

Mini 2.4GHz SMD Antenna

Part No. GA083408BL05

Product Specification



Dimension: 8mmx3.4mmx0.8mm

➤ Applications

- Smart phone
- Tablets
- Laptops
- Wireless dongles
- Wireless modules
- Sensors
- Automotive

➤ Features

- Designed for 2.4 GHz applications: Bluetooth, Wi-Fi (802.11b/g), ZigBee, Wimax(2.3GHz and 2.5GHz) and etc.
- High efficiency
- Linear Polarization
- Omni- Directional (*PCB dimension dependent*)
- Minimum PCB clearance
- Flexible placement on PCB edge
- SMD mounting
- Low Profile, miniature and light weight
- Tape and reel packaging
- RoHS Compliance

➤ Customer Services (Optional)

- EM Antenna Simulation for optimum placement of antenna on PCB.
- Lump Elements Matching for optimum antenna performance.
- Anechoic Chamber Measurement for antenna performance validation.

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ELECTRICAL	
Frequency	2.4 ~ 2.5 GHz
S11	< -7.8dB
VSWR	< 2.4:1
Peak Gain	0.97 dBi
Polarization	Linear
Impedance	50 Ohms
Efficiency	50%
Radiation Pattern	Omni
MECHANICAL	
Dimension	8mm x 3.4mm x 0.8 mm
Weight	0.04g
ENVIROMENTAL	
Temperature Range	-25°C to +80°C
Humidity	65°C 95% RH

Note:

Lump elements matching circuit might require for optimum performance, especially Wimax 2.3GHz band.

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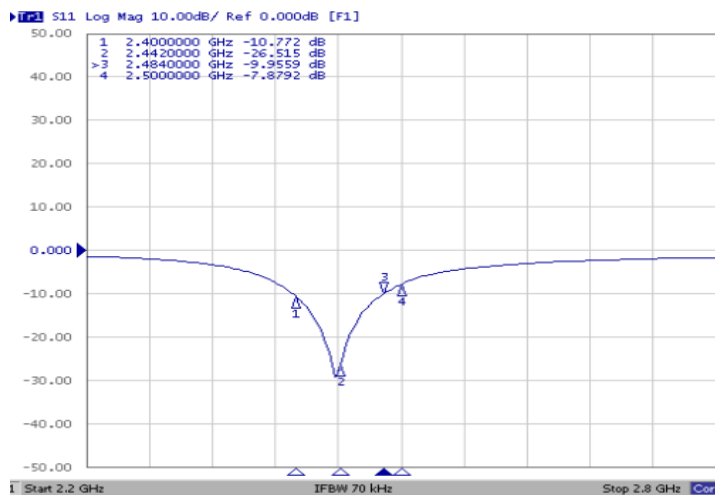
Part No. GA083408BL05

➤ Antenna Performance with RB-BL05-G1V1 Reference Board

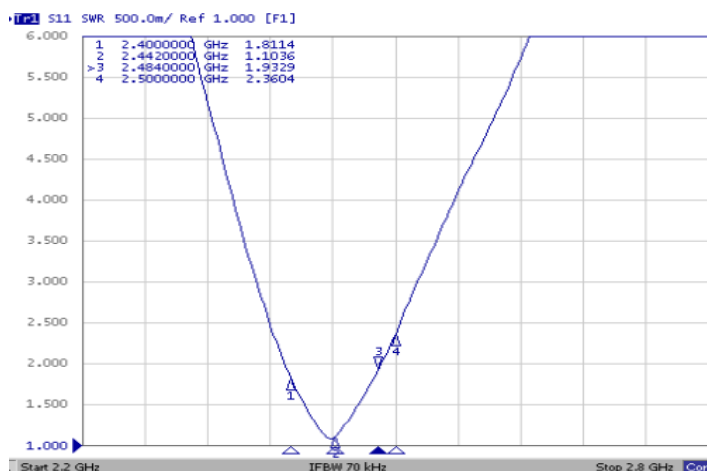
	Performance	Conditions
Peak Gain	0.97 dBi	All results measured from frequency range 2.4GHz to 2.5GHz on 60 x 20 mm reference board, Part NO.: RB-BL05-G1V1
Average 3D Gain	-2.91dBi	
*Average Efficiency	50%	
S11	< -7.8dB	
VSWR	< 2.4:1	

