

Ceramic Patch Antenna

Model : PA Antenna

This microwave dielectric antenna elements and its series are designed to be used for GPS device. The patch antenna with compact size incorporates a rectangular micro-strip design for GPS C/A right-hand circular polarization wave reception, featuring low RL, low Axial Ratio but high gain, etc.

Pin length and outer diameter

Length : 1.6mm (Can depend on the customer demand change, the suggestion length 1.9mm & 3.0mm)

Outer diameter : 0.8mm

A. Structure and Material

NO.	Description	Structure and Material
1	Antenna Substrate	Dielectric Ceramics
2	Pin	Copper, Tin Plated
3	Electrode	Ag Plated
4	Ground Base	Ag Plated
5	Adhesive type	3M

B. Environment Performance

Item	Requirement	Time
Humidity	+40±2°C, 90~95%R.H.	96 Hours
Temperature Life	+80±3°C -40±1°C	24 Hours
Thermal Shock	Cycle : -40°C 30min, +85°C 30min	5 Cycles

C. Mechanical Performance

Item	Requirement
Drop Shock	The device dropped into the hard wooden board from the height of 30cm for 3 times each facet of the 3 dimensions of the device.
Vibration	The device applied to the vibration of 10 to 55Hz with amplitude of 1.5mm for 2 hours each in X,Y and Z directions.

D. Electric Specification

Satellite frequency	1575.42MHz
Polarization	Right-hand Circular
V.S.W.R.	1.5 MAX.
Return Loss	-15dB MAX.
Axial Ratio	5dB MAX.
Impedance	50Ω

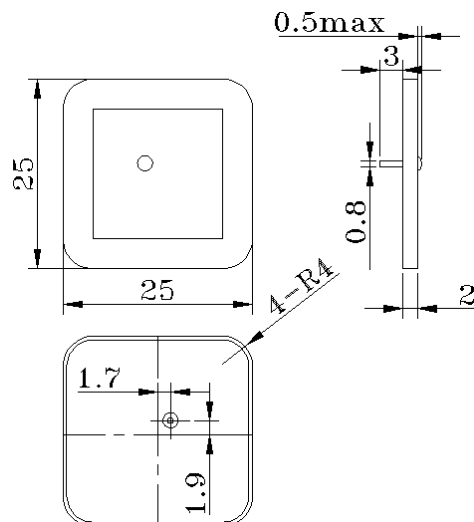
Model	Center Frequency (MHz)	Band width (MHz)	VSWR	Gain (dBi)	Dimension (mm)	Ground Plane (mm)
PA25254	1585	≥ 10	≤ 1.5	4.5	25*25*4	70*70
	1575	≥ 10	≤ 1.5	2.5	25*25*4	30*30
PA25252	1575	≥ 8	≤ 1.5	2.0	25*25*2	30*30
PA18184	1578	≥ 6	≤ 1.5	1.5	18*18*4	20*20
PA18182	1580	≥ 5	≤ 1.5	1.0	18*18*2	20*20
PA15154	1575	≥ 5	≤ 1.5	0.5	15*15*4	18*18
PA12124	1575	≥ 5	≤ 1.5	-1.0	12*12*4	15*15
PA10104	1582	≥ 5	≤ 1.5	-2	10*10*4	12*12

