

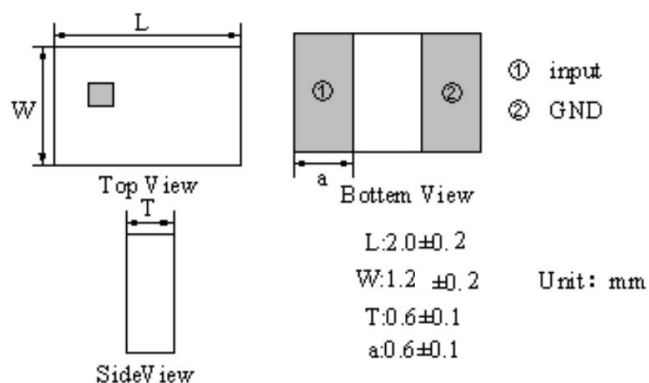
Description

The HCA2012B2450D08S chip antenna is designed for WIFI /Bluetooth applications. This chip antenna has excellent stability consistently provide high signal reception efficiency.

Features

- Dimensions 2.0 x 1.2 x 0.6 (mm)
- Stable and reliable in performances
- Low temperature coefficient of frequency
- Low profile, compact size
- RoHS compliance
- SMT processes compatible

Dimensions /Recommended Pattern



Applications

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

Product Identification

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

TYPE	L	W	T	a
HCA0201B2450D08S	2.0 ± 0.2	1.2 ± 0.2	0.6 ± 0.1	0.6 ± 0.1

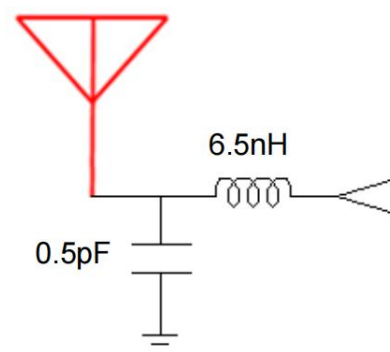
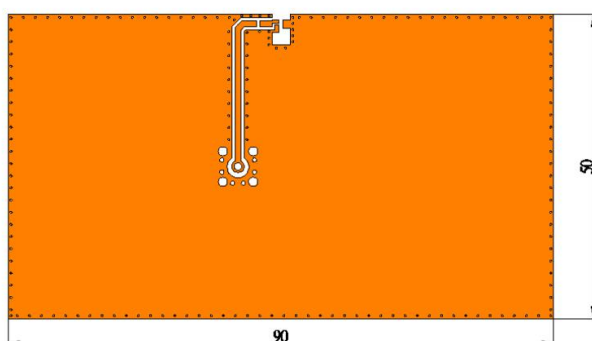
Dimensions in mm

Electrical Characteristics

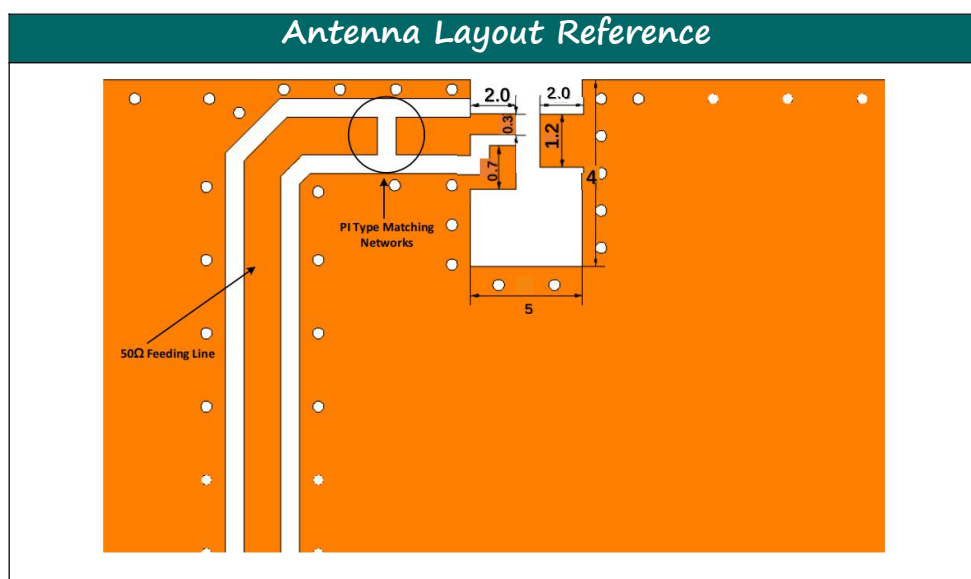
Working Frequency Range	2400 ~ 2485 MHz
Peak Gain	2.7 dBi
Impedance	50 Ohm
V.S.W.R	≤2.0
Polarization	Linear
Azimuth Beam width	Omni-directional
Band Width	65MHz typ

