

APPROVAL SHEET

DESCRIPTION : Chip series antenna 2400MHz-2500MHz

Bandwidth 100MHz

NOMINAL FREQ. : 2400MHz-2500MHz

P/N : HL-2012-ANT-00021

MODEL : 2012

REVISION : 01

DATE : 04/18/2023

Approved	Checked	Prepared

CUSTOMER: _____

Customer Signature

Approved: _____

Date: _____

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REVISION HISTORY

Rev.	Revised Page	Revision Content	Date	Ref. No.	Reviser
01	N/A	Initial Released	04/18/2023	N/A	Jack

2400MHz-2500 MHz 2012 Chip Antenna

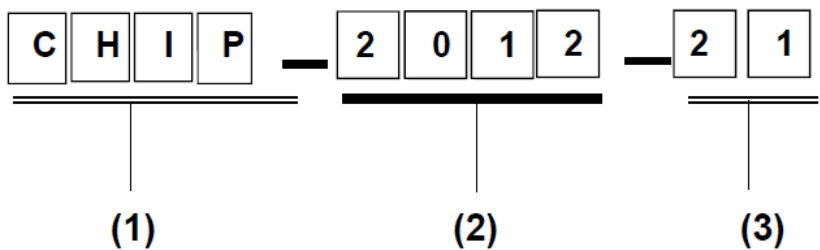
1. FEATURES:

- Light weight, compact
- Wide bandwidth, low cost
- Built-in antenna with high gain

2. APPLICATIONS:

- Bluetooth, Wireless LAN, Mobile TV
- Home RF System, etc

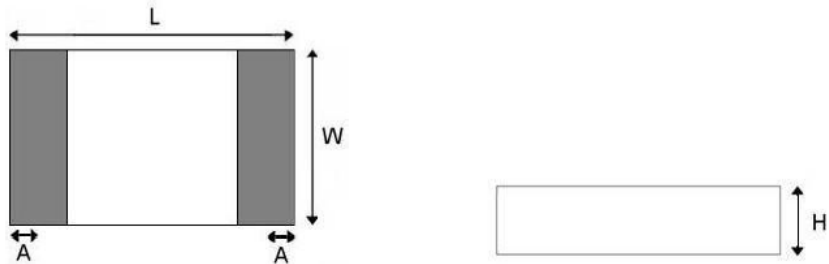
3. PRODUCT IDENTIFICATION



(1) Product type: Multilayer chip Antenna

(2) External Dimensions (L×W) (mm): 2.0*1.2

4. SHAPE AND DIMENSIONS:



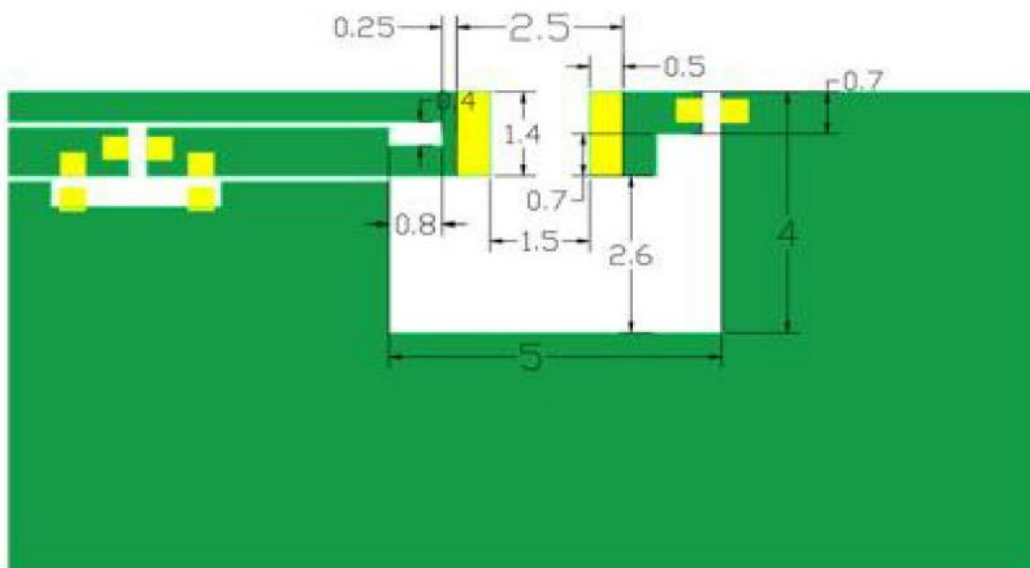
SHAPE AND DIMENSIONS

L	W	H	A
2.0±0.2	1.2±0.2	0.55±0.1	0.4±0.1

