

Description

The HCA3216A2450YF11 chip antenna is designed for WIFI /Bluetooth applications. This chip antenna has excellent stability consistently provide high signal reception efficiency.

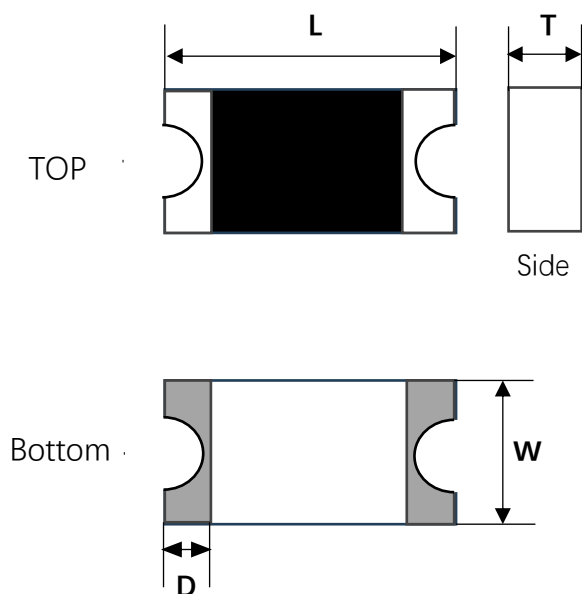
Features

- Dimensions 3.2 x 1.6 x 1.2 (mm)
- Stable and reliable in performances
- Low temperature coefficient of frequency
- Low profile, compact size
- RoHS compliance
- SMT processes compatible

Applications

- Bluetooth earphone systems
- Hand-held devices when WIFI/Bluetooth functions are needed, e.g.
- Multiple-band Mobile phone antenna
- PHS
- FM, etc
- WLAN

Dimensions /Recommended Pattern



NO.	Terminal Name
[1]	Input
[2]	NC

TYPE	L	W	D	T
HCA3216A2450YF11	3.2±0.2	1.6±0.2	0.2±0.1	1.2±0.1

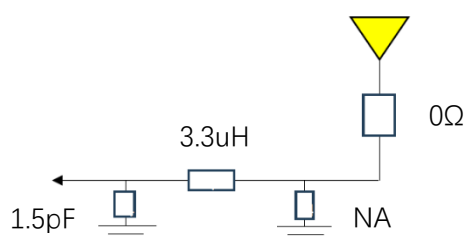
Dimensions in mm

Electrical Characteristics

Working Frequency Range	2400 ~ 2500 MHz
Peak Gain	0.52dBi
Impedance	50 Ohm
V.S.W.R	≤2.0
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Efficiency	72%(Typical)

Matching Circuit

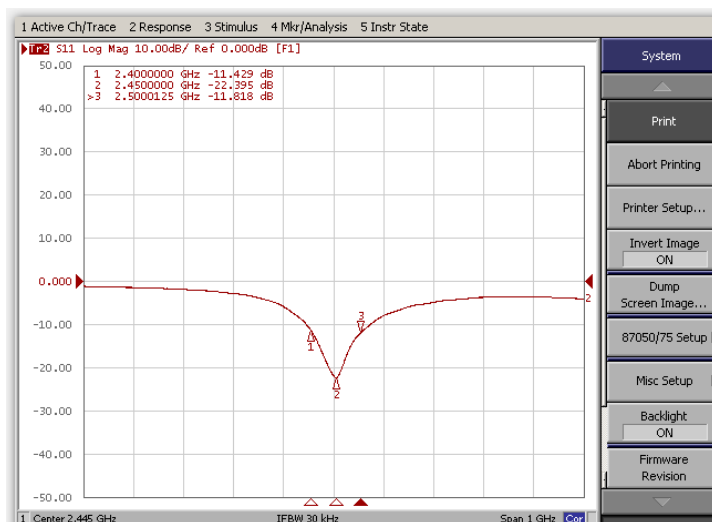
With the following recommended values of matching and tuning components, the center frequencies will be about 2450 MHz at our standard 40x40 mm2 evaluation board. However, these are reference values, may need to be changed when the circuit boards or part vendors are different.



