



东莞市蓝霖电子科技有限公司
DongGuan LanLin Electronics Technology Co. Ltd

SPECIFICATION FOR APPROVAL

规格书

NO 编号: _____

CUSTOMER 客 户: _____

PRODUCT 产 品: Surface-mount ceramic antenna

P/N 料 号: ZL-T2450-ANT-20002

MODEL NO 型 号: SMD2012 2.4GHz 1dBi PF Ceramic Antenna

PREPARED 编 制: 王美红 CHECKED 审 核: 张高

APPROVED 批 准: 张俊 D A T E 日 期: 2020-6-16

CUSTOMER 客户确认意见:

CHECKED 审 核:

APPROVED 批 准:

D A T E 日 期:

1.SCOPE :This specification applies to Chip series antenna

2.Rating:

Operating Temperature : $-25\text{ }^{\circ}\text{C} \sim 125\text{ }^{\circ}\text{C}$

Storage Temperature : $20\text{ }^{\circ}\text{C} \sim 25\text{ }^{\circ}\text{C}$ R.H. 65% (For Reference)

3.Marking:



4.Standard Testing Condition:

	Unless otherwise specified	In case of doubt
Humidity	Ordinary Humidity(25 to 85% RH)	60 to 70 % RH
Temperature	Ordinary Temperature(15 to 35$^{\circ}\text{C}$)	20$\pm$2$^{\circ}\text{C}$

5.Configuration and Dimensions:

Figure	Dimensions(mm)	
	L	2.0$\pm$0.15
	W	1.2$\pm$0.15
	T	0.5$\pm$0.1

TERMINAL CONFIGURATION



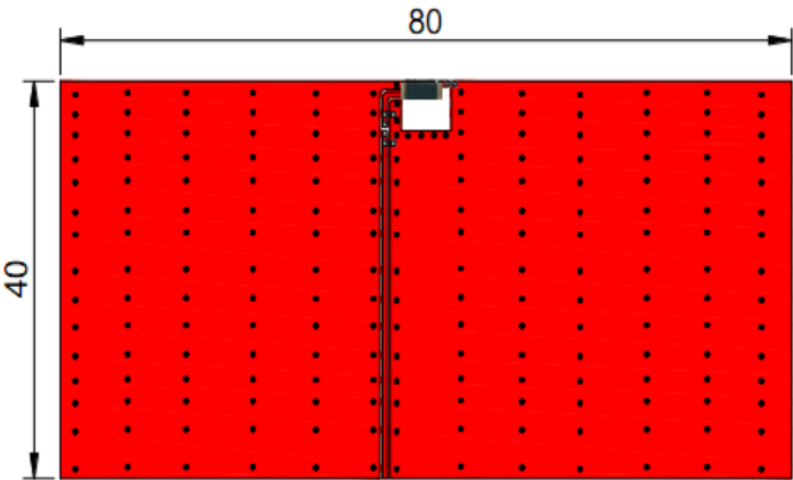
No.	Terminal Name
1	Feeding/GNG
2	GNG/Feeding

6. Electrical Characteristics:

Part No.	Impedance (Ω)	Test Freq. (GHz)	Bandwidth* (MHz)	Peak Gain* (dBi)	VSWR (max)	Polarization (Linear)
ZL-T2450-ANT-20002	50	2.4	100	1~2	2	Linear

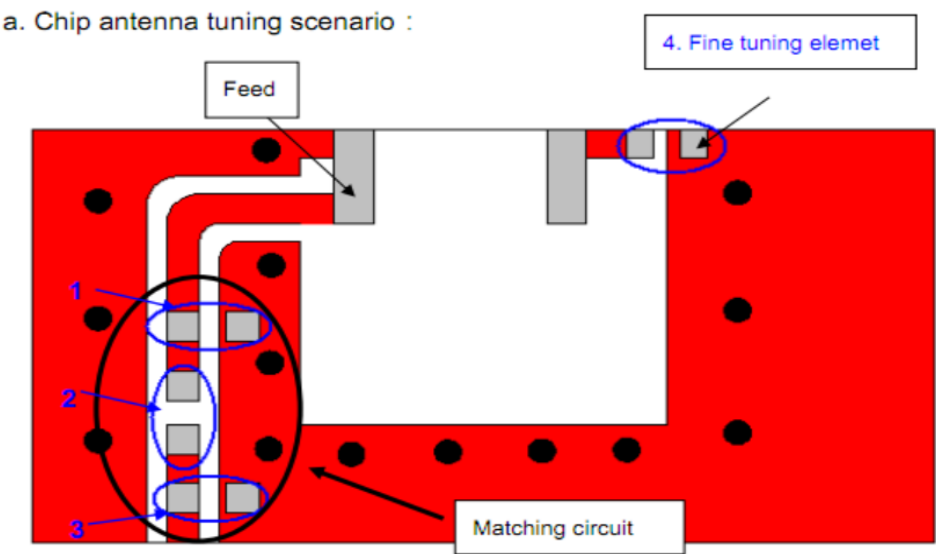
7.Dimensions and Recommended PC Board Pattern:

Evaluation Board Dimension (board size 80x40mm)

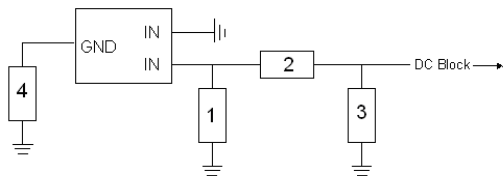


Unit: mm

NOTE : Dimensions in mm



8. Matching Circuit:

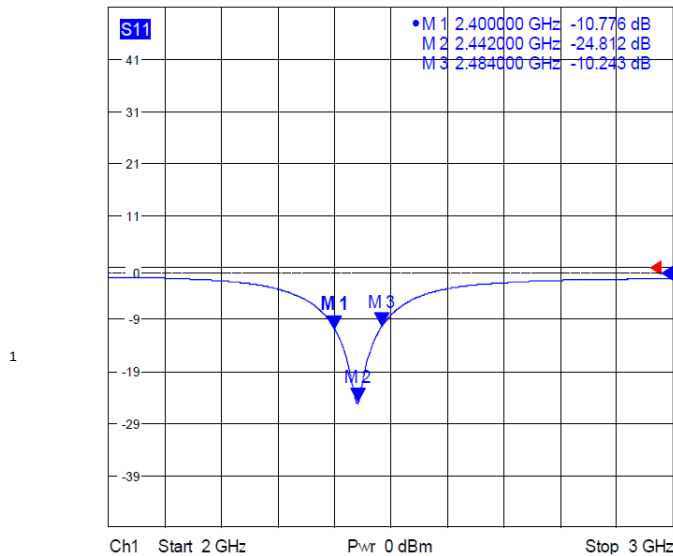


Location	Description	Vendor	Tolerance
1	1.2 pF*	Murata (0402)	±0.1 pF
2	10PF*	Murata(0402)	±0.5 PF
3	N/A*	-	-
Fine tuning element 4	10 pF*	Murata (0402)	±0.1 pF

*Typical reference values which may need to be changed when circuit boards or part vendors are different.

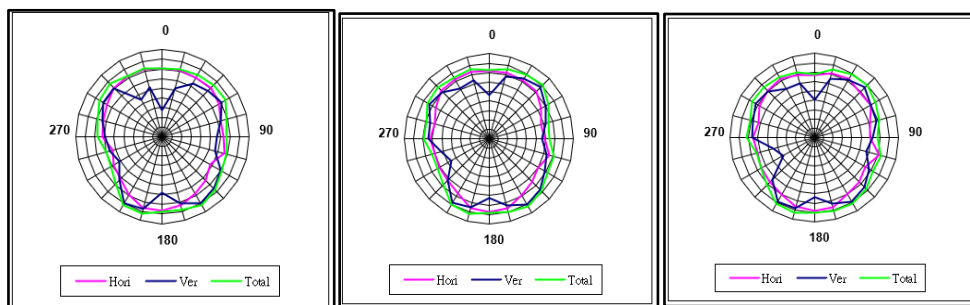
Return Loss & Radiation

Return Loss

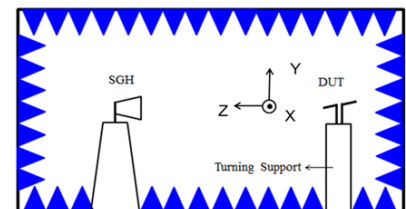


Frequency(MHz)	S11 (dB)
2400	-10.77
2450	-24.81
2484	-10.243

Radiation

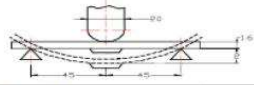
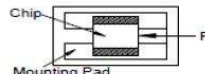


	2400MHz	2450MHz	2500MHz
Efficiency	70.56%	75.25%	71.01%
Peak Gain	1.72 dBi	1.95 dBi	1.69 dBi
Directivity	2.20 dBi	2.59 dBi	2.01 dBi



9. Dimensions and Recommended PC Board

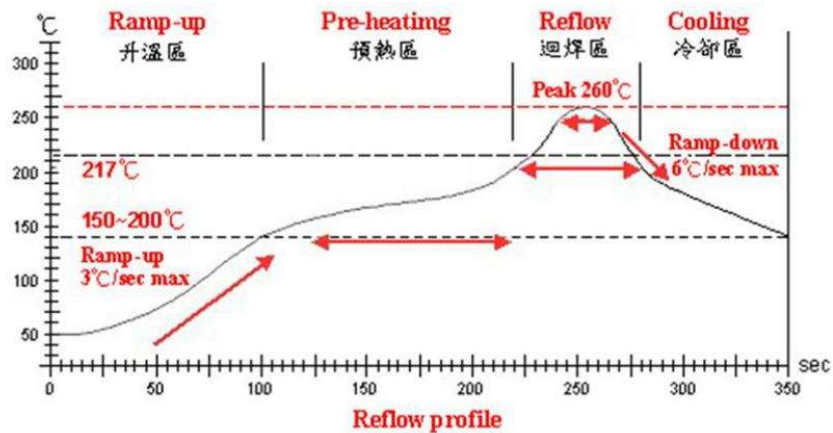
1-1. Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Board Flex	The forces applied on the right conditions must not damage the terminal electrode and the ferrite	Test device shall be soldered on the substrate Substrate Dimension: 100x40x1.6mm Deflection: 2.0mm Keeping Time: 60 sec 
1-1-2	Resistance to Soldering Heat	Meet the electrical Specification after test	Refer to MIL-STD-202 Method 210 Pre-heating: 150-200℃, 60-100 sec Above 217℃, 60-150 secs Peak Temperature: 260±5℃, 20-40 sec Cycles : 2 times
1-1-3	Solder ability	The electrodes shall be at least 95% covered with new solder coating	Refer to J-STD-002 Pre-heating: 150℃, 1min Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 245±5℃ (Pb-Free) Immersion Time: 4±1sec
1-1-4	Terminal Strength Test	The chip must not damage the terminal electrode and the ferrite	Test device shall be soldered on the substrate Force 2N for 60±1 seconds for 0603 series Force 5N for 60±1 seconds for 1005 series Force 10N for 60±1 seconds for 1608 series Force 1.8Kg for 60±1 seconds for the other series. 
1-1-5	Vibration Test	Meet the electrical Specification after test	Refer to MIL-STD-202 Method 204 Vibration waveform: Sine waveform Vibration frequency: 10Hz~2000Hz Vibration acceleration: 5g 10Hz~20KHz and back to 10Hz should be down in 20 minutes Duration of test: 12 cycles each of 3 orientations, 20 minutes for each cycle, 12 hr total Vibration axes: X, Y & Z
1-1-6	Resistance to Solvent	There must be no change in appearance or obliteration of marking	Refer to MIL-STD-202 Method 215 Inductors must withstand 6 minutes of alcohol or water.

Dimensions and Recommended PC Board

1-2.Environmental Performance

No	Item	Specification	Test Method
1-2-1	Temperature Cycle	Meet the electrical Specification after test	Refer to JESD Method JA-104 Total cycles: 1000 cycles 30 minutes exposure to -40℃ 30 minutes exposure to 125℃ 1 min. maximum transition between temperatures Measured after exposure in the room condition for 24hrs
1-2-2	Biased Humidity Resistance		Refer to MIL-STD-202 Method 103 Temperature: 85±2℃ Relative Humidity:85% / Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-3	High Temperature Exposure (Storage)		Refer to MIL-STD-202 Method 108 Temperature: 125±3℃ / Relative Humidity: 0% Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-4	Low Temperature Exposure (Storage)	Meet the electrical Specification after test	Refer to MIL-STD-202 Method 108 Temperature: -40±3℃ / Relative Humidity : 0% Applied Current: Rated Current/ Time: 1000hrs Measured after exposure in the room condition for 24 hrs



Lead-Free(LF) 標準溫度分析範圍

Refer to J-STD-020C

管制項目 Item.	升温區 Ramp-up	預熱區 Pre-heating	迴焊區 Reflow	Peak Temp	冷卻區 Cooling
溫度範圍 Temp.scope	R.T. ~ 150℃	150℃ ~ 200℃	217℃	260±5℃	Peak Temp. ~ 150℃
標準時間 Time spec.	—	60 ~ 180 sec	60 ~ 150 sec	20 ~ 40 sec	—
實際時間 Time result	—	75 ~ 100 sec	90 ~ 120 sec	20 ~ 35 sec	—

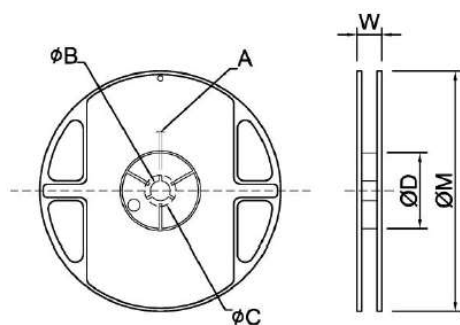
NOTE :

1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow

10. Packaging:

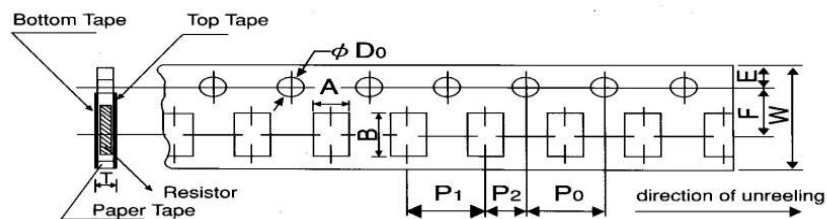
Packaging - Cover tape

Reel Specification



TYPE	SIZE		A	φ B	φ C	φ D	W	φ M
2012	7"	5K/Reel	2.0±0.5	13.5±1.0	21±1.0	60±1.0	11.5±2.0	178±2.0

Tapping Specification



Packing	Style	A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	T
Paper	2012	1.6±0.15	2.4±0.2	8.0±0.2	3.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.1	+0.1 ψ1.5 -0	0.84±0.1