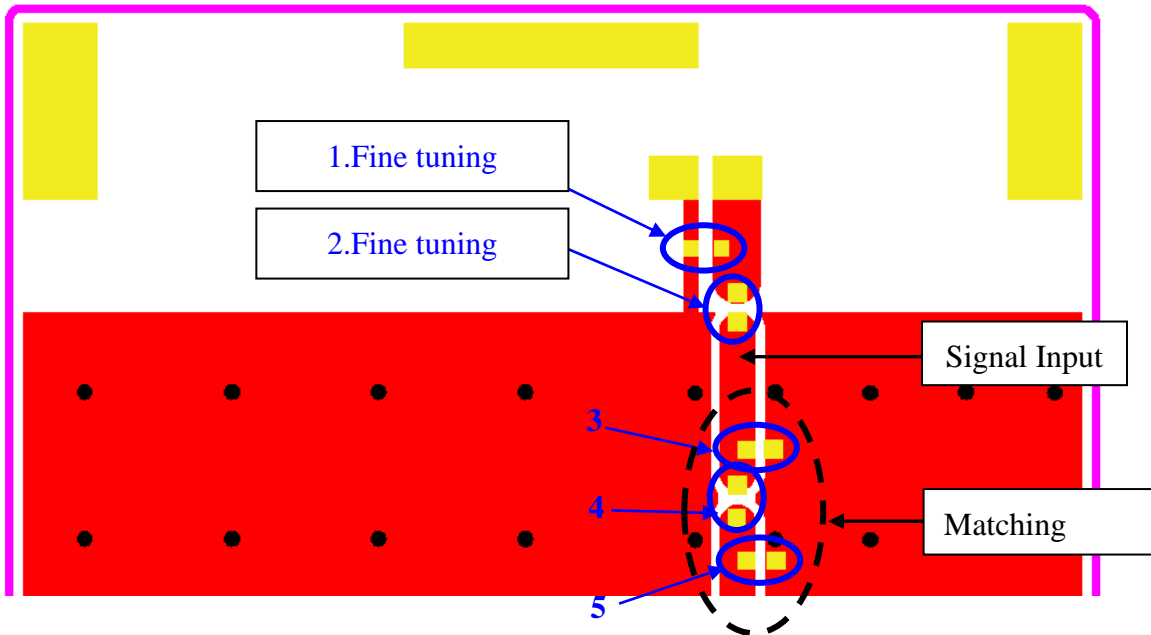


Bottom View

PIN	1	2	3~5
Soldering Pad	Tuning/Ground	Signal	N/C

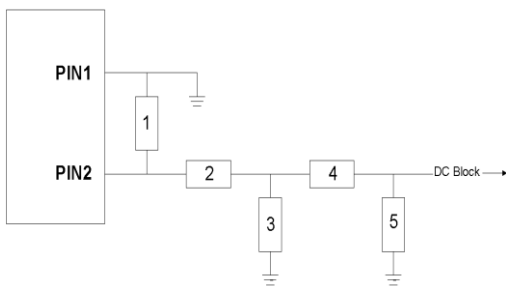
5. Frequency Tuning & Matching Circuit

Chip antenna tuning scenario :



Matching circuit :