Matching Circuit and Evaluation Board

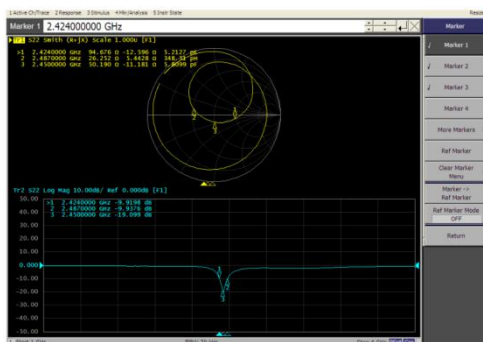
With the following recommended values of matching and tuning components, the center frequencies will be about 2450 MHz at our standard 50x20 mm2 evaluation board. However, these are reference values, may need to be changed when the circuit boards or part vendors are different.



Dimensions and Recommended PC Board pattern

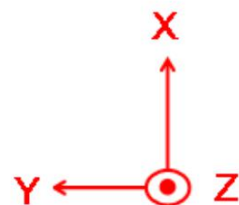
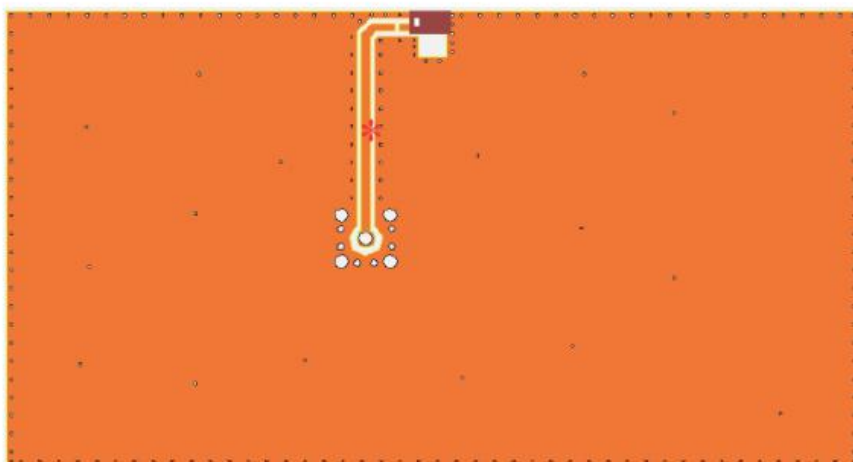


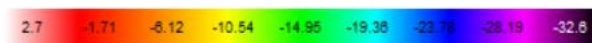
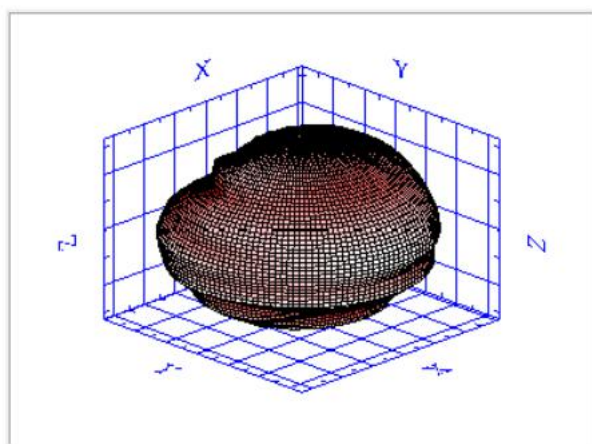
Return Loss & Radiation