*antenna efficiency without loss of transmission line

● Return Loss with RB-BL05-G1V1 Reference Board



● VSWR with RB-BL05-G1V1 Reference Board



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● Performance with reference board (RB-BL05-G1V1)

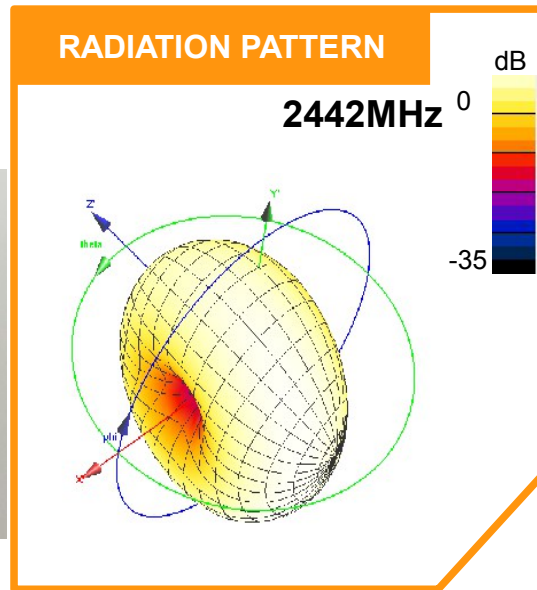
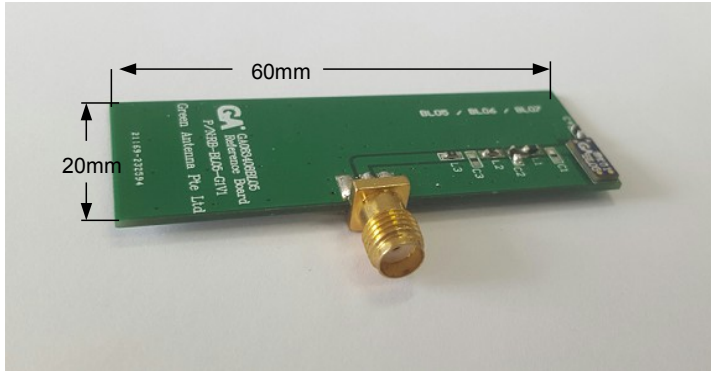
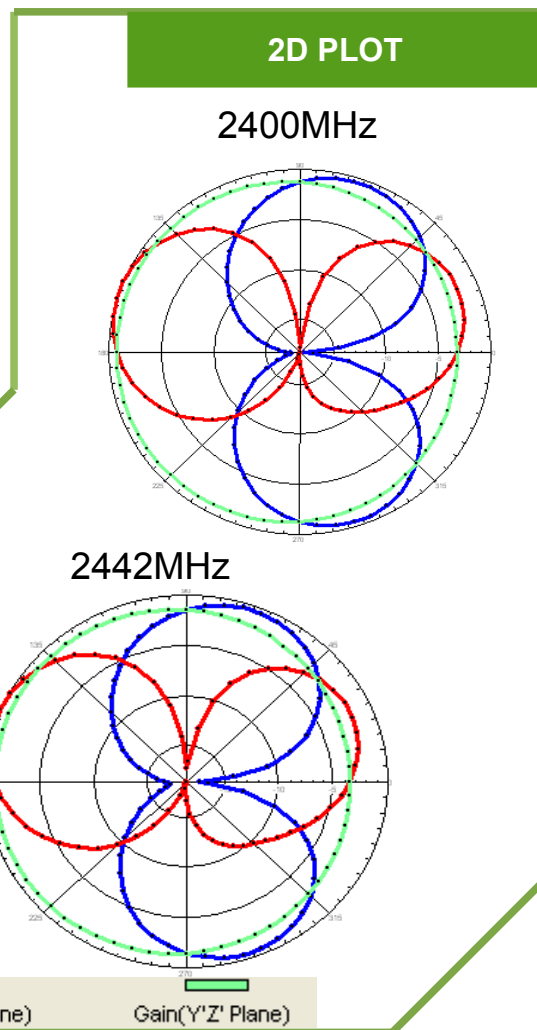