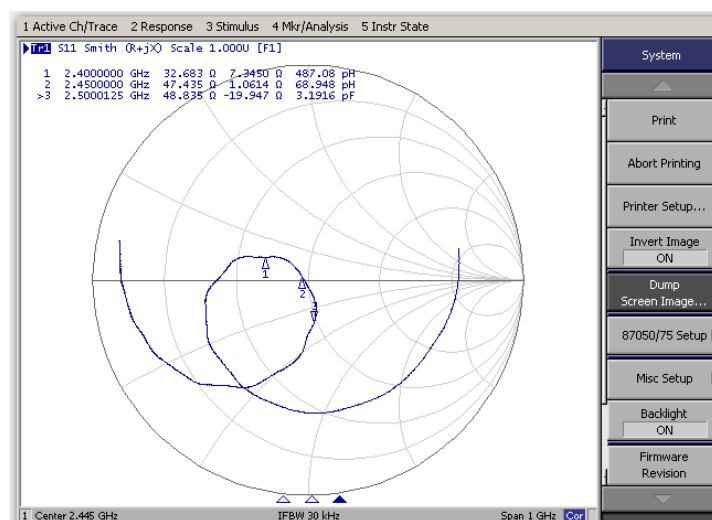
Dimensions and Recommended PC Board pattern

PCB Dimension	Antenna Layout Reference
The diagram shows a rectangular PCB with overall dimensions of 30 mm by 15 mm. There is a 2 mm gap on the right side and a 1.5 mm gap on the left side. A yellow antenna pad is located on the right side.	The diagram shows the antenna footprint dimensions in millimeters. The footprint is 2.6 mm wide and 1.6 mm high. The distance between the two footprint pads is 0.7 mm.

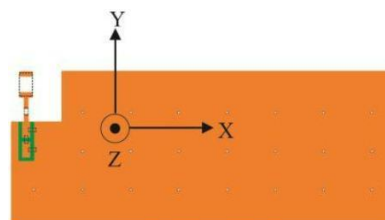
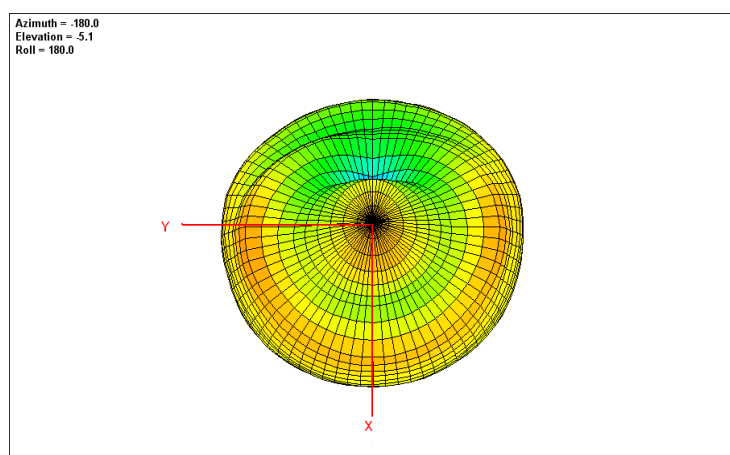
Return Loss & Radiation



Frequency (MHz)	Return Loss (dB)
2400	11.4
2450	22.4
2524	11.8



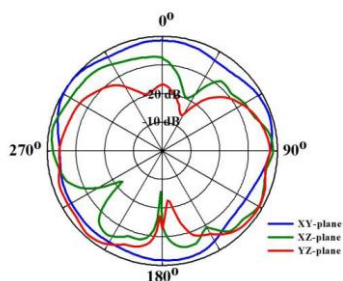
3D Radiation



Frequency	2450 MHz
Peak Gain	0.52dBi
Average Gain	-0.36 dBi
Efficiency	72.2 %

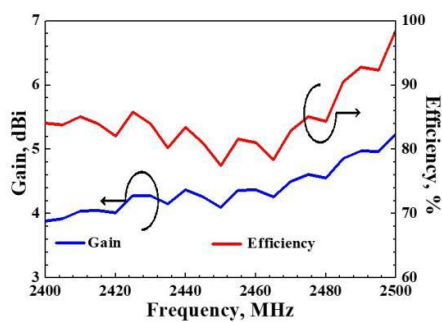
2D Radiation

Frequency: 2475 MHz



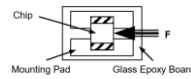
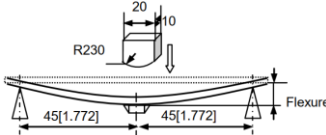
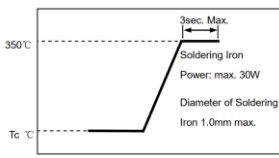
Pattern		Test Plane	Peak Gain (dBi)	Peak Gain Angle
1	Blue	X-Y	0.233	304°
2	Green	X-Z	0.520	260°
3	Red	Y-Z	0.245	220°