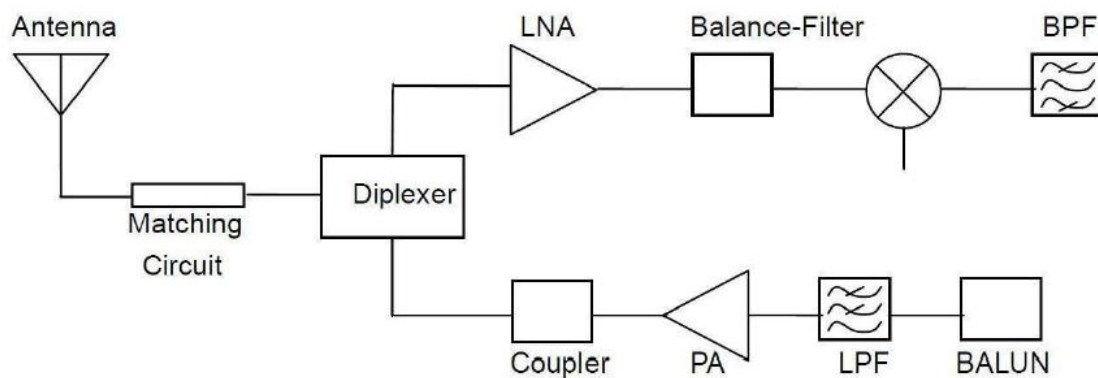
TERMINAL-CONFIGURATION



EVALUATION BOARD



APPLICATION GUIDE



2400MHz-2500 MHz 2012 Chip Antenna

5. SPECIFICATIONS:

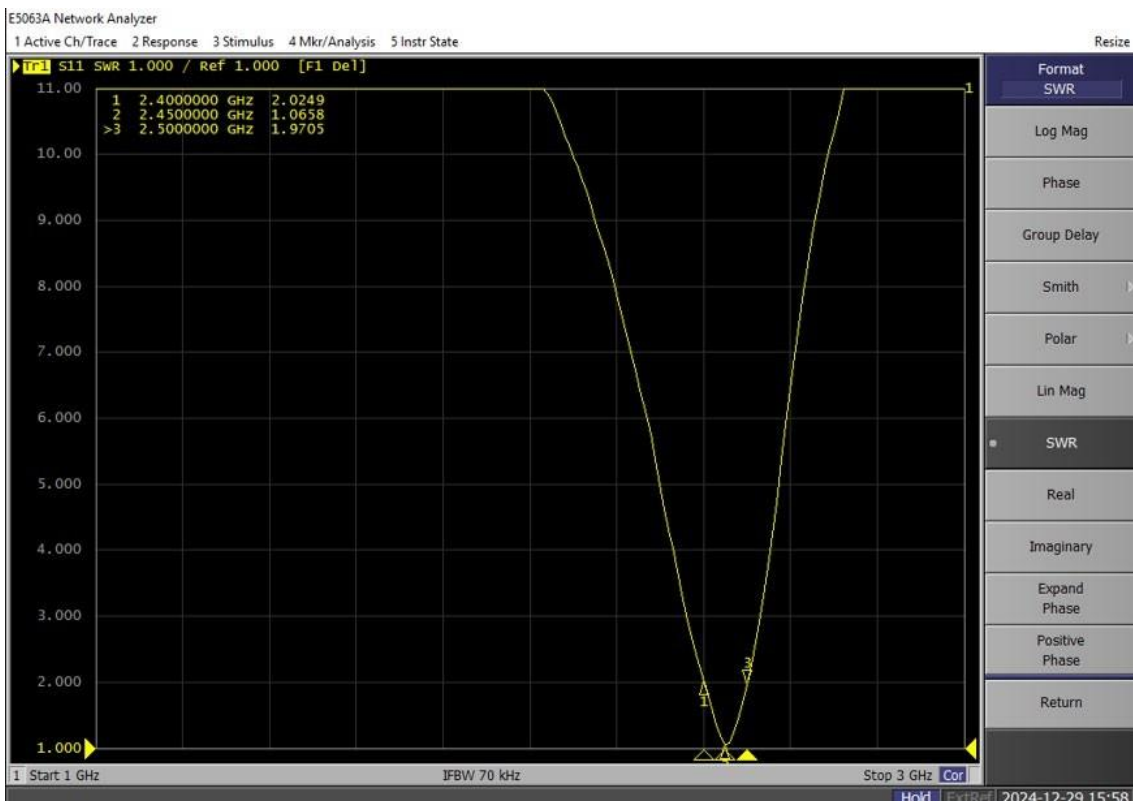
ITEM	SPECIFICATION
Frequency Band	2400MHz~2483MHz
VSWR	Less than 3
Polarization	Linear
*Peak Gain	2.48 dBi Typ.
*Peak Efficiency	72.6% Typ.
Impedance	50 Ω Typ.

* Test condition: Test board size 98*65 mm

Matching circuit: Pi matching circuit will be required

6. Electrical Characteristics:

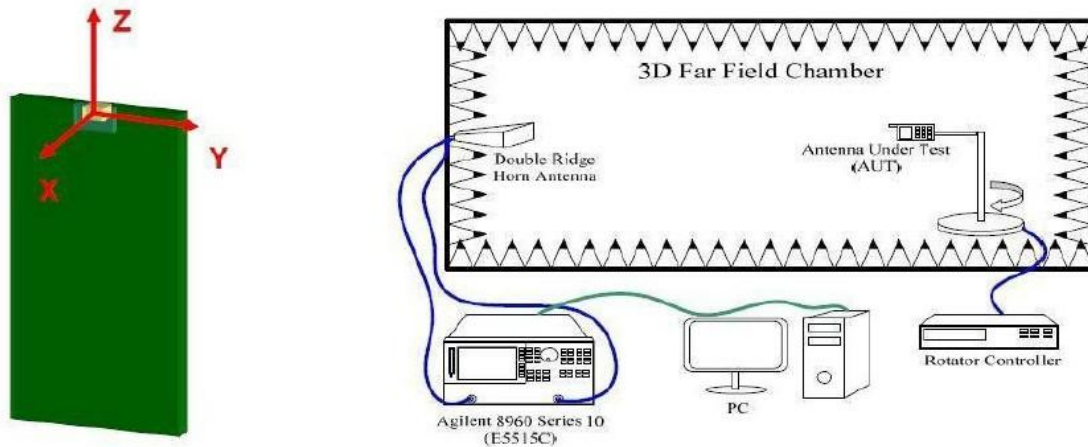
VSWR



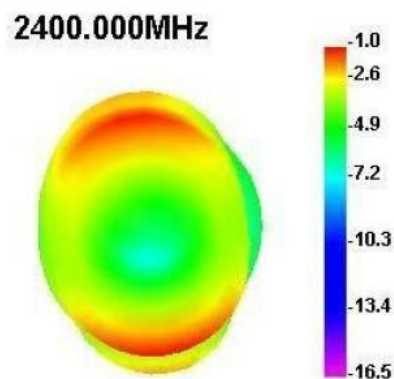
2400MHz-2500 MHz 2012 Chip Antenna

Radiation Pattern

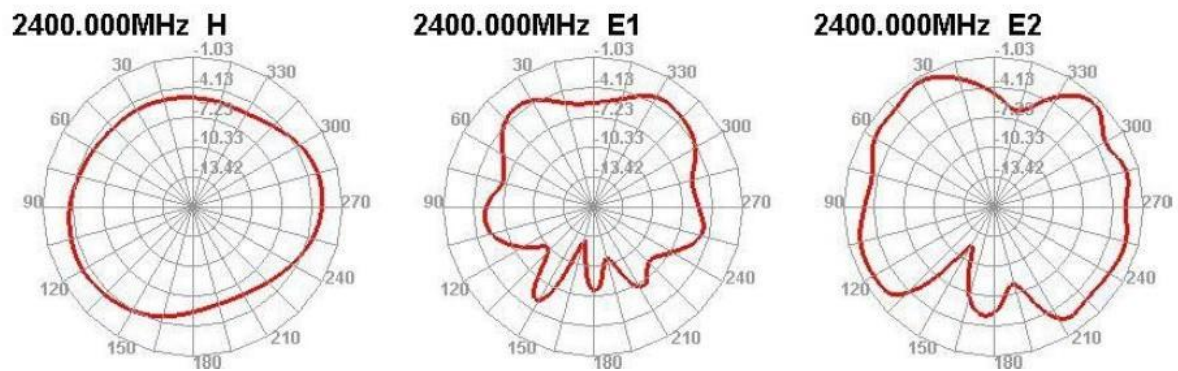
The Gain pattern is measured in INPAQ's FAR-field chamber. DUT is placed on the table of rotator, a standard horn antenna and Vector Network Analyzer is used to collect data.



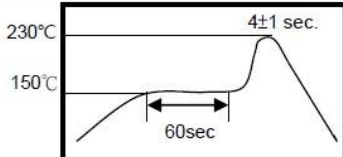
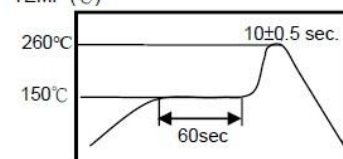
© 3D Gain Pattern (2400 MHz)



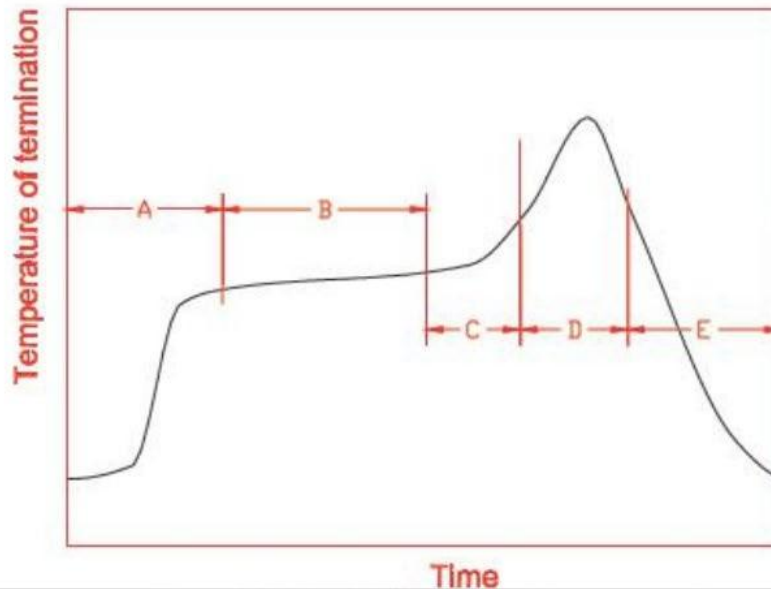
© 2D Gain Pattern (2400 MHz)