Figure 1, Antenna on reference board

Board Part NO.: RB-BL05-G1V1

Antenna Placement: Top



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➤ Antenna Dimension

● Overview



L	W	H
8	3.4	0.8

Unit : mm
Tolerance: +/- 0.2mm

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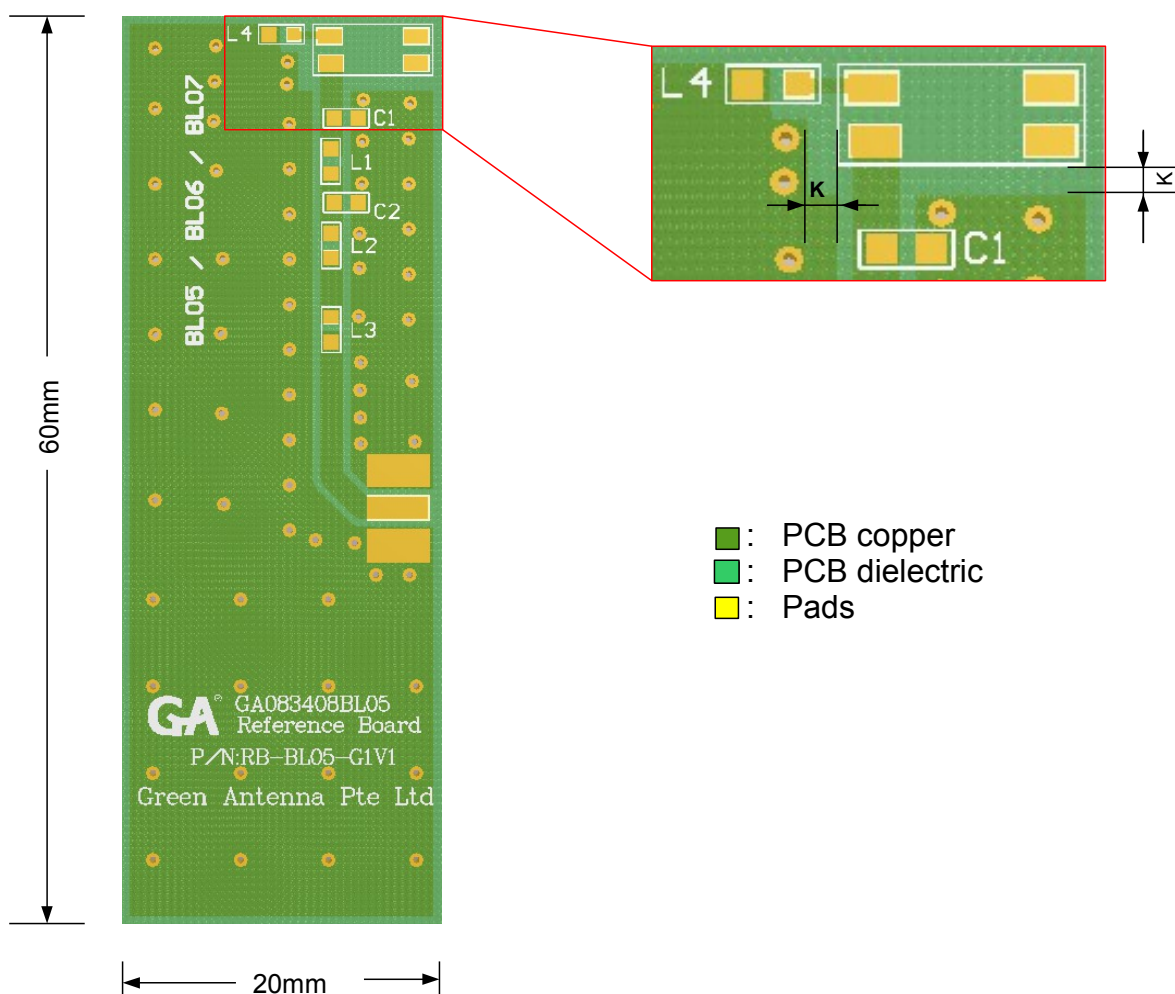
➤ Reference Board

