

## WiFi/Bluetooth Ceramic Chip Antenna

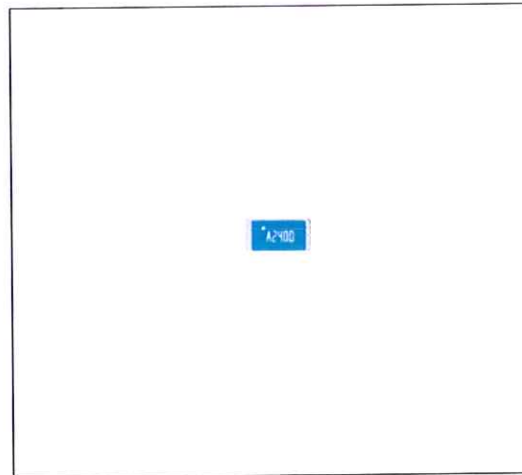
HCA3216B2450C12S

### Description

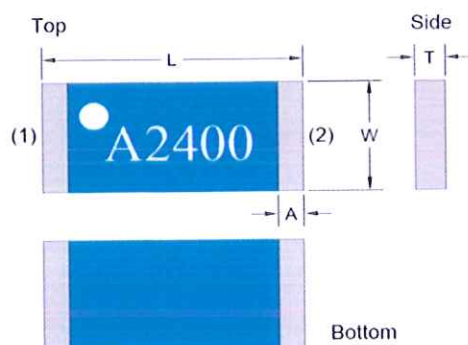
The HCA3216B2450C12S chip antenna is designed for WiFi/Bluetooth applications. This chip antenna has excellent stability consistently provide high signal reception efficiency.

### Features

- Dimensions 3.2 x 1.6 x 0.5 (mm)
- Stable and reliable in performances
- Low temperature coefficient of frequency
- Low profile , compact size
- RoHS compliance
- SMT processes compatible



### Shape and Dimensions / Recommended Pattern



### Applications

- Bluetooth earphone systems
- Hand-held devices when WiFi /Bluetooth functions are needed, e.g., Smart phone.
- IEEE802.11 b/g/n
- ZigBee
- Wireless PCMCIA cards or USB dongle

NO.	Terminal Name
[1]	Feeding point
[2]	GND

Dimensions in mm

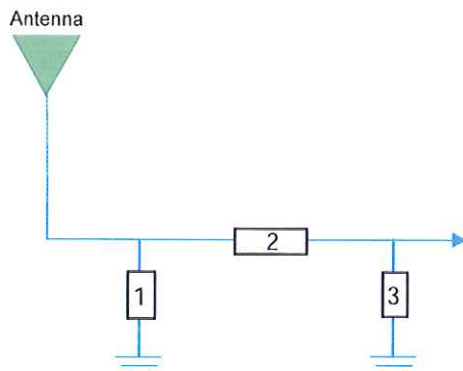
TYPE	L	W	D	T
HCA3216B2450C12S	3.05±0.1	1.6±0.2	0.4±0.2	0.55±0.2

## Electrical Specifications

<b>Working Frequency Range</b>	<b>2400 ~ 2484 MHz</b>
<b>Peak Gain</b>	<b>2.58 dBi</b>
<b>Impedance</b>	<b>50 Ohm</b>
<b>Return loss</b>	<b>10 dB (Min)</b>
<b>Polarization</b>	<b>Linear</b>
<b>Azimuth Beamwidth</b>	<b>Omni-directional</b>
<b>Operation Temperature</b>	<b>-40 ~ 85 °C</b>

## Matching Circuit

With the following recommended values of matching and tuning components, the center frequencies will be about 2450 MHz at our standard 40x20 mm<sup>2</sup> evaluation board . However, these are reference values, may need to be changed when the circuit boards or part vendors are different.