Frequency (MHz)	Return Loss (dB)
2400	-9.9198
2442	-19.099
2485	-9.9376

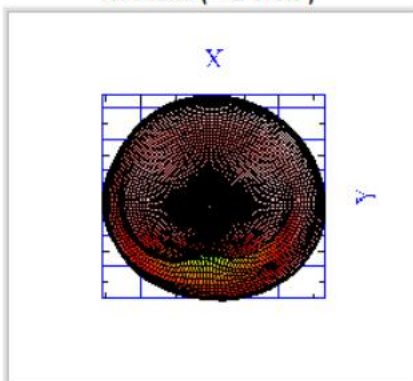
3D Radiation



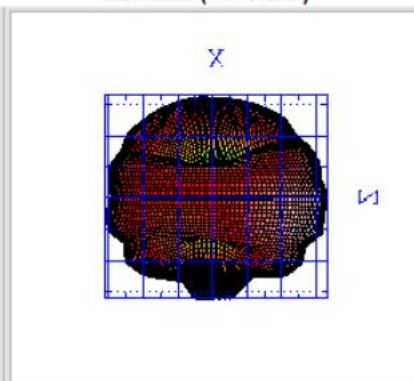


Frequency (MHz)	TRP (dBm)	Efficiency (%)
2450.00	-1.38	72.7
Peak EIRP (dBm)	Max. Power (dBm)	Directivity (dBi)
2.7	2.7	4.09
NHPRP +/- 45 (dBm)	Min. Power (dBm)	Average Gain (dB)
-2.41	-32.6	-1.38
NHPRP +/- 30 (dBm)	Avg. Power (dBm)	Upper Hem. (dBm)
-3.45	-1.13	-3.84
E-Theta Peak Gain (dBi)	Max. / Min. Ratio (dB)	Lower Hem. (dBm)
1.85	35.3	-5.02
E-Phi Peak Gain (dBi)	Max. / Avg. Ratio (dB)	Upper Hem. (%)
2.23	3.83	41.26
E-Total Peak Gain (dBi)	Min. / Avg. Ratio (dB)	Lower Hem. (%)
2.7	-31.47	31.45

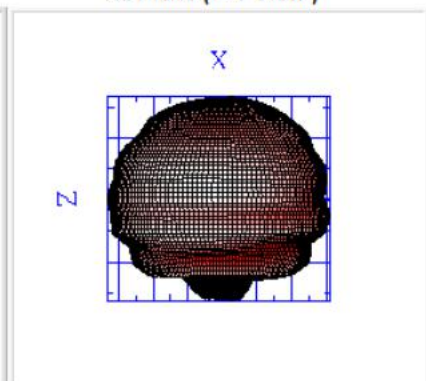
XY Plane (+ Z View)



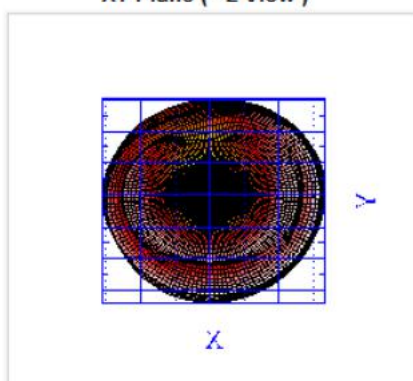
XZ Plane (- Y View)



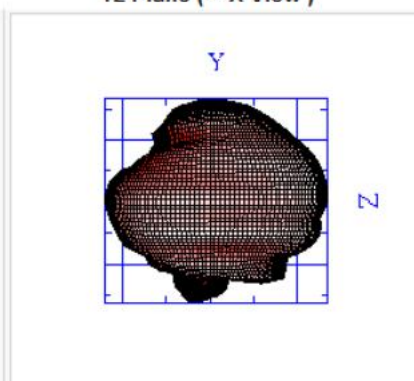
XZ Plane (+ Y View)