The recommended placement of the antenna is on the edge of the PCB board. Minimum ground clearance of $K = 1\text{mm}$ as shown in the following figures are recommended to achieve optimum antenna performance.

The reference boards are designed for evaluation purposes of the antenna which include a SMA female connector.

● Dongle Reference Board

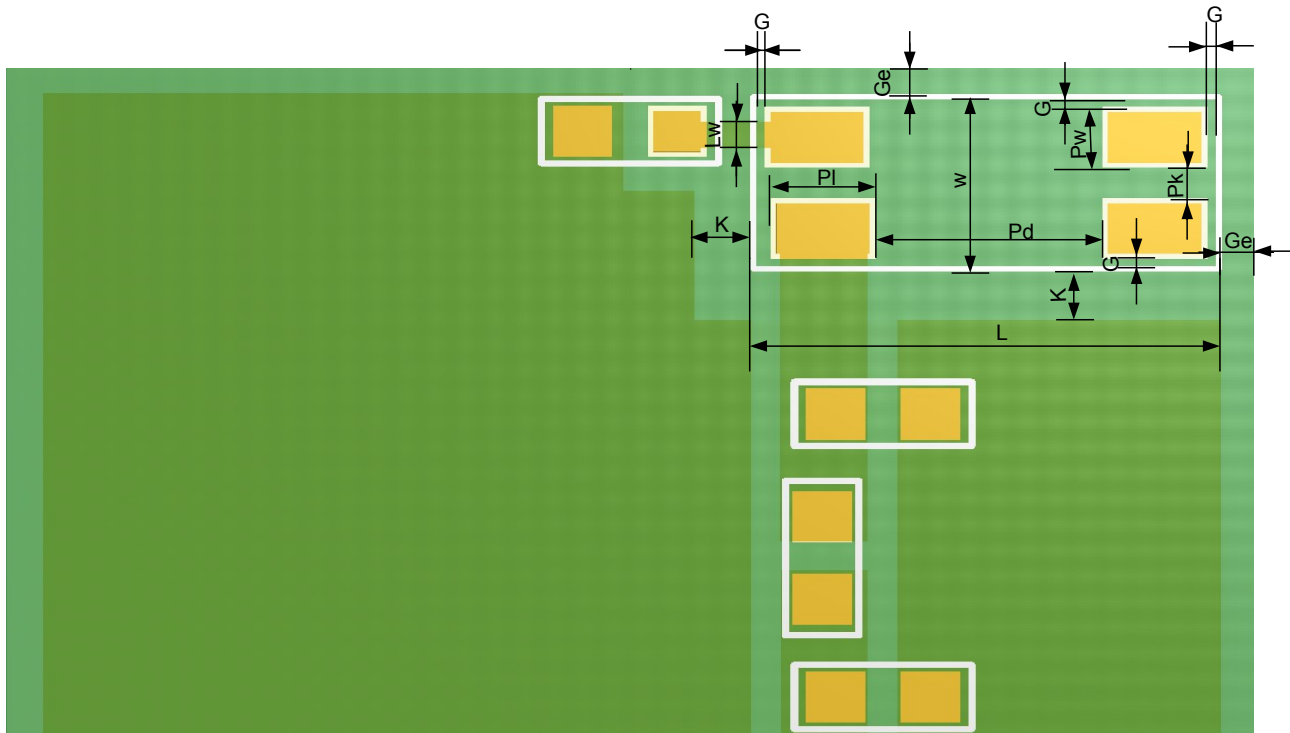
Order Part No. : RB-BL05-G1V1



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● Layout with feeding



L	W	K	G	PI	Pw	Pd	Pk	Ge	Lw
8	3.4	1	0.3	1.6	1	4.2	0.8	0.3	0.5

Unit : mm
Tolerance: +/- 0.1mm

■ : PCB copper
■ : PCB dielectric
■ : Pads

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➤ Antenna Implementation Guidelines