Peak Gain & Efficiency

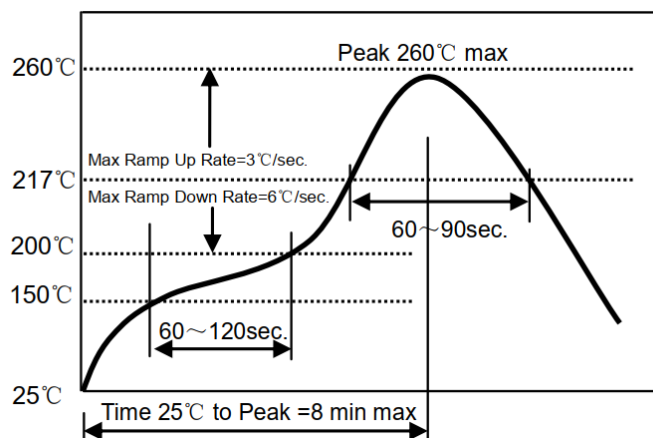


Frequency (MHz)	Gain (dBi)	Efficiency (%)
2400	0.13	69.8
2450	0.16	72.0
2480	0.52	76.34

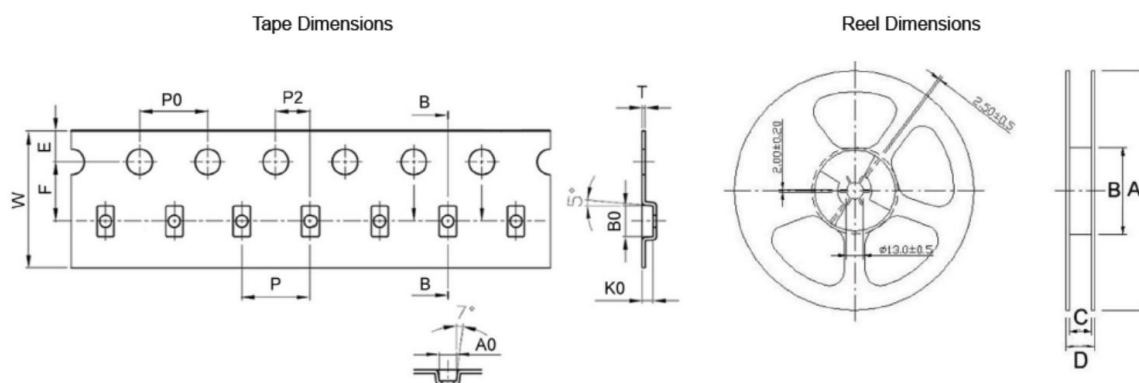
ability Test and Requirement

Item	Test Methods	Specifications
Solder Ability	Solder: Sn/3.0Ag/0.5Cu Temperature: 240°C±2°C Flux: 25% Resin and 75% ethanol in weight Duration: 3±0.5s	No visible mechanical damage. More than 95% of termination should be covered with new solder.
Leaching Resistance	Solder: Sn/3.0Ag/0.5Cu Temperature: 260°C±3°C Flux: 25% Resin and 75% ethanol in weight Duration: 5±0.5s The chip shall be stabilized at normal condition for 1~2 hours before measuring	No visible mechanical damage. More than 95% of termination should be covered with new solder. Inductance change: Within ±20%.
Terminal Strength	The device should not be broken after tensile force of 1.0kg is slowly applied to pull a lead pin of the fixed device in the lead axis direction for 10±1 seconds.	The terminal and body should be no damage. 
Bending Strength	Weld the product to the center part of the PCB with the thickness 1.6±0.2mm as the illustration shows, and keep exerting force arrow ward on it at speed of 0.5mm/sec, and hold for 5±1S at the position of 2mm bending distance. 	No visible mechanical damage. 
Drop	Drop 10 times on a concrete floor from a height of 1m.	No visible mechanical damage. Inductance change: Within ±20%
Vibration	Frequency: 10 to 55 Hz Amplitude: 1.5mm Direction and time: X, Y and Z directions for 2 hours each.	
Humidity	Test condition: 1) temperature, 60°C±2°C, 2) humidity, 90%-95%RH; 3) test time, 96±2h. Measurement method: the component should be stabilized at normal condition for (24±2) hours before test.	
High temperature Exposure	Test condition: 1) temperature, 125°C±2°C, 2) test time, 96±2h. Measurement method: the component should be stabilized at normal condition for (24±2) hours before test.	
Low Temperature Storage	Test condition: 1) temperature, -40°C±2°C, 2) test time, 96±2h. Measurement method: the component should be stabilized at normal condition for (24±2) hours before test.	
Thermal shock	Test condition: 1) -40°C±2°C for 30±3min; 2) 85°C±2°C for 30±3min; 3) 50 cycles. Measurement method: the component should be stabilized at normal condition for (24±2) hours before test.	

Recommendable Reflow Soldering



Packaging Specifications



TYPE	Tape Dimensions (mm)										Reel Dimensions (mm)				Quantity Pcs/Reel
	A0	B0	T	E	W	P	P0	P2	F	K0	A	B	C	D	
HCA3216A2450YF11	1.9	3.50	0.22	1.75	8	4	4	2	3.5	1.30	178	60	8.4	14.4	3000