VGAP-CLC-AS-A1 Specification

1. Features and Application

(1) This product is manufactured in ISO/TS16949 certified production factory.

(2) This product is for WLAN 802.11a, 802.11n, 802.11ac, 5GHz…

2. Explanation of Part Number

VGAP	-	C (1)	LC (2)	-	A (3)	S (4)	-	A1 (5)

(1) Product Type: Chip Antenna
(2) Center Frequency/Band Code: 5GHz
(3) Size Code: 5.0*3.6 mm (Length * Width)
(4) Special Code: RoHS Compliant
(5) Design Revision Code: Rev.1

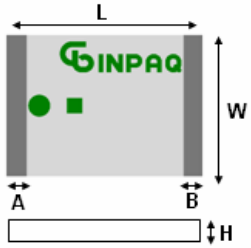
3. Electrical Specification

Item	Specification
Frequency Range	5 ~ 6 GHz
VSWR	Less than 2
Polarization	Linear
*Peak Gain	4.4 dBi Typ.
*Peak Efficiency	87% Typ.
Impedance	50 ohm Typ.

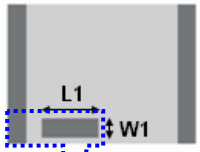
*Test condition: Test board size 80*40 mm
Matching circuit may be required

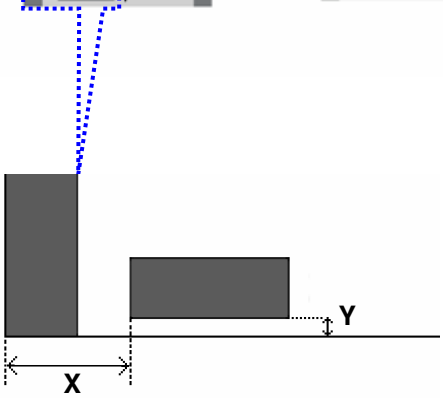
4. Physical Dimension

Top View



Bottom View



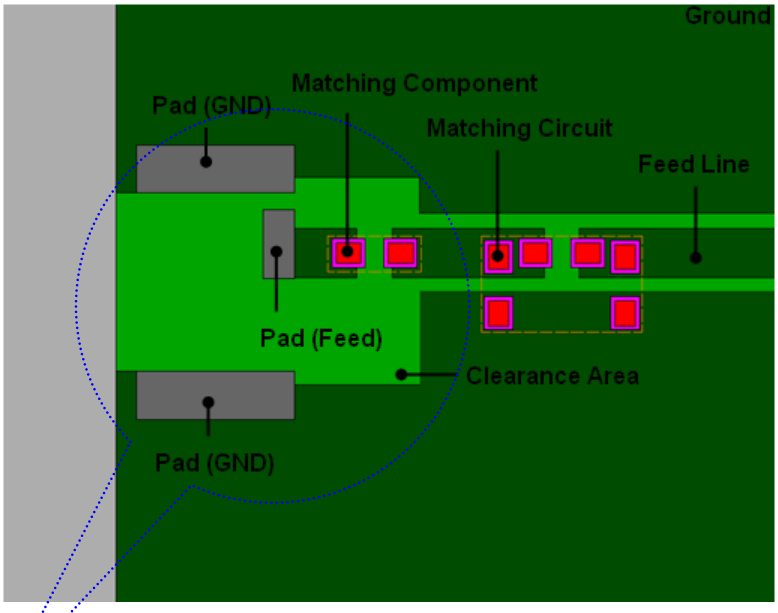


Marking is Green

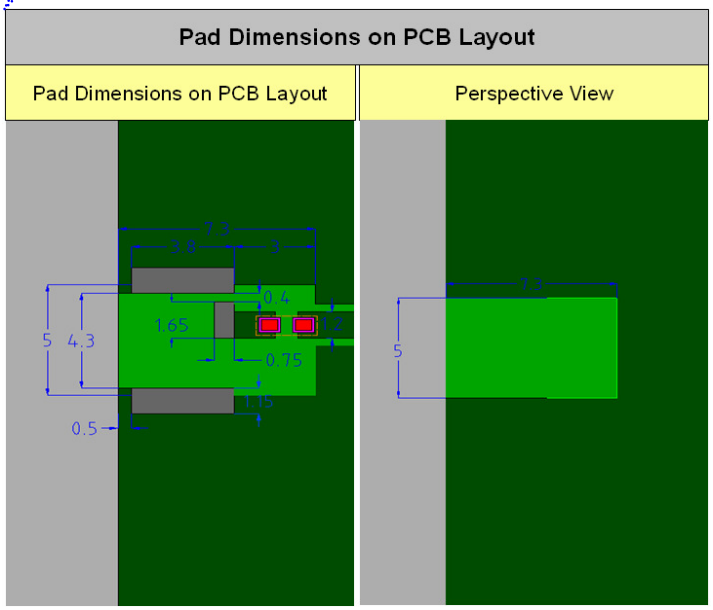
(Unit: mm)