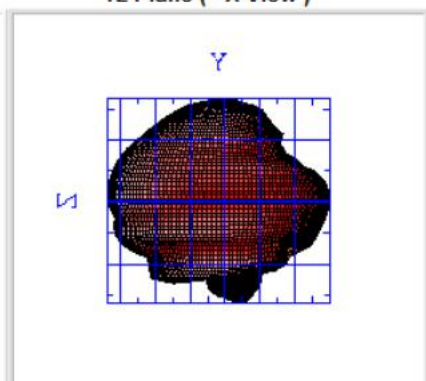
XY Plane (- Z View)



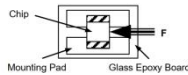
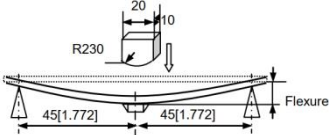
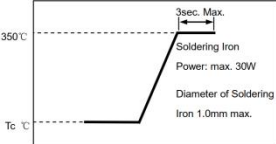
YZ Plane (+ X View)



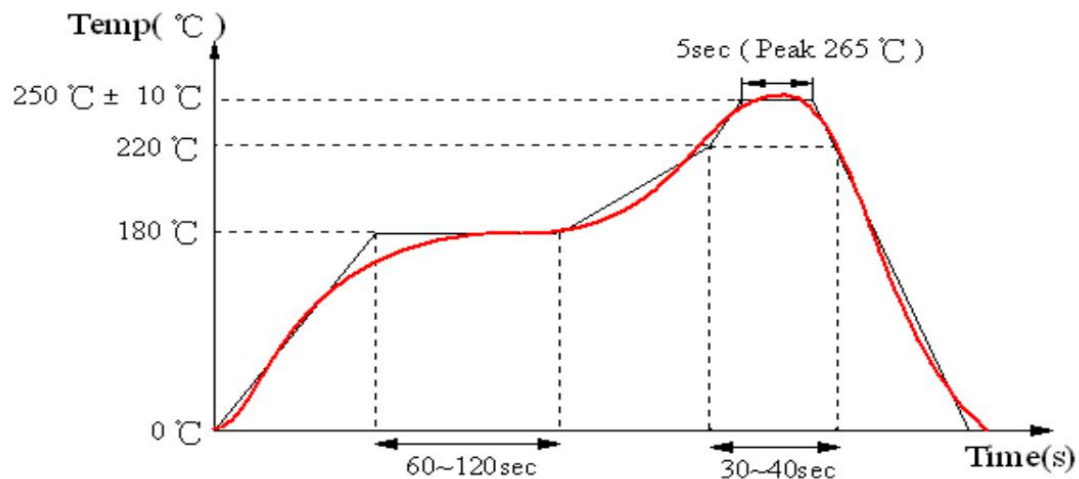
YZ Plane (- X View)



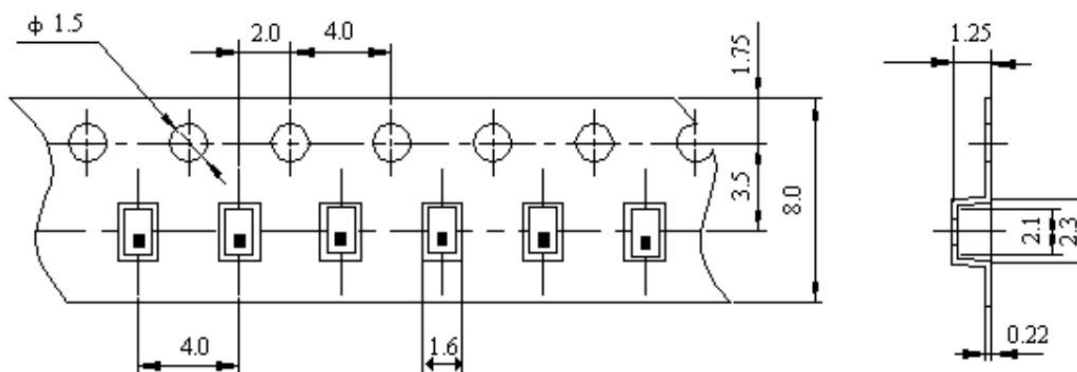
Reliability Test and Requirement

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, 85°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.	

Soldering Conditions



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	
HCA2012B2450D08S	1.65	2.4	0.75	1.75	8	4	4	2	3.5	0.73	178	60	9.0	14.4	4000