● Transmission Line

- a) Design the transmission line with characteristic impedance of 50 Ohm to feed the antenna.
- b) Minimize the length of transmission line to reduce insertion loss.

● Lump Elements Matching Circuit

Placement of antenna, PCB dimension and components within the vicinity of antenna will affect the antenna performance. Therefore, at least four lump elements matching circuit **MUST** be reserved, three at feed point and one at ground point, for antenna optimization purpose during PCB layout process.

Green Antenna provides optional matching and anechoic chamber measurement services on request. Please contact ga@green-antenna.com for further information.

● Antenna PCB Placement

To achieve optimum antenna performance, the antenna is recommended to be placed on the edge of PCB.

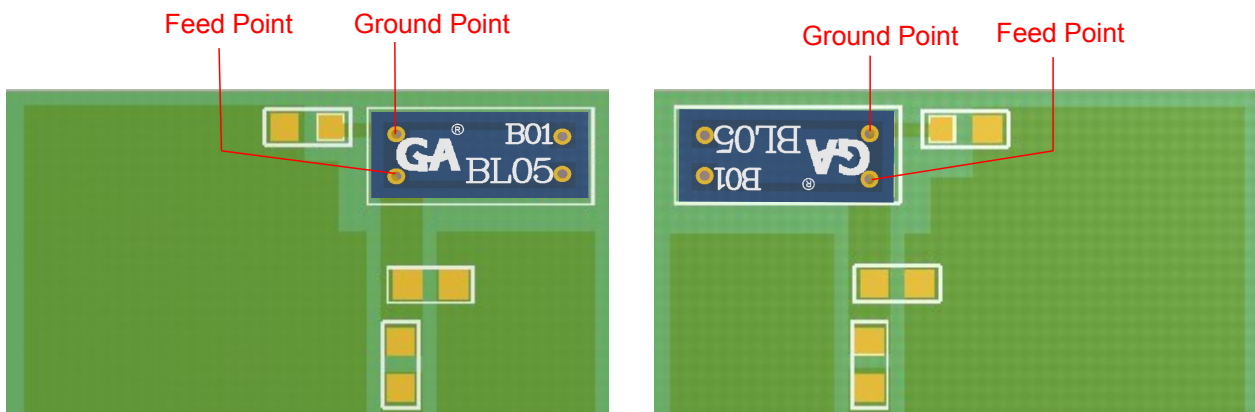
Green Antenna provides optional EM simulation service to locate the optimum placement of antenna on customer device or bare PCB board. Please contact ga@green-antenna.com for further information.

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● Antenna Orientation Flexibility

Cub Antenna can be implemented on the PCB either right side feeding or left side feeding by rotating it 180 degrees. Please implement the antenna placement and orientation as below drawings.