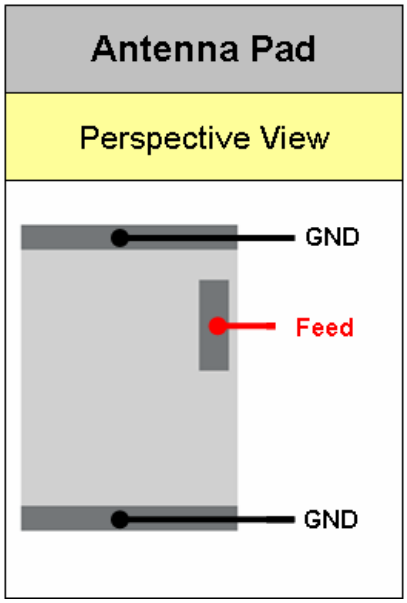
Chip Antenna	L	W	A	B	L1	W1	H	X	Y
VGAP-CLC-AS-A1	5.2±0.3	3.7±0.3	0.45±0.25	0.45±0.25	1.55±0.20	0.55±0.20	0.70±0.15	0.85±0.25	0.12±0.06

5. Recommend PCB Layout



(Unit: mm)





PCB pad dimensions

Terminal Name	Terminal Dimensions
Pad (Feed)	1.65*0.75
Pad (GND)	3.8*1.15
Pad (GND)	3.8*1.15

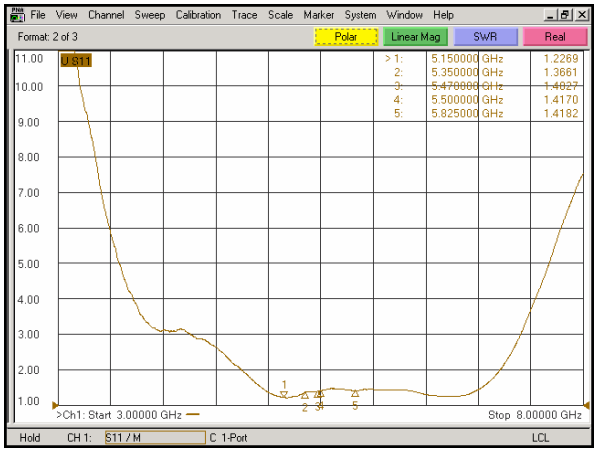
Antenna pad dimensions

Terminal Name	Terminal Dimensions
Feed	1.55*0.55
GND	3.7*0.45
GND	3.7*0.45

UNLESS OTHER SPECIFIED TOLERANCES ON : X=± X.X=± X.XX= ANGLES=± HOLEDIA=±			INPAQ TECHNOLOGY CO., LTD.
SCALE: -----	UNIT: mm		
DRAWN BY：蘇皓昌 Hunter	CHECKED BY：吳柏青 Carol	THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INPAQ TECHNOLOGY CO.,LTD.AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION	
DESIGNED BY：林豪建 Stan	APPROVED BY：黃月碧 Yuebbi		
TITLE：VGAP-CLC-AS-A1 Specification		DOCUMENT NO.	ENS000060810 / SPEC REV. A0

6. Electrical Characteristics

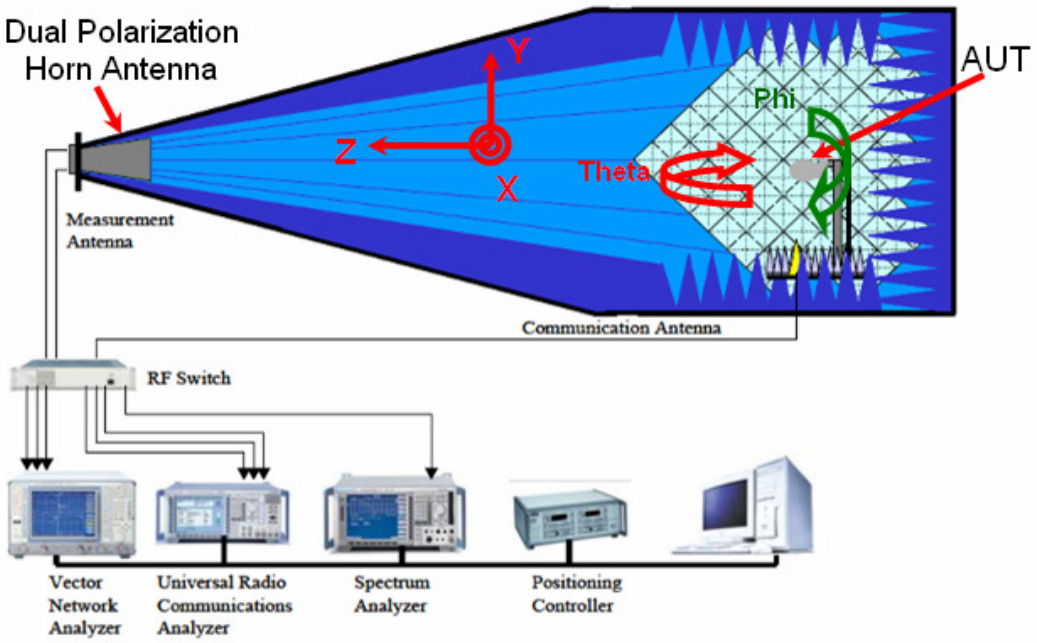
VSWR



Mark	Frequency (MHz)	VSWR
1	5150	1.2
2	5350	1.4
3	5470	1.4
4	5500	1.4
5	5825	1.4

Radiation Pattern

The gain pattern is measured in INPAQ's far-field chamber. DUT is placed on the table of rotator, a standard horn antenna and Vector Network Analyzer is used to collect data.



3D Chamber Definition

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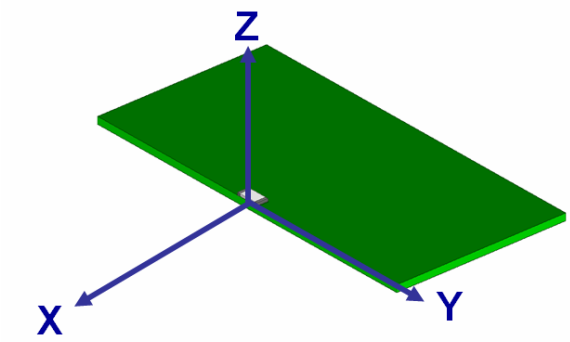
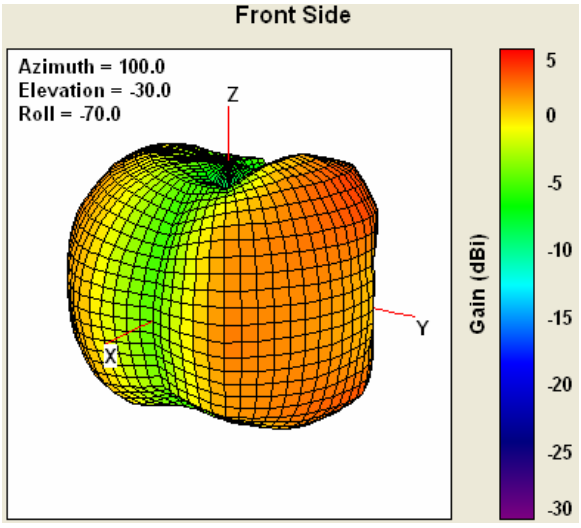
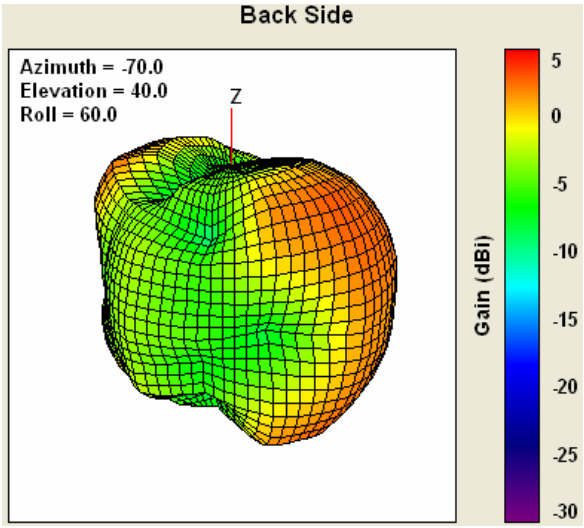
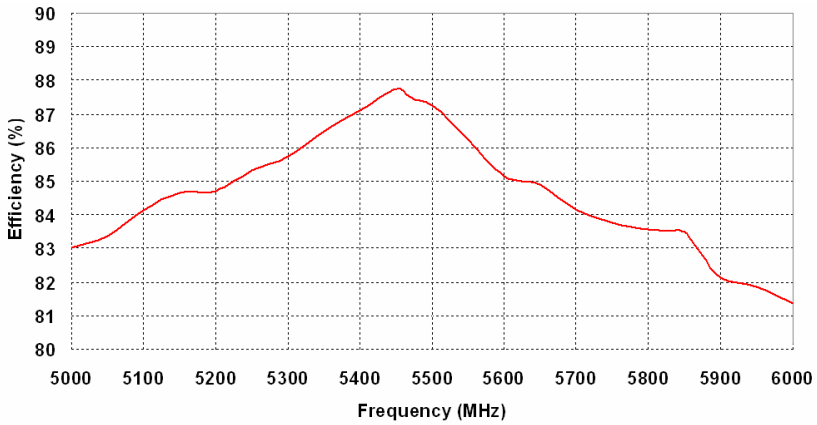
3D Gain Pattern (5500 MHz)







Efficiency



Frequency (MHz)	Efficiency (%)
5150	84.7
5500	87.2
5825	83.5

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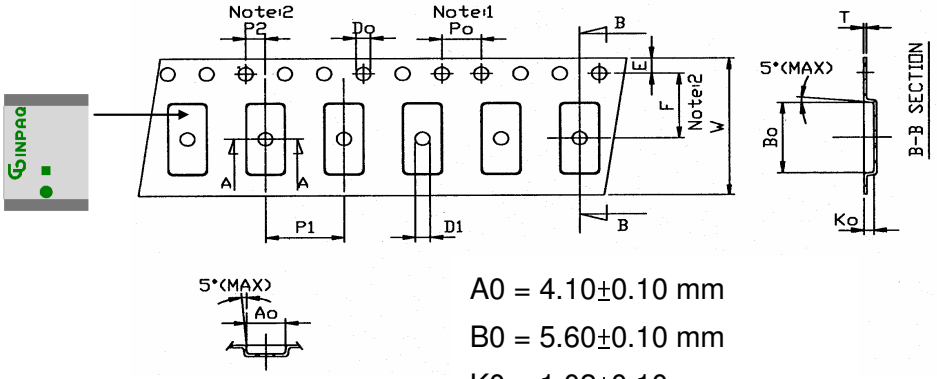
7. Taping Package and Label Marking

(1) Quantity/Reel: 2000pcs/Reel

(2) Carrier tape dimensions

(Unit: mm)



Symbol	Spec.
Po	4.00±0.1
P1	8.00±0.1
P2	2.00±0.05
Do	1.55±0.05
D1	1.50(MIN)
E	1.75±0.1
F	5.50±0.05
10Po	40.00±0.2
W	12.00±0.1
T	0.25±0.05