E. Antenna type specification characteristic consults the example

a. Part Number : PA-25252-1575

Antenna size : 25*25*2

1. Dimension

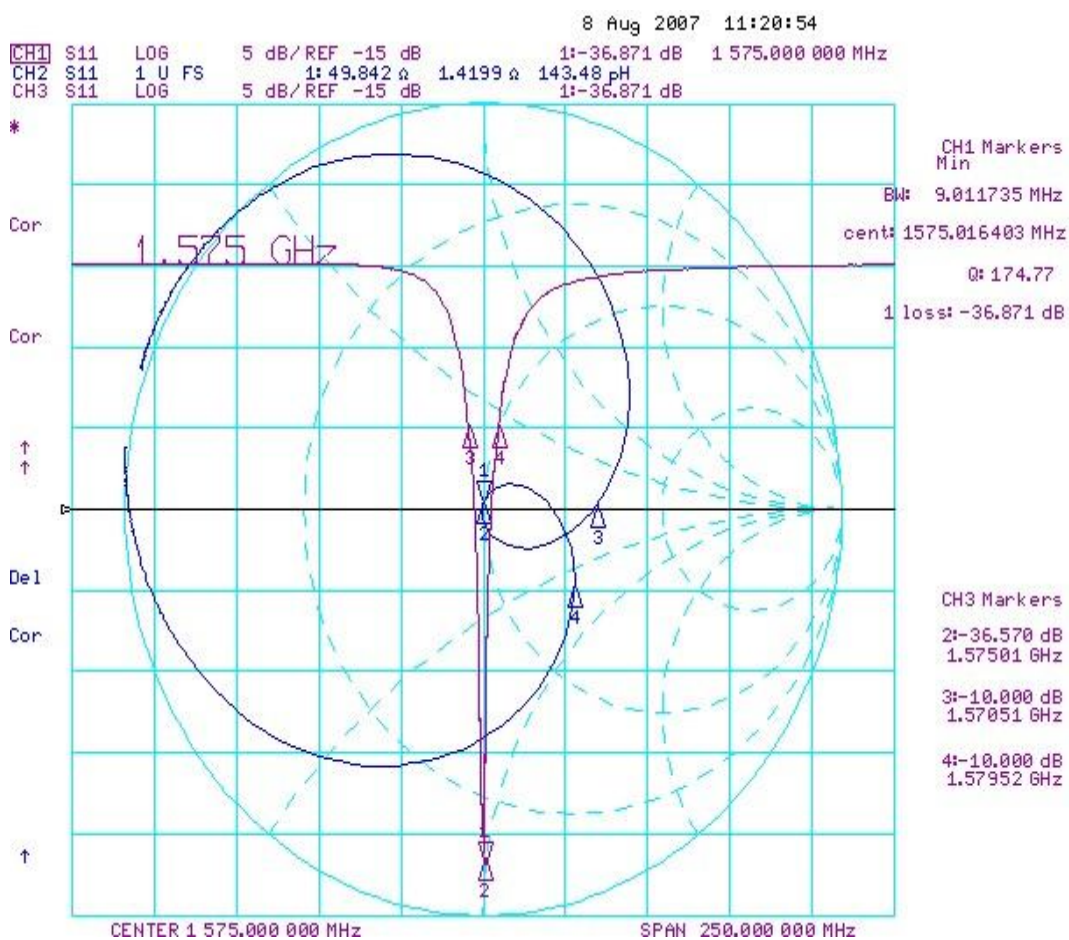


Tolerance ±0.2mm

2. Electrical Characteristics

Item	Specification	Tolerance
Range of Receiving Frequency	1575	± 2.5
Center Frequency @ 30*30mm Ground Plane	1575	± 3.0
Band Width @ Return Loss ≤ -10 dB	≥ 8	± 0.5
V.S.W.R. @ Center Frequency	≤ 1.5	± 0.5
Peak Gain @ 70*70mm Ground Plane	4.0 Typical	— —
Axial ratio	≤ 3	— —
Polarization	Right-Handed Circular	— —
Impedance	50	— —
Frequency Temperature Coefficient	0 ± 10	— —