7. Reliability and Test Conditions

ITEM	REQUIREMENTS	TEST CONDITION															
Solderability	1. Wetting shall exceed 90% coverage 2. No visible mechanical damage TEMP (°C) 	Pre-heating temperature:150°C/60sec. Solder temperature:230±5°C Duration:4±1sec. Solder:Sn-Ag3.0-Cu0.5 Flux for lead free: rosin															
Solder heat Resistance	1. No visible mechanical damage 2. Central Freq. change :within ± 6% TEMP (°C) 	Pre-heating temperature:150°C/60sec. Solder temperature:260±5°C Duration:10±0.5sec. Solder:Sn-Ag3.0-Cu0.5 Flux for lead free: rosin															
Component Adhesion (Pull test)	1. No visible mechanical damage	Insert 10cm wire into the remaining open eye bend ,the ends of even wire lengths upward and wind together. Terminal shall not be remarkably damaged.															
Thermal shock	1. No visible mechanical damage 2. Central Freq. change :within ±6% <table border="1" data-bbox="454 1086 853 1310"> <thead> <tr> <th>Phase</th><th>Temperature(°C)</th><th>Time(min)</th></tr> </thead> <tbody> <tr> <td>1</td><td>+110±5°C</td><td>30±3</td></tr> <tr> <td>2</td><td>Room Temperature</td><td>Within 3sec</td></tr> <tr> <td>3</td><td>-40±2°C</td><td>30±3</td></tr> <tr> <td>4</td><td>Room Temperature</td><td>Within 3sec</td></tr> </tbody> </table>	Phase	Temperature(°C)	Time(min)	1	+110±5°C	30±3	2	Room Temperature	Within 3sec	3	-40±2°C	30±3	4	Room Temperature	Within 3sec	+110°C =>30±3min -40°C =>30±3min Test cycle:10 cycles The chip shall be stabilized at normal condition for 2~3 hours before measuring.
Phase	Temperature(°C)	Time(min)															
1	+110±5°C	30±3															
2	Room Temperature	Within 3sec															
3	-40±2°C	30±3															
4	Room Temperature	Within 3sec															
Resistance to High Temperature	1. No visible mechanical damage 2. Central Freq. change :within ±6% 3. No disconnection or short circuit.	Temperature: +110±5°C Duration: 1000±12hrs The chip shall be stabilized at normal condition for 2~3 hours before measuring.															
Resistance to Low Temperature	1. No visible mechanical damage 2. Central Freq. change :within ±6% 3. No disconnection or short circuit.	Temperature:-40±5°C Duration: 1000±12hrs The chip shall be stabilized at normal condition for 2~3 hours before measuring.															
Humidity	1. No visible mechanical damage 2. Central Freq. change :within ±6% 3. No disconnection or short circuit.	Temperature: 40±2°C Humidity: 90% to 95% RH Duration: 1000±12hrs The chip shall be stabilized at normal condition for 2~3 hours before measuring.															

8. Recommended Reflow Soldering



A	1 st rising temperature	The normal to Preheating temperature	30s to 60s
B	Preheating	140°C to 160°C	60s to 120s
C	2 nd rising temperature	Preheating to 200°C	20s to 40s
D	Main heating	if 220°C	50s~60s
		if 230°C	40s~50s
		if 240°C	30s~40s
		if 250°C	20s~40s
		if 260°C	20s~40s
E	Regular cooling	200°C to 100°C	1°C/s ~ 4°C/s

*reference: J-STD-020C

(1) Soldering Gun Procedure

Note the follows, in case of using solder gun for replacement.

- (a) The tip temperature must be less than 350°C for the period within 3 seconds by using soldering gun under 30 W.
- (b) The soldering gun tip shall not touch this product directly.

(2) Soldering Volume

Note that excess of soldering volume will easily get crack the body of this product.

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9. Taping Package and Label Marking: (unit: mm)

(1) Quantity/Reel: 5000pcs/Reel