A0 = 4.10±0.10 mm

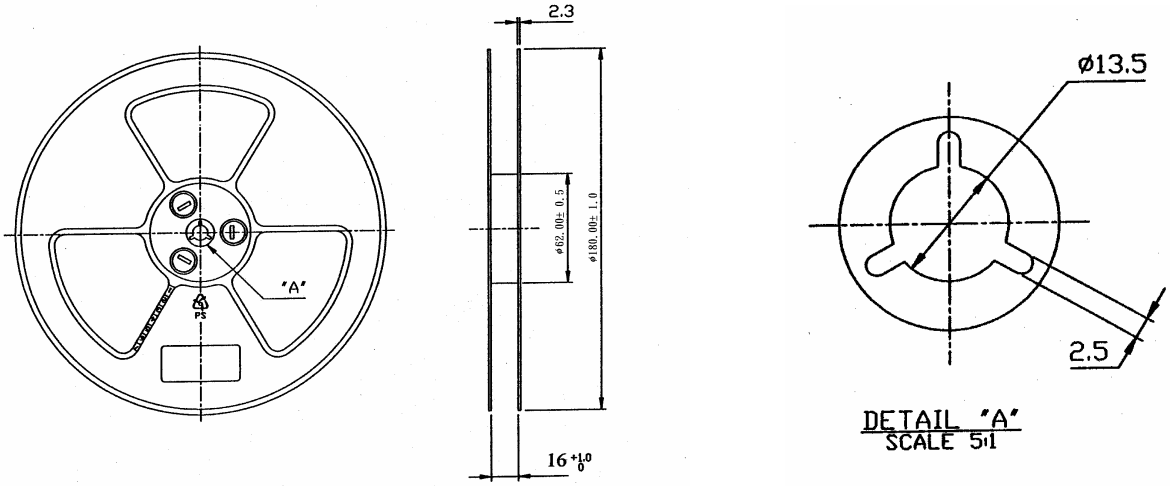
B0 = 5.60±0.10 mm

K0 = 1.02±0.10 mm

Notice:

1. 10 Sprocket hole pitch cumulative tolerance is ±0.1mm
2. Pocket position relative to sprocket hole measured as true position of pocket not pocket hole.
3. Ao & Bo measured on a place 0.3mm above the bottom of the pocket to top surface of the carrier.
4. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
5. Carrier camber shall be not than 1mm per 100mm through a length of 250mm.

(3) Taping reel dimensions



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8. Environmental Characteristics

(1) Reliability Test

Item	Condition	Specification
Thermal shock	1. 30±3 minutes at -40±5℃ 2. Convert to +105℃ (5 minutes) 3. 30±3 minutes at +105±5℃ 4. Convert to -40℃ (5 minutes) 5. Total 100 continuous cycles	No damage
Humidity resistance	1. Humidity: 85% R.H. 2. Temperature: 85±5℃ 3. Time: 1000 hours	No damage
High temperature resistance	1. Temperature: 150±5℃ 2. Time: 1000 hours	No damage
Low temperature resistance	1. Temperature: -40±5℃ 2. Time: 1000 hours	No damage
Soldering heat resistance	1. Solder bath temperature : 260±5℃ 2. Bathing time: 10±1 seconds	No damage
Solderability	The dipped surface of the terminal shall be at least 95% covered with solder after dipped in solder bath of 245±5℃ for 3±1 seconds	No damage

(2) Storage condition

(a) At warehouse:

The temperature should be within 0 ~ 30℃ and humidity should be less than 60% RH.

The product should be used within 1 year from the time of delivery.

(b) On board:

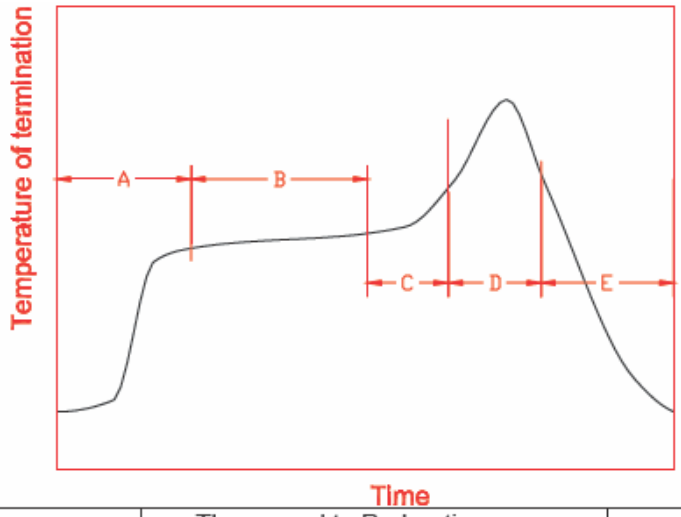
The temperature should be within -40~85℃ and humidity should be less than 85% RH.

(3) Operating temperature range

Operating temperature range: -40 to +105℃.

9. Recommended Reflow Soldering

Reference: J-STD-020C



A	1st rising temperature	The normal to Preheating temperature	30s to 60s
B	Preheating	140℃ to 160℃	60s to 120s
C	2nd rising temperature	Preheating to 200℃	20s to 40s
D	Main heating	if 220℃	50s～60s
		if 230℃	40s～50s
		if 240℃	30s～40s
		if 250℃	20s～40s
		if 260℃	20s～40s
E	Regular cooling	200℃ to 100℃	1℃/s ～ 4℃/s

(1) Soldering gun procedure

Note the follows, in case of using solder gun for replacement.

(a) The tip temperature must be less than 350℃ for the period within 3 seconds by using soldering gun under 30 W.

(b) The soldering gun tip shall not touch this product directly.

(2) Soldering volume

Note that excess of soldering volume will easily get crack the body of this product.