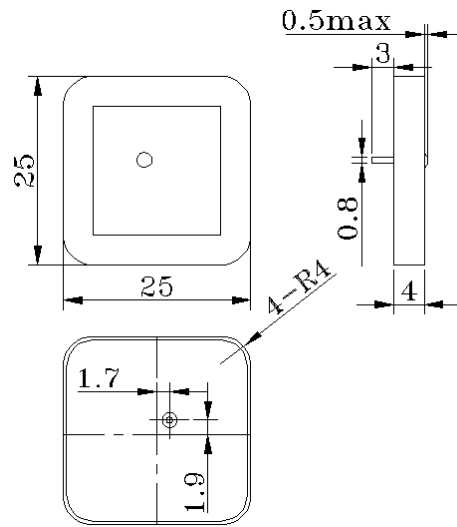
3. Return Loss and Smith-chart



b. Part Number : PA-25254-1580

Antenna size : 25*25*4

1. Dimension

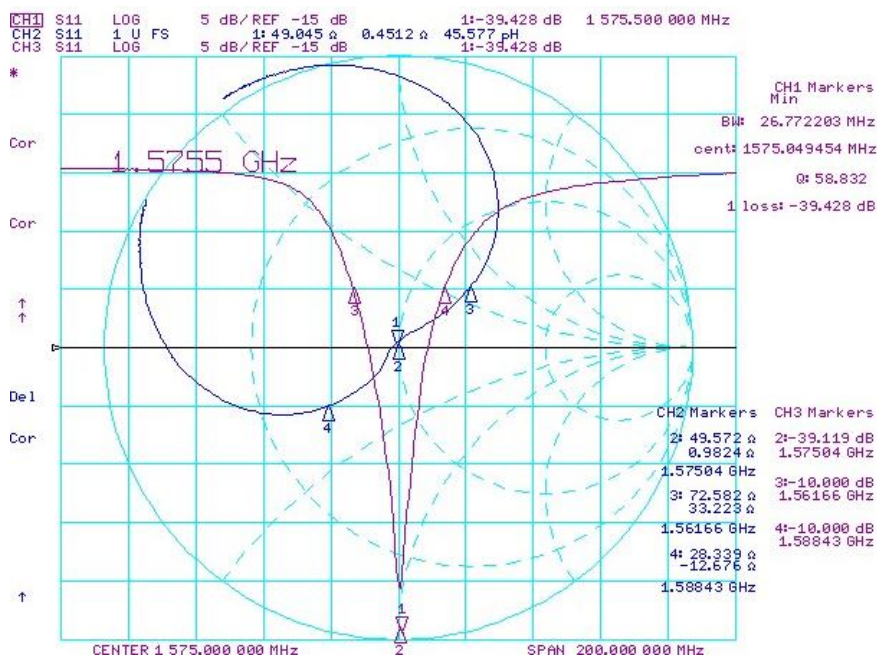


Tolerance $\pm 0.2\text{mm}$

2. Electrical Characteristics

Item	Specification	Tolerance
Range of Receiving Frequency	1575	± 2.5
Center Frequency @ 70*70mm Ground Plane	1580	± 2.0
Band Width @ Return Loss $\leq -10\text{dB}$	≥ 10	± 0.5
V.S.W.R. @ Center Frequency	≤ 1.5	± 0.5
Peak Gain @ 70*70mm Ground Plane	4.5 Typical	— —
Axial ratio	≤ 3	— —
Polarization	Right-Handed Circular	— —
Impedance	50	— —
Frequency Temperature Coefficient	0 ± 10	— —