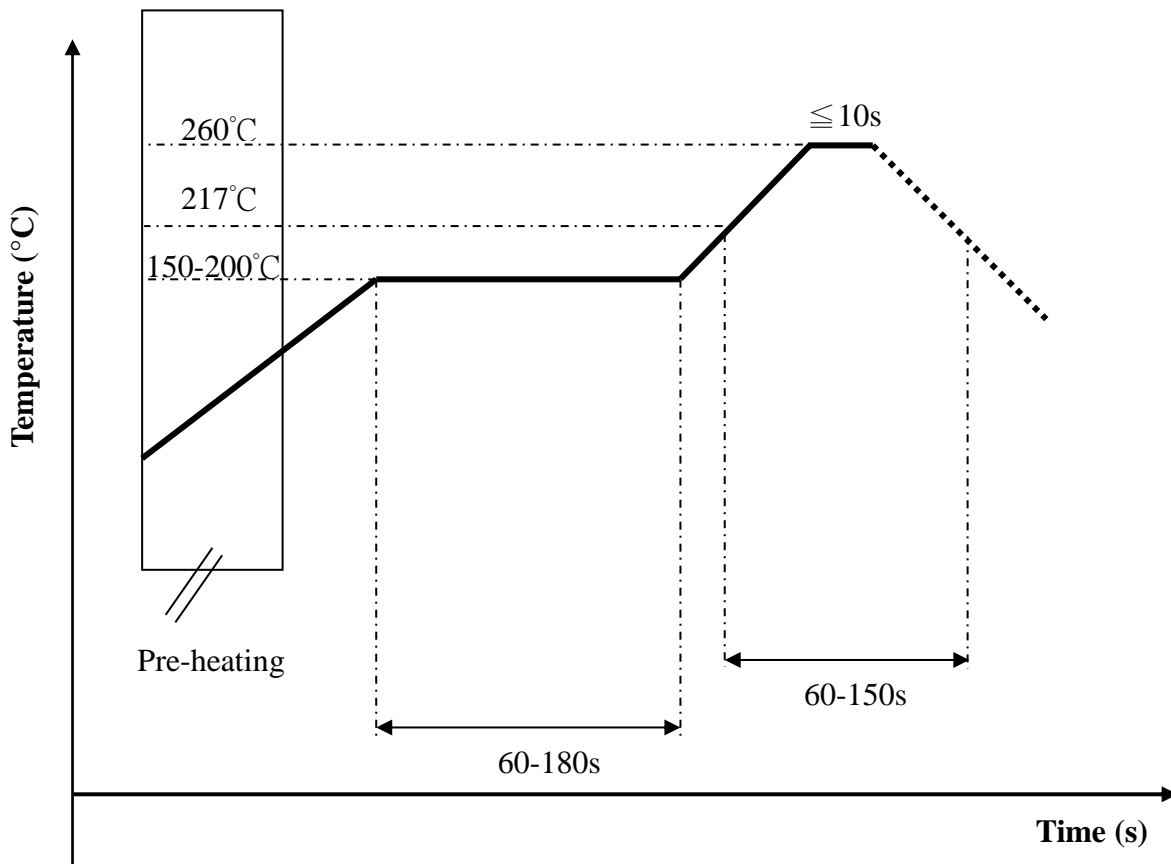
With the following recommended values of matching and tuning components, the covering frequencies will be about 698~960 MHz & 1710~2690 MHz at our standard 126.5 x 40 mm² evaluation board. However, these are typical reference values which may need to be changed when circuit boards or part vendors are different.



System Matching Circuit Component			
Location	Description	Vendor	Tolerance
1	Fine tuning element	MURATA	±0.1 nH
2	Fine tuning element	MURATA	±0.05 pF
3	N/C	-	-
4	0Ω, (0402)	-	-
5	N/C	-	-

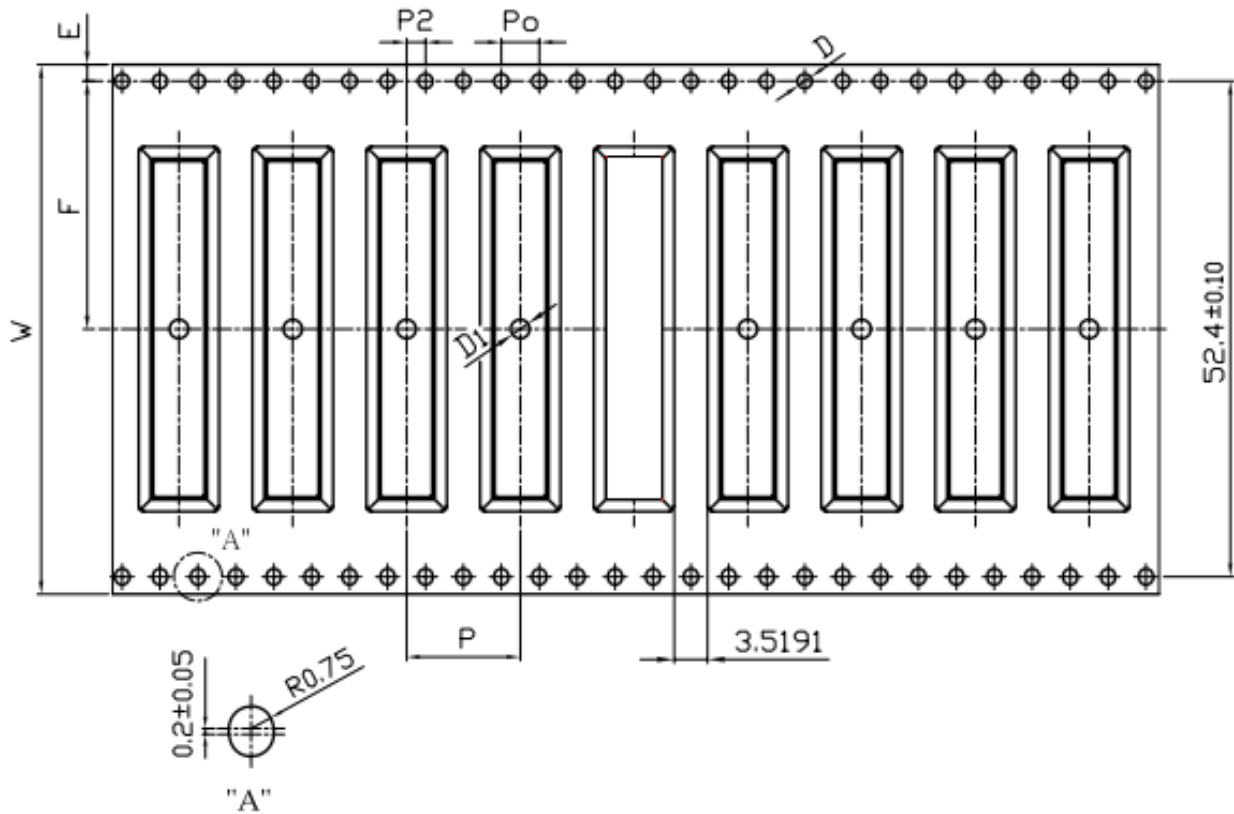
6. Soldering Conditions

Typical Soldering Profile for Lead-free Process



1. 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.
2. 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.
3. 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.

7. Packaging Drawing



- (1) Quantity/Reel: 1000 pcs/Reel
- (2) Plastic tape: Clear Non Anti-static Polystyrene

Feature	Specifications	Tolerances
W	56.00	±0.30
P	12.00	±0.10
E	1.75	±0.10
F	26.20	±0.15
P2	2.00	±0.15
D	1.50	+0.10 -0.00
D1	2.00	±0.10
Po	4.00	±0.10
10Po	40.00	±0.20



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8. Operating & Storage Conditions

8-1. Operating

- (1) Maximum Input Power: 5 W
- (2) Operating Temperature: -40°C to 85°C
- (3) Relative Humidity: 10% to 70%

8-2. Storage (sealed)

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

8-3. Storage (After mounted on customer's PCB with SMT process)

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

9. Reliability Test

Test Items	Test Conditions	Result
1. Soldering ability	*Solder Temperature : 250 ± 5°C *Test time: 2 +/- 0.5 sec *With solder paste	Pass
2. Temperature cycling	-40°C/ 30min~90°C /30min Total <u>10</u> cycles * Specimens are kept at standard measurement environment for more than 24 hours before testing.	Pass
3. Damp heat	*Humidity:90~95% *Temperature: 85°C *Test time : 240 hours * Specimens are kept at standard measurement environment for more than 24 hours before testing..	Pass
4. Adhesive strength of terminal electrodes	* Resistance to bending of printed-circuit test board(110x40x1.6mm) * Applied force: 5Kgf ; * Duration : 10±1sec	Pass
5. High temperature exposure	*Temperature : 90°C *Test duration : 240 hours * Specimens are kept at standard measurement environment for more than 24 hours before testing.	Pass
6. Low temperature exposure	*Temperature : -40°C *Test duration : 240 hours * Specimens are kept at standard measurement environment for more than 24 hours before testing.	Pass