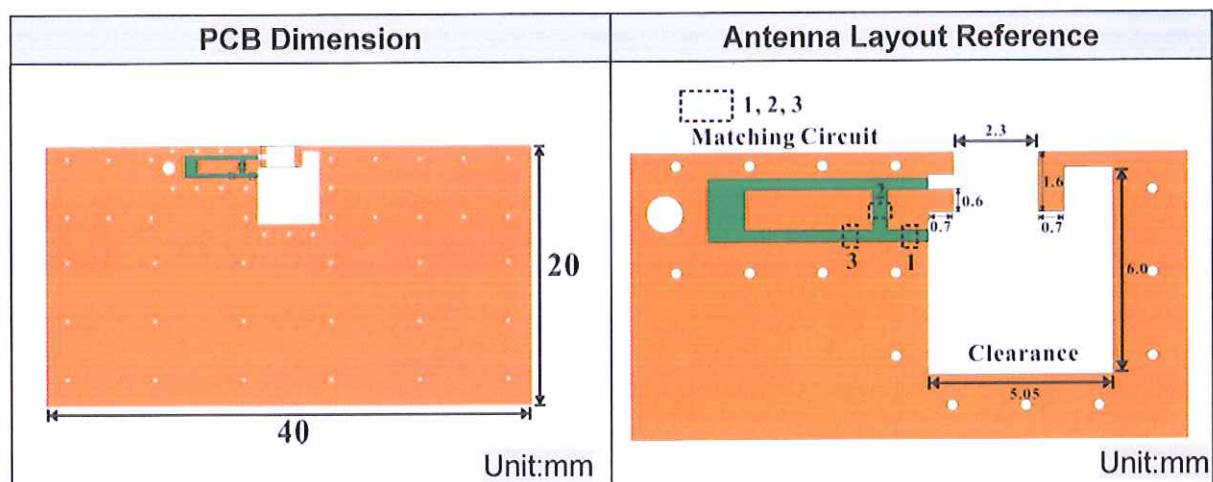


System Matching Circuit Component

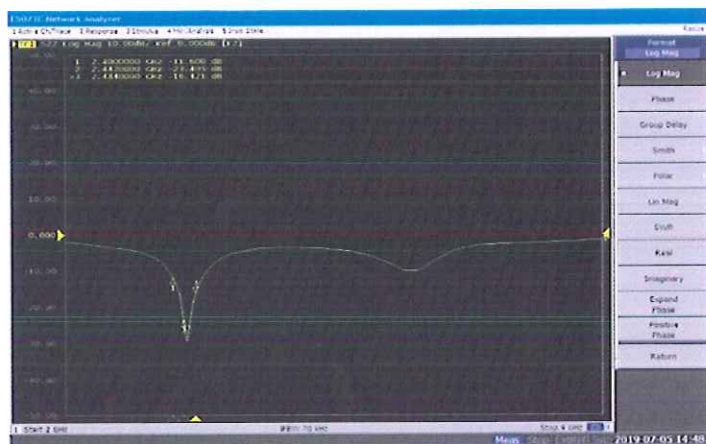
Location	Description	Vendor
1	1.6pF, (0402)	MURATA
2	1.0nH, (0402)	
3	1.6pF, (0402)	MURATA

1.6pF, (0402)

### Dimensions and Recommended PC Board pattern

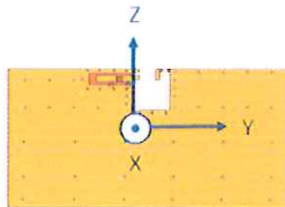
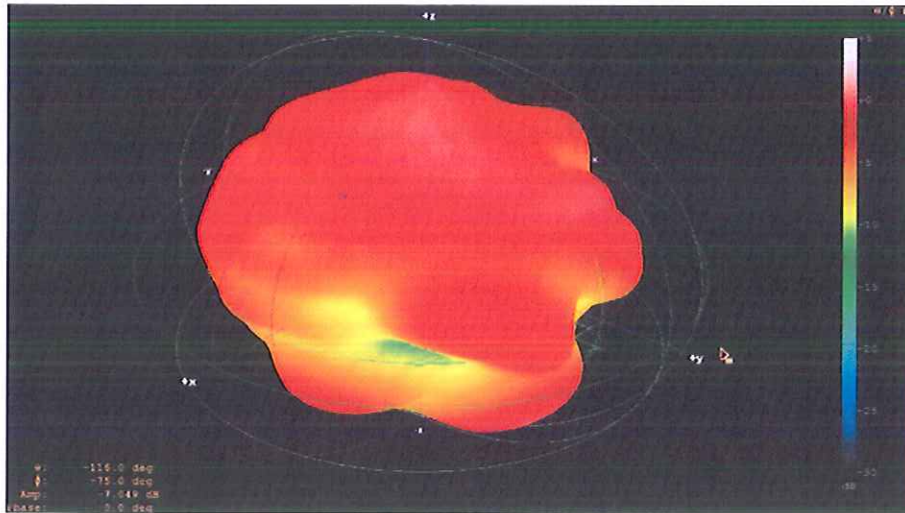


### Return Loss & Radiation



Frequency (MHz)	Return Loss (dB)
2400	11.6
2442	23.4
2484	16.4

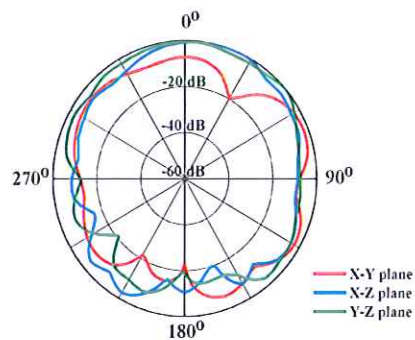
## 3D Radiation



Frequency	2440 MHz
Peak Gain	2.58 dBi
Average Gain	-1.88 dBi
Efficiency	64.94 %

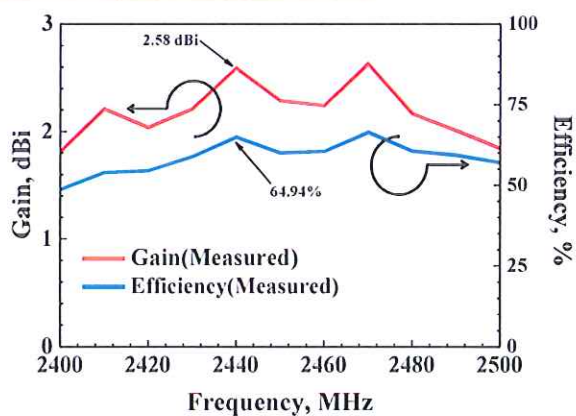
## 2D Radiation

Frequency : 2440 MHz



Pattern	Test Plane	Peak Gain (dBi)	Peak Gain Angle
1 Red	X-Y	-2.2	70°
2 Blue	X-Z	-0.247	22°
3 Green	Y-Z	-0.138	50°

## Peak Gain & Efficiency



Frequency (MHz)	Gain (dBi)	Efficiency (%)
2400	1.81	48.67
2440	2.58	64.94
2480	2.16	60.46

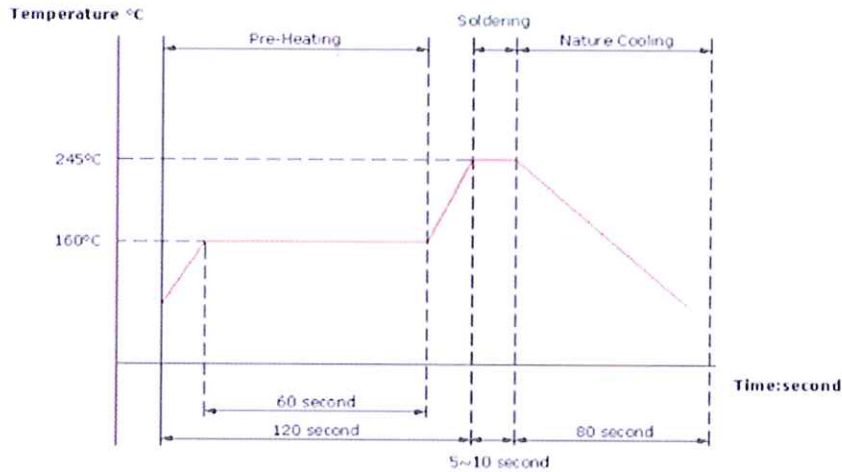


Reliability Of Ferrite Multilayer Chip Bead

No	Item	Specification	Test Method
1-2-1	Temperature Cycle	Meet the electrical Specification afer test	Refer to JESD Method JA-104 Total cycles: 1000 cycles 30 minutes exposure to -40°C 30 minutes exposure to 125°C 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 °C 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°C /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 afer test	Refer to MIL-STD-202 Method 108 Temperature: -40± 3°C /Relative Humidity: 0% Applied Current: Rated Current Time:1000hrs  Measured after exposure in the room condition for 24hrs

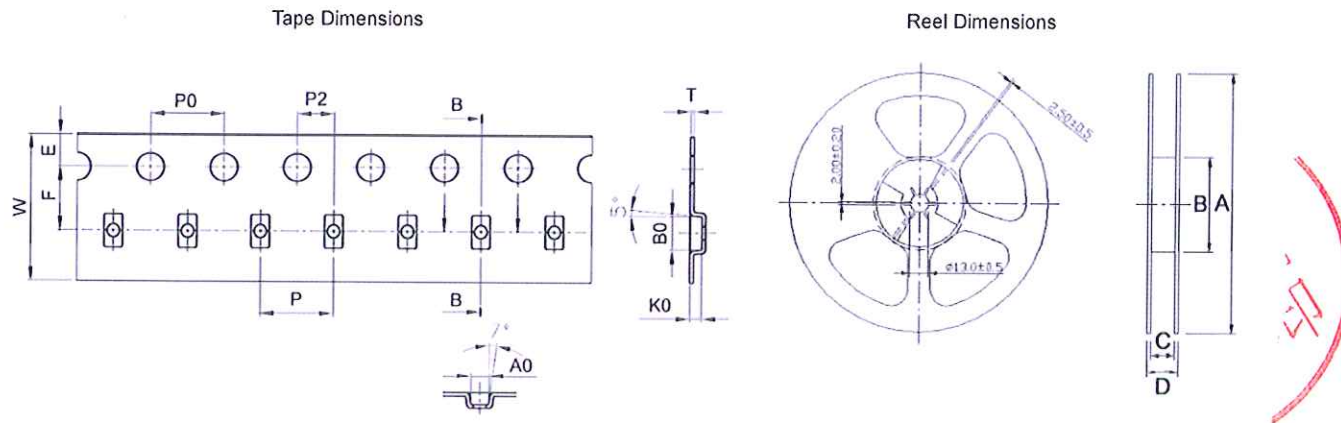
1-2-1  
1-2-2  
1-2-3  
1-2-4

### Soldering Conditions



Lead Free Common Mode Filter IR Reflow Temperature Profile

### Packaging Specifications



Dimensions in mm

TYPE	Tape Dimensions										Reel Dimensions				Quantity
	A0	B0	T	E	W	P	P0	P2	F	K0	A	B	C	D	PCS / REEL
HCA3216B2450C12S	1.9	3.50	0.75	1.75	8	4	4	2	3.5	0.73	178	60	8.4	11.5	5000