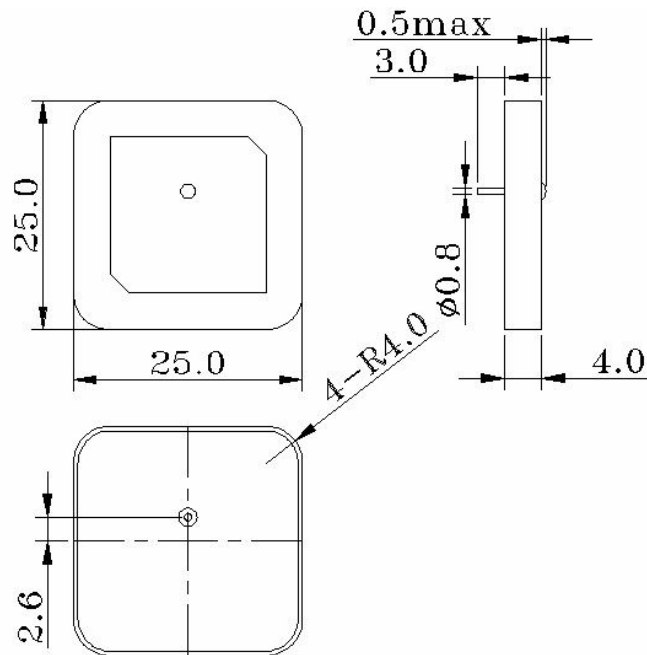
3. Return Loss and Smith-chart



c. Part Number : PA-25254-1616

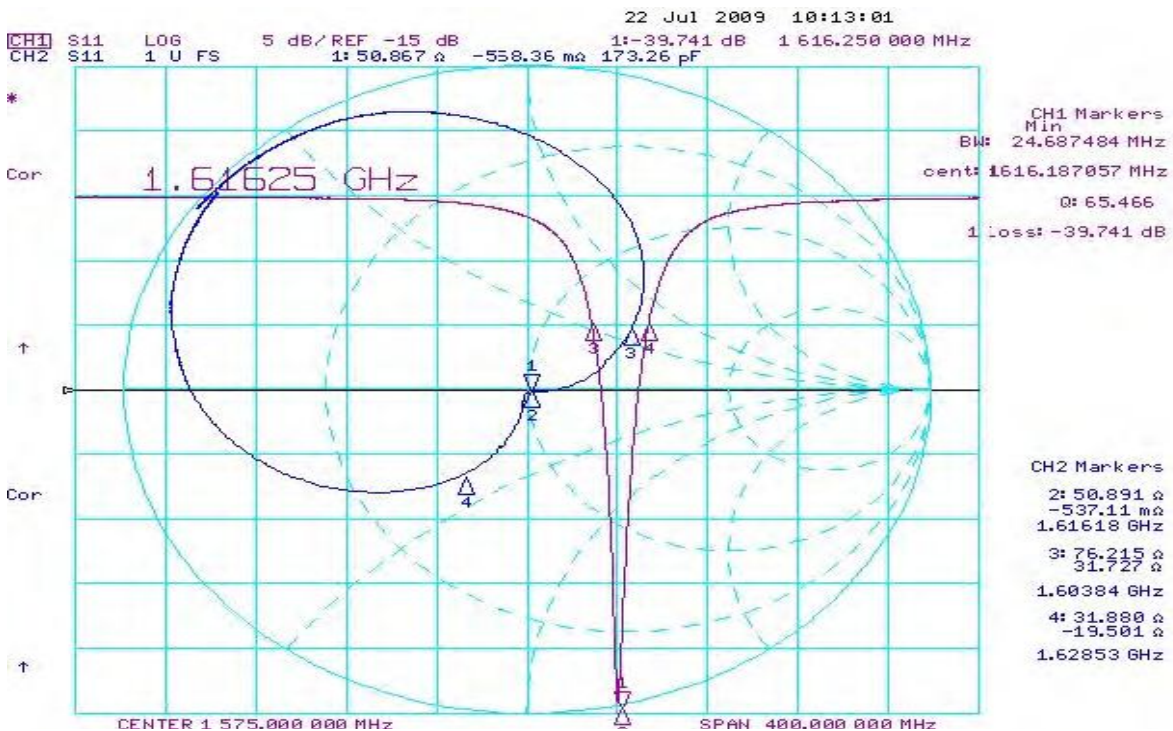
Antenna size : 25*25*4

1. Dimension



2. Electrical Characteristics

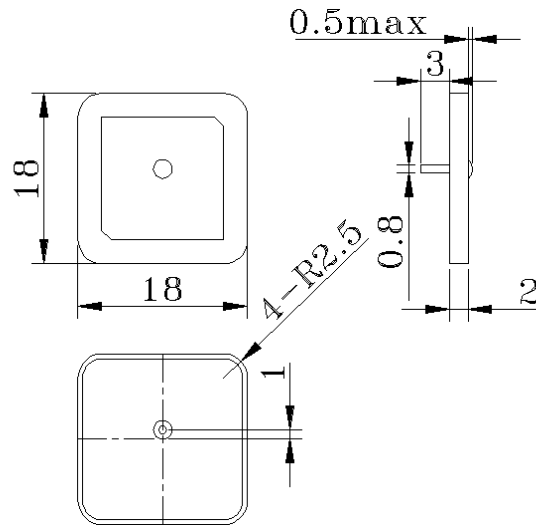
Item	Specification	Tolerance
Center Frequency @ 70*70mm Ground Plane	1616	±3.0
Band Width @ Return Loss ≤ -10dB	≥ 10	±0.5
V.S.W.R. @ Center Frequency	≤ 1.5	±0.5
Peak Gain @ 70*70mm Ground Plane	4.5 Typical	— —
Axial ratio	≤ 3	— —
Polarization	Right-Handed Circular	— —
Impedance	50	— —
Frequency Temperature Coefficient	0±10	— —



d. Part Number : PA-18182-1580

Antenna size : 18*18*2

1. Dimension

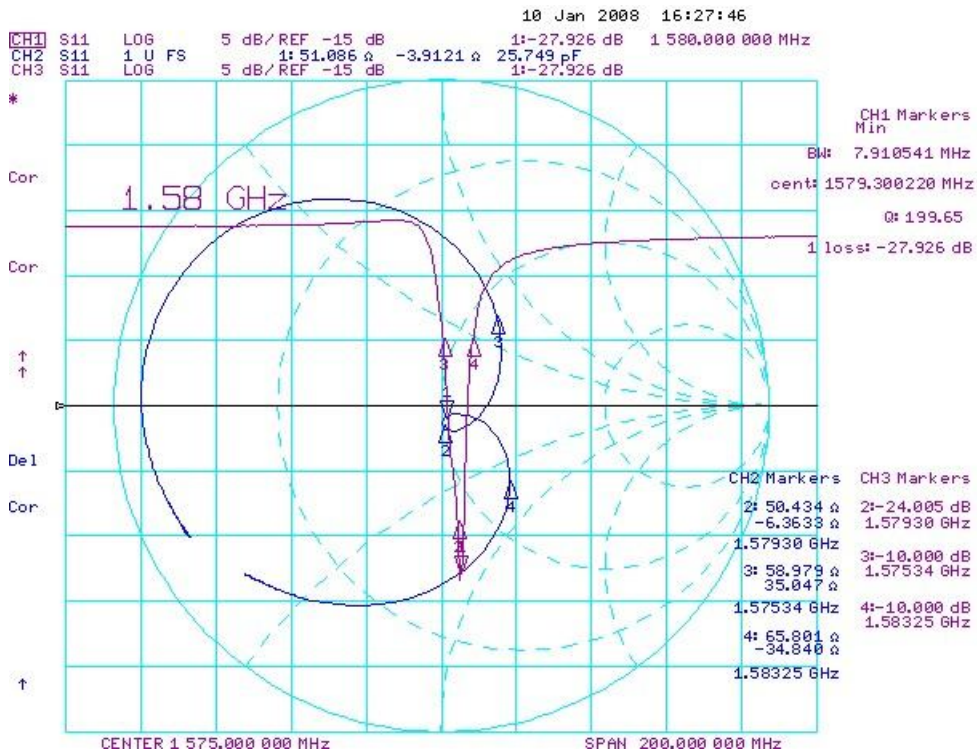


Tolerance $\pm 0.2\text{mm}$

2. Electrical Characteristics

Item	Specification	Tolerance
Range of Receiving Frequency	1575	± 2.5
Center Frequency @ 25*25mm Ground Plane	1580	± 2.0
Band Width @ Return Loss $\leq -10\text{dB}$	≥ 5	± 0.5
V.S.W.R. @ Center Frequency	≤ 1.5	± 0.5
Peak Gain	1.0 Typical	---
Axial ratio	---	---
Polarization	Right-Handed Circular	---
Impedance	50	---
Frequency Temperature Coefficient	0 ± 10	---

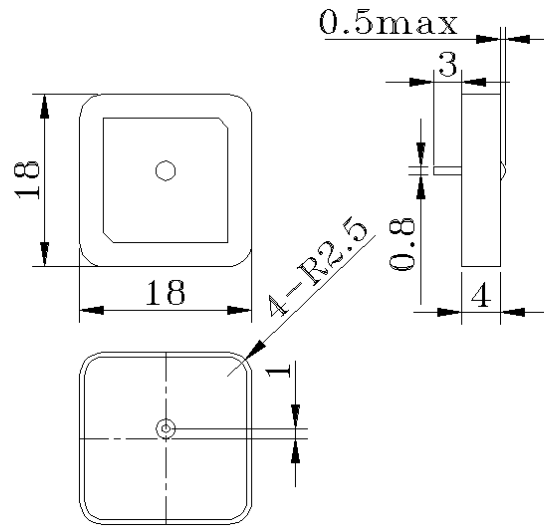
3. Return Loss and Smith-chart



e. Part Number : PA-18184-1580

Antenna size : 18*18*4

1. Dimension

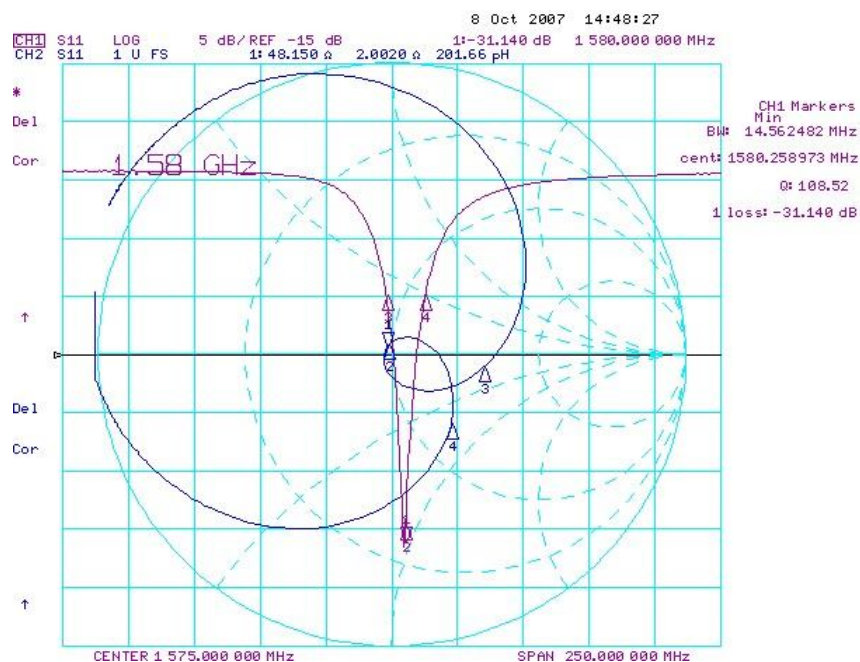


Tolerance $\pm 0.2\text{mm}$

2. Electrical Characteristics

Item	Specification	Tolerance
Range of Receiving Frequency	1575	± 2.5
Center Frequency @ 50*50mm Ground Plane	1580	± 2.0
Band Width @ Return Loss $\leq -10\text{dB}$	≥ 6	± 0.5
V.S.W.R. @ Center Frequency	≤ 1.5	± 0.5
Peak Gain	1.0 Typical	--
Axial ratio	--	--
Polarization	Right-Handed Circular	--
Impedance	50	--
Frequency Temperature Coefficient	0 ± 10	--

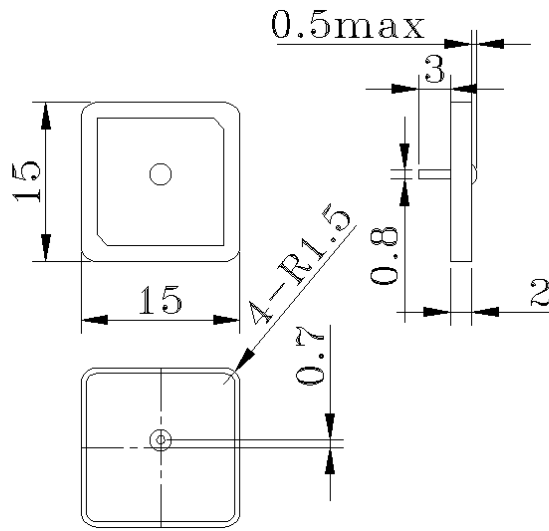
3. Return Loss and Smith-chart



f.Part Number : PA-15152- 1571

Antenna size : 15*15*2

1. Dimension

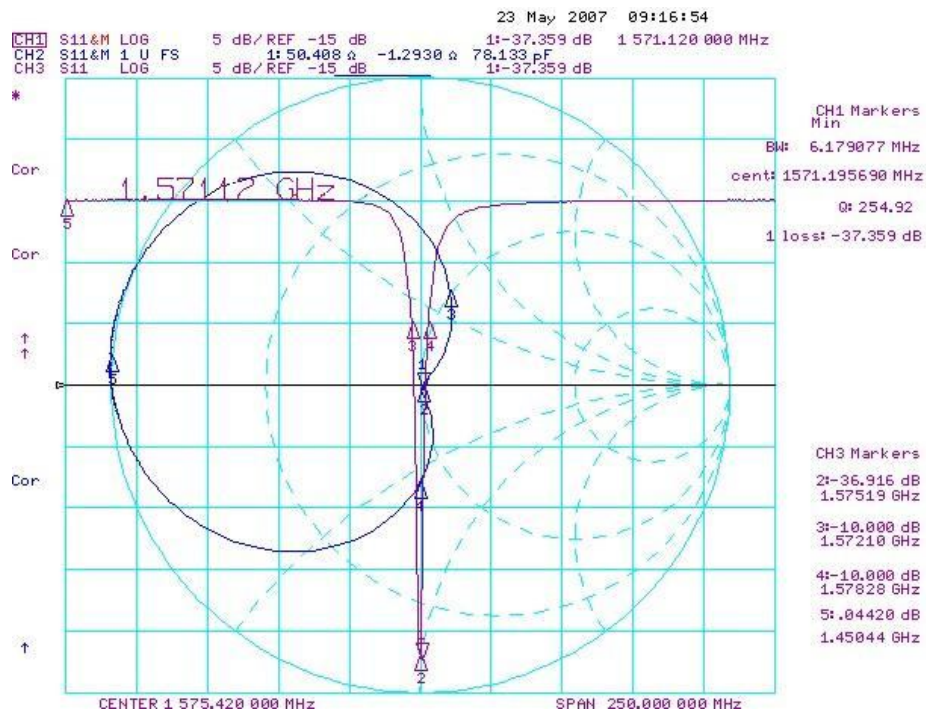


Tolerance ±0.2mm

2. Electrical Characteristics

Item	Specification	Tolerance
Range of Receiving Frequency	1575	±2.5
Center Frequency @ CR105 PCB	1571	±2.0
Band Width @ Return Loss ≤ -10dB	≥ 5	±0.5
V.S.W.R. @ Center Frequency	≤ 1.5	±0.5
Peak Gain @ 50*50 Ground Plane	0dBi typical	— —
Axial ratio	5 max	— —
Polarization	Right-Handed Circular	— —
Impedance	50	— —
Frequency Temperature Coefficient	0±10	— —

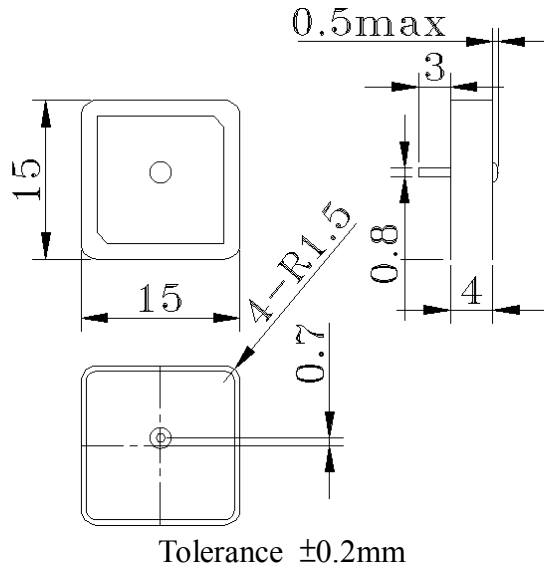
3. Return Loss and Smith-chart



g. Part Number : PA-15154-1571

Antenna size : 15*15*4

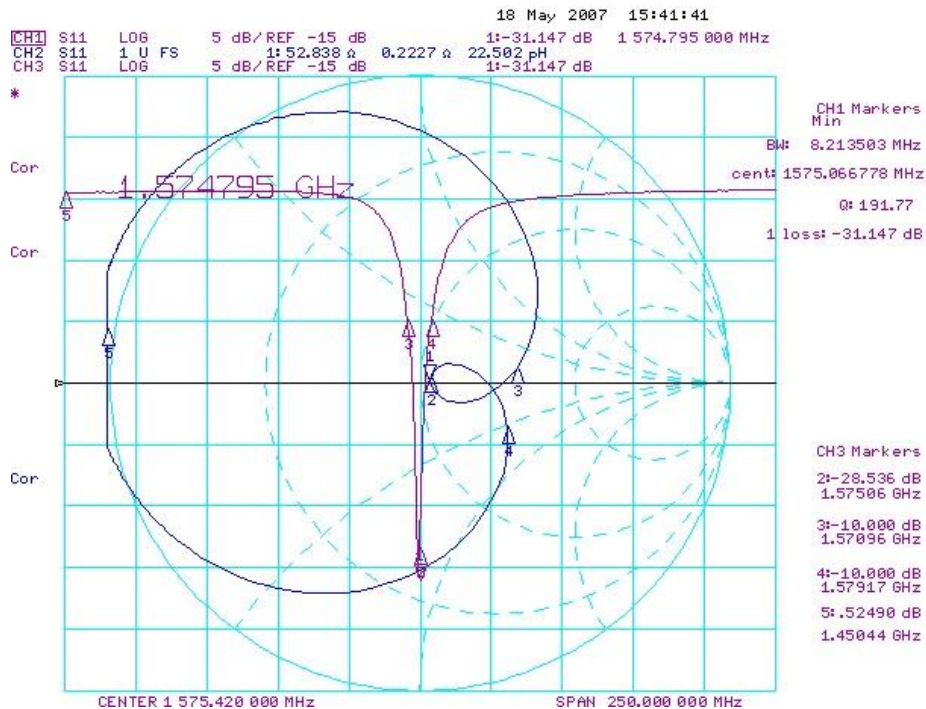
2. Dimension



2. Electrical Characteristics

Item	Specification	Tolerance
Range of Receiving Frequency	1575	± 2.5
Center Frequency @ CR105 PCB	1571	± 2.0
Band Width @ Return Loss $\leq -10\text{dB}$	≥ 5	± 0.5
V.S.W.R. @ Center Frequency	≤ 1.5	± 0.5
Peak Gain @ 50*50 Ground Plane	0dBi typical	— —
Axial ratio	5 max	— —
Polarization	Right-Handed Circular	— —
Impedance	50	— —
Frequency Temperature Coefficient	0 ± 10	— —

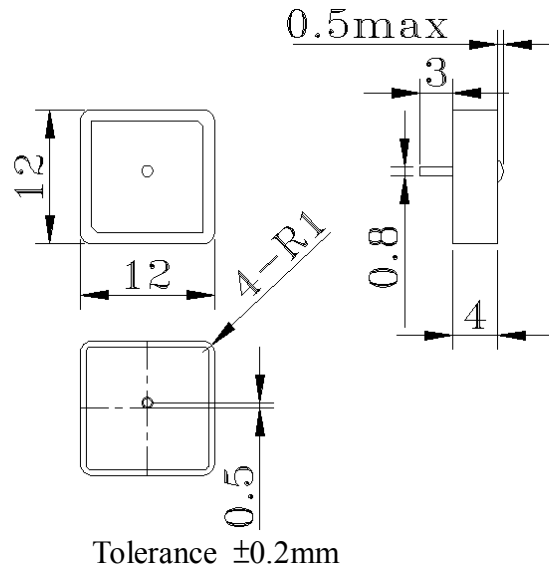
3. Return Loss and Smith-chart



h. Part Number : PA-12124-1575

Antenna size : 12*12*4

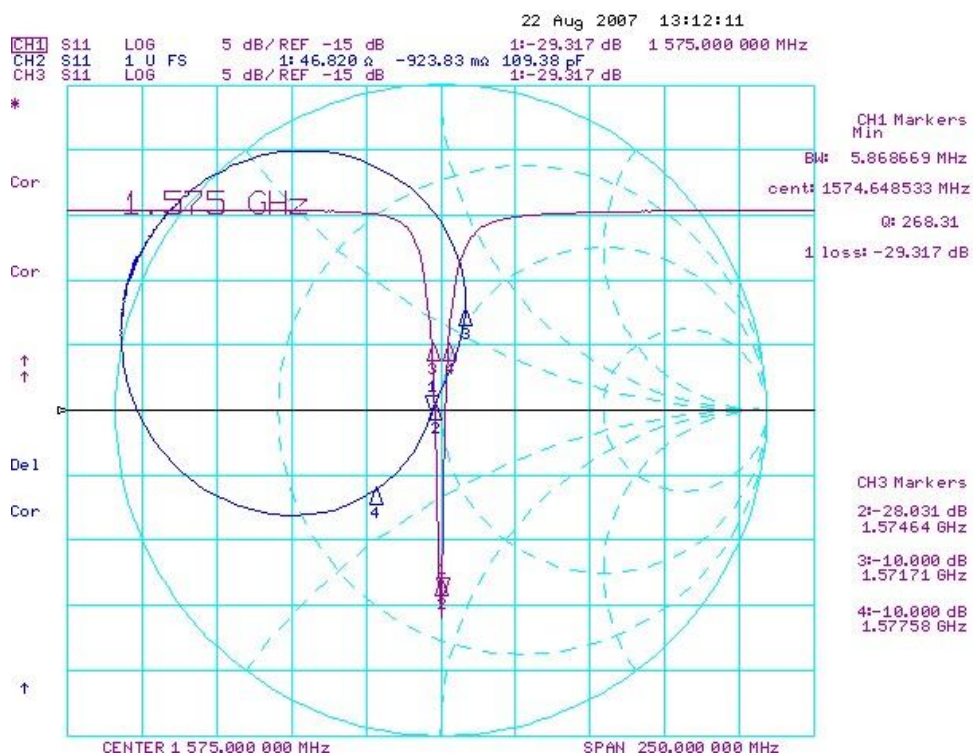
1. Dimension



2. Electrical Characteristics

Item	Specification	Tolerance
Range of Receiving Frequency	1575	± 2.5
Center Frequency @ 40*40mm Ground Plane	1575	± 3.0
Band Width @ Return Loss $\leq -10\text{dB}$	≥ 4	± 0.5
V.S.W.R. @ Center Frequency	≤ 1.5	± 0.5
Peak Gain @ 40*40mm Ground Plane	-1.0 Typical	---
Axial ratio	≤ 5	---
Polarization	Right-Handed Circular	---
Impedance	50	---
Frequency Temperature Coefficient	0 \pm 10	---

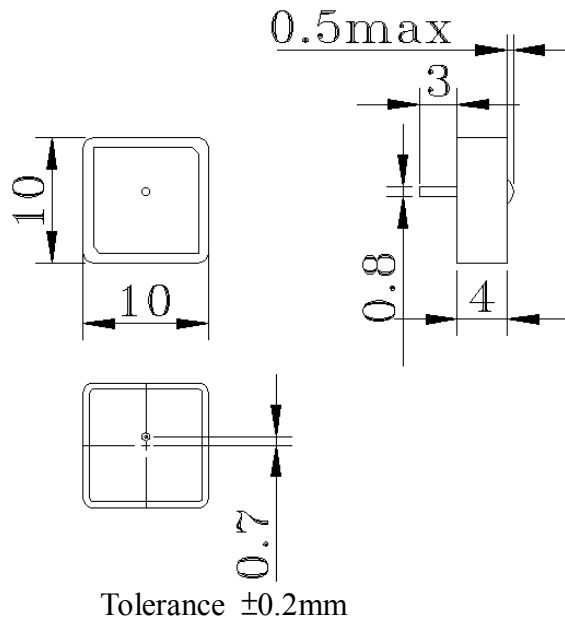
3. Return Loss and Smith-chart



i. Part Number : PA-10104-1582

Antenna size : 10*10*4

2. Dimension



2. Electrical Characteristics

Item	Specification	Tolerance
Range of Receiving Frequency	1575	± 2.5
(with ZY10 GND Plane)	1582	± 2.0
(Return loss $\leq -10\text{dB}$)	≥ 5	± 0.5
V.S.W.R.(in Center Frequency)	≤ 1.5	± 0.5
Peak Gain @ 40*40mm Ground Plane	-2dB typical	---
Axial ratio	5dB max	---
Polarization	Right-Handed Circular	---
Impedance	50	---
Frequency Temperature Coefficient	0 ± 10	---

3. Return Loss and Smith-chart