- : PCB copper
- : PCB dielectric
- : Pads

● Soldering and SMT Re-flow

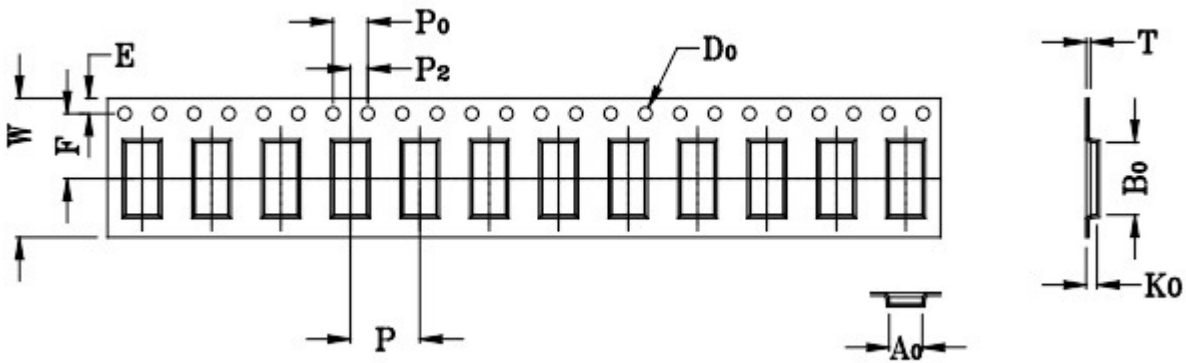
The re-flow profile should be consider the following conditions:

- a) The maximum re-flow temperature should not exceed 240 °C
- b) The maximum temperature of 255 °C for less than 20 seconds is allowed during lead free soldering.

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➤ Tape Characteristics



W	A0	B0	K0	P	F	E	D0	P0
16.0±0.3	4.60±0.1	8.90±0.1	1.25±0.1	8.0±0.1	7.5±0.15	1.75±0.1	1.5	4.0±0.1

Unit : mm

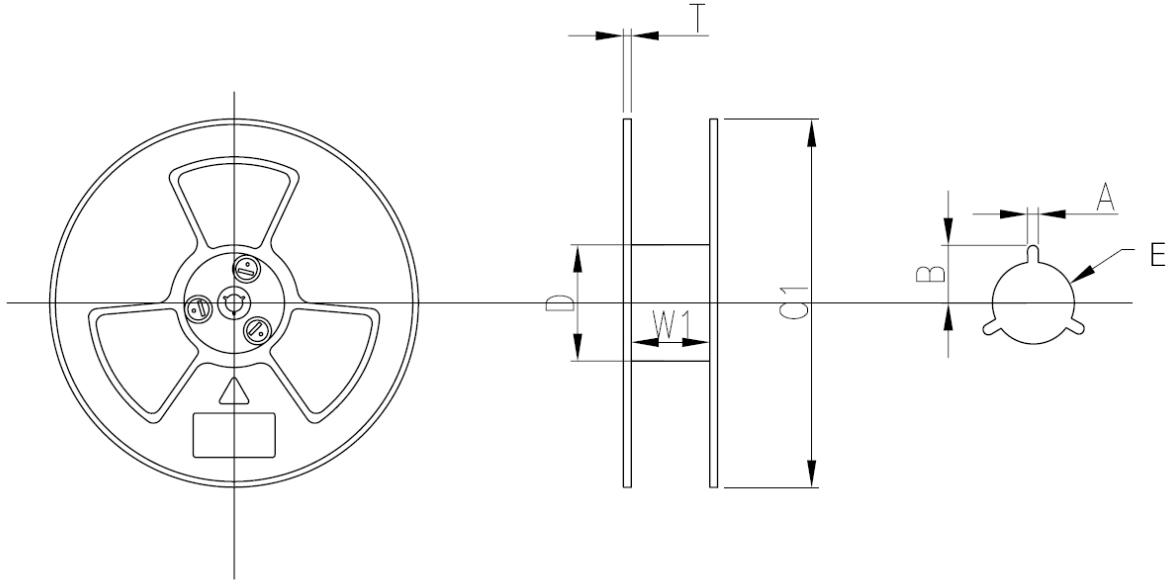
P2	T
2.0±0.1	0.3±0.05

Quantity	6000 pcs/reel
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➤ Reel Dimensions



W1	D	T	C1	A	B	E
16.5±2.0	100±2.0	2±0.3	330±1.0	2.3±0.3	10.85±0.3	13.3±0.5

Unit : mm

➤ Reel Label



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Description: Cub
Part Number: GA083408BL05
Qty: 6000 pcs
Date Code:
Manufacturers code number: