

Description: 1204 433-434MHz and 2400-2500MHz FR4 Internal Antenna

PART NUMBER: ANT1204F002R0433A

Features:

- Size : 12.3x4.0x1.6 mm
- Omni-directional Radiation
- Tape & reel automatic mounting
- Reflow process compatible
- RoHS compliant



Applications:

- Smart meter
- Industrial remote control
- ISM band equipment

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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For more information:



Description: 1204 433MHz and 2400-2500M Hz
FR4 Internal Antenna

PART NUMBER: ANT1204F002R0433A

ELECTRICAL SPECIFICATIONS

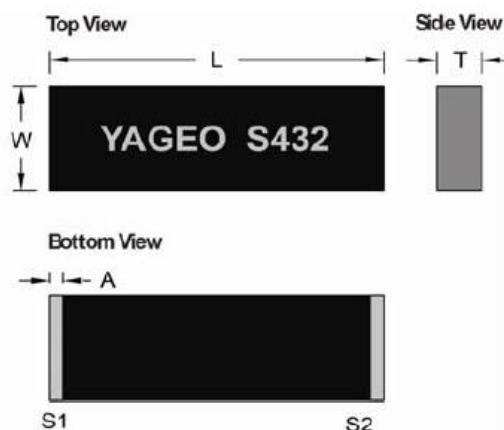
Working Frequency	433-434MHz and 2400-2500MHz
Bandwidth	28 MHz(Typ.)
Return Loss	6.5 dB Min.
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Peak Gain	433-434MHz: 0.79 dBi(Typ.) 2400-2500MHz: 0.91 dBi(Typ.)
Impedance	50 Ω
Operating Temperature	- 40~105 $^{\circ}\text{C}$
Maximum Power	2 W
Termination	Ni / Sn (Environmentally-Friendly Leadless)
Resistance to Soldering Heats	260 $^{\circ}\text{C}$, 10sec.

NOTE

1. The specification is defined on Pulse evaluation board

MECHANICAL DRAWING

	Dimension
L (mm)	12.3 $\pm$ 0.20
W (mm)	4.00 $\pm$ 0.20
T (mm)	1.60 $\pm$ 0.20
A (mm)	0.50 $\pm$ 0.20



Terminal name	Function
S1	Feeding Point
S2	Soldering Point

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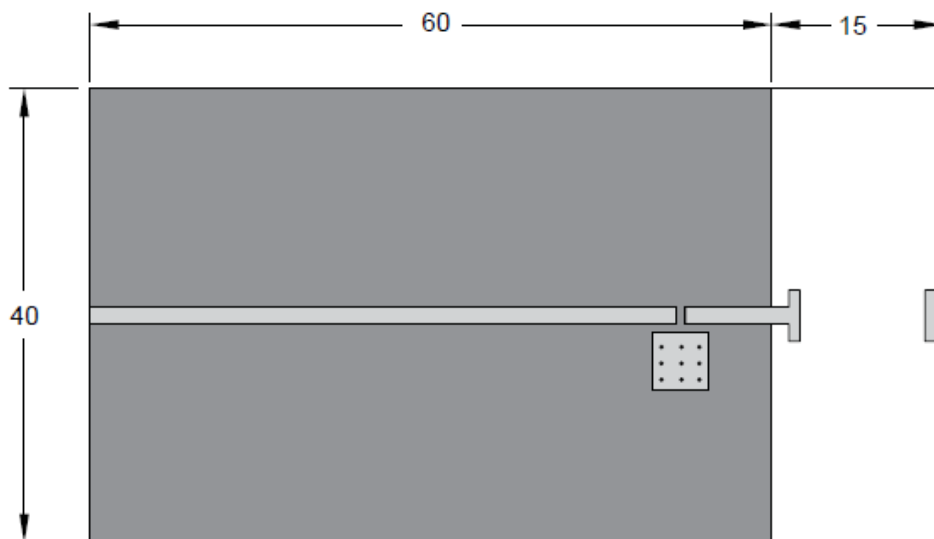
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Description: 1204 433-434MHz and 2400-25

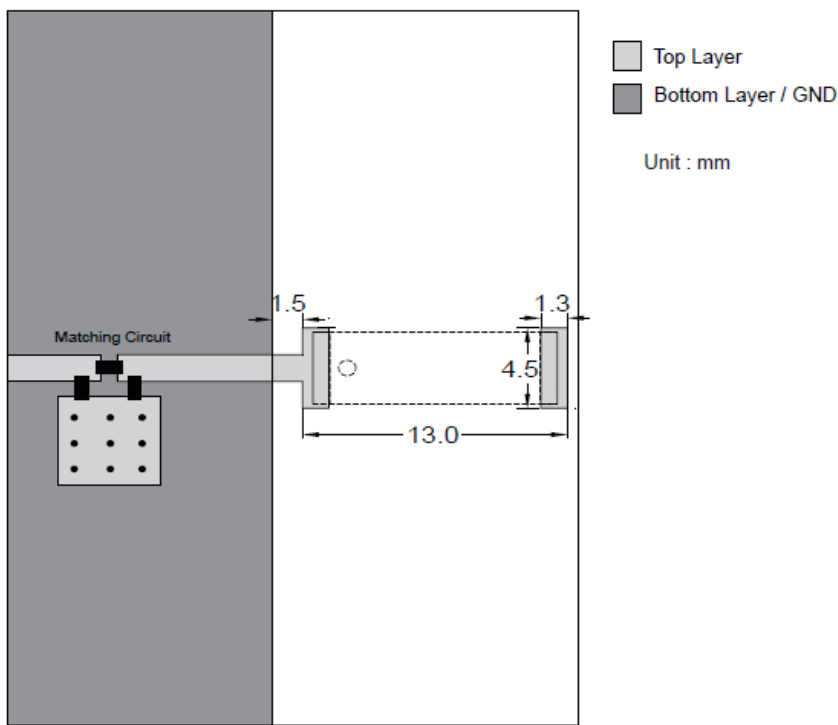
00MHz FR4 Internal Antenna **PART NUMBER:**

REFERENCE DESIGN OF EVALUATION BOARD



Outlook and dimension of evaluation board

Unit : mm



Details of soldering Pad

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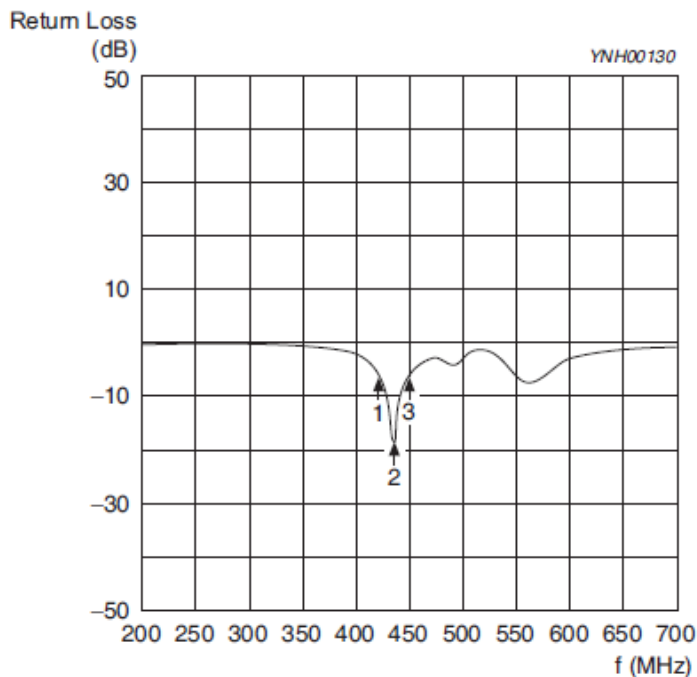
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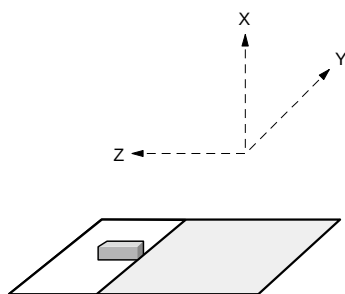
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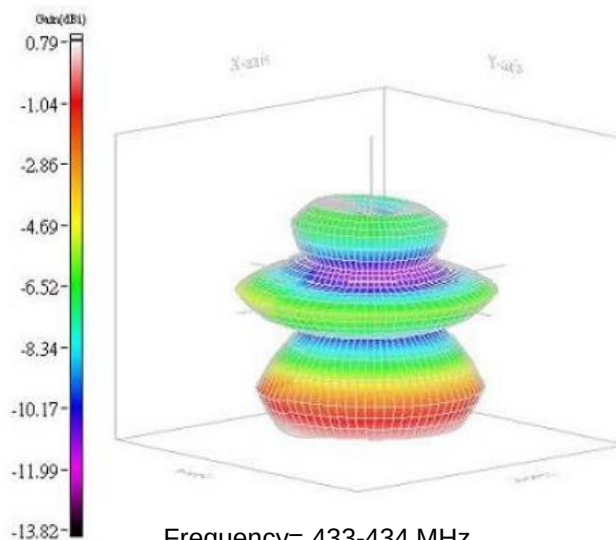
ELECTRICAL PERFORMANCES



Return loss



Evaluation board and XYZ direction



Frequency= 433-434 MHz
Max gain = 0.79 dBi, at (150,330)
MEG (mean effective gain)= -4.84 dBi
Directivity (dB) = 6.35
Efficiency = -5.56dB, 27.79 %

Radiation pattern

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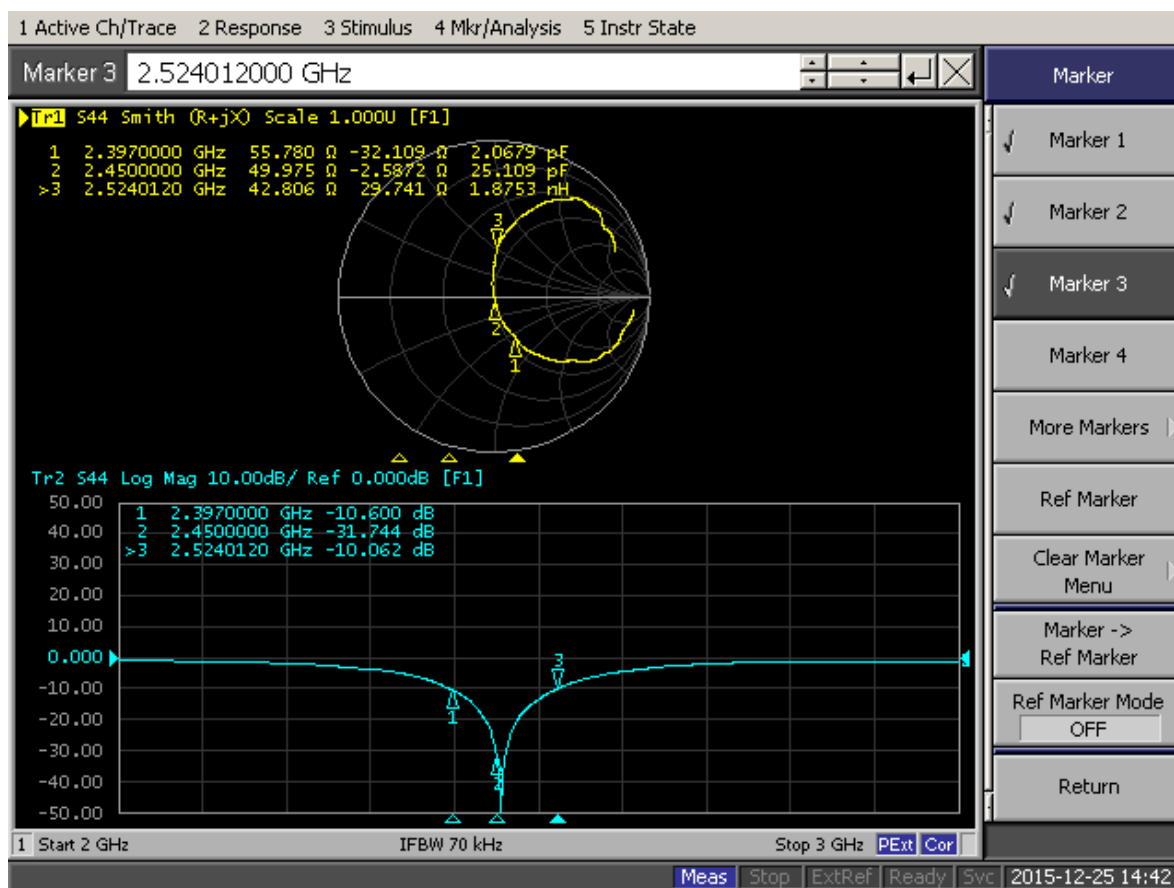
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Description: 1204 433-434MHz and 2400-25

00MHz FR4 Internal Antenna **PART NUMBER:**

REVISION HISTORY

Revision	Date	Description
Version 1	Apr. 29, 2021	- New issue for Maximum Power 2W.



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The screenshot displays the SatInv software interface. The main window shows a Smith chart plot with three data series: 2490.000MHz (red), 2500.000MHz (blue), and 2500.000MHz (green). The plot is centered at 0.710500 (2400MHz). The axes are labeled 0deg, 90deg, 180deg, and 270deg. The radial scale ranges from 0.000 to 1.000. Below the plot, there is a table with columns: Layer, Frequency, Position, Distance, Beam, MainMn, Average, Standard, Master 1 pos, Master 1 val., Master 2 pos, and Master 2 val. The table contains data for three layers: 2400MHz, 2490MHz, and 2500MHz. At the bottom, there is a list of settings and a status bar.

Layer	Frequency	Position	Distance	Beam	MainMn	Average	Standard	Master 1 pos	Master 1 val.	Master 2 pos	Master 2 val.
2400MHz	141.40	84.00 deg	7.02 dB	80.00 A	24.79 deg	5.00 dB	2.50	-82.79 deg	-0.71	-82.79 deg	0.00 dB
2490MHz	2.00 dB	86.00 deg	-0.71 dB	80.00 A	23.86 deg	8.72 dB	2.41	-82.79 deg	-0.79 dB	-82.79 deg	0.00 dB
2500MHz	1.02 dB	86.00 deg	-7.16 dB	80.00 A	—	8.22 dB	2.36	-82.79 deg	-1.57 dB	-82.79 deg	0.00 dB

Settings:

- Show 1: 10:03:42 AM ✓ Show 53
- LockPositionOnAxis 70 1 0
- Show 1: 10:03:42 AM ✓ Show 53
- Show 1: 10:03:47 AM ✓ Show 79 30
- Show 1: 10:03:47 AM ✓ Show 53
- SelectLayer1DDlg 79
- SelectLayer2 79
- SelectLayer3 79
- SelectLayer4 79
- SelectLayer5 79
- SelectLayer6 79
- SelectLayer7 79
- SelectLayer8 79
- SelectLayer9 79
- SelectLayer10 79
- SelectLayer11 79
- SelectLayer12 79
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- SelectLayer99 79
- SelectLayer100 79

Status bar: 10:04 AM

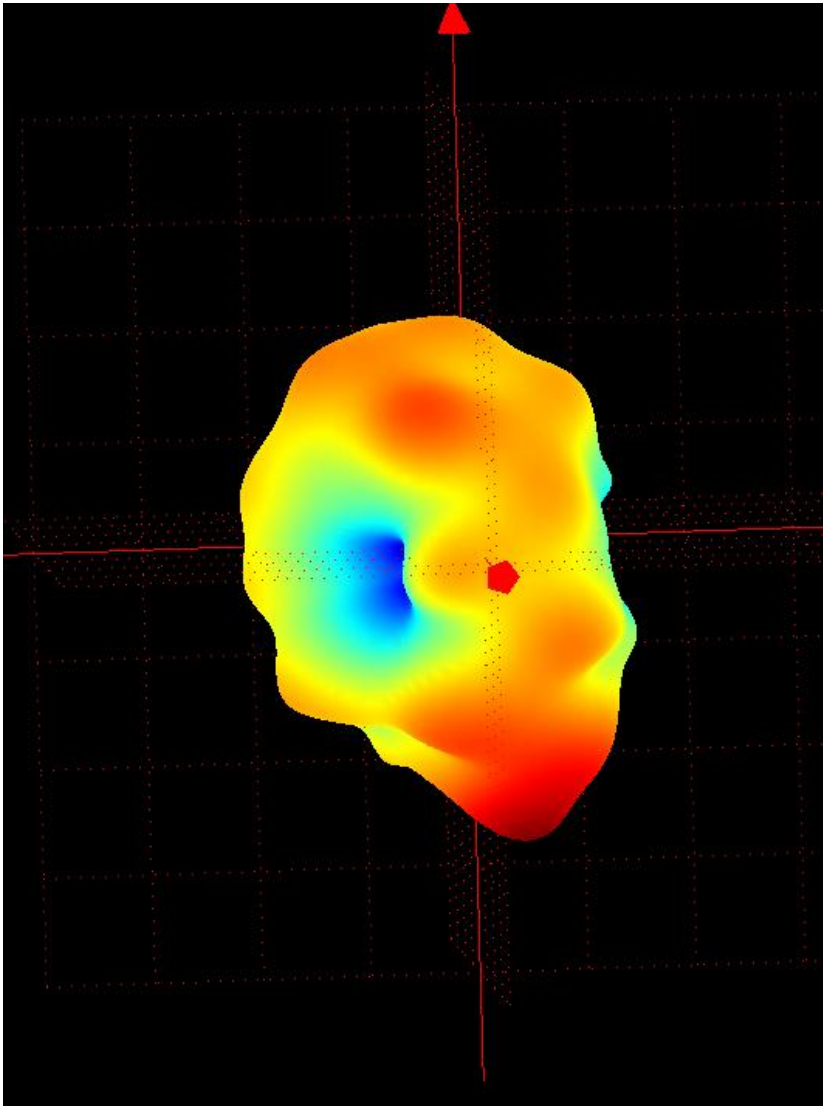
The screenshot displays the SatEnv software interface. The main window shows a Smith chart plot with three data series: 2400.00MHz (red), 2475.00MHz (green), and 2500.00MHz (blue). The plot is a standard Smith chart with a green background and a grid of concentric circles and radial lines. The axes are labeled 0deg, 90deg, 180deg, and 270deg. Below the plot is a table with columns: Layer, Material, Position, Min val., Position, Beam, MaxRhs, Average, Standard, Marker 1 pos., Marker 1 val., Marker 2 pos., and Marker 2 val. The table contains data for three layers: 2400MHz, 2475MHz, and 2500MHz. At the bottom, there is a log window showing a list of events with timestamps and descriptions, such as 'LockPositionOnAxis 01 2 -1.57079632', 'New 01 30', 'Show 01', 'ReInitLayer100lg 02', 'ReInitLayer 02', 'CloseDrawing 02 On', 'ReInitPlot 02 On', and 'ChangeReInit02lg 02'.

Layer	Material	Position	Min val.	Position	Beam	MaxRhs	Average	Standard	Marker 1 pos.	Marker 1 val.	Marker 2 pos.	Marker 2 val.
2400MHz	0.62 dB	176.00 deg	-3.75 dB	236.00	65.87 dB	16.40 dB	-3.36 dB	2.51	---	---	---	---
2475MHz	0.62 dB	176.00 deg	-3.69 dB	236.00	65.84 dB	16.40 dB	-3.28 dB	2.58	---	---	---	---
2500MHz	0.62 dB	176.00 deg	-3.59 dB	236.00	65.82 dB	16.40 dB	-3.23 dB	2.65	---	---	---	---

Log window:

- 10:05:21 AM Show 01
- 10:05:41 AM Theta=90.00deg
- 10:05:47 AM New 01 30
- 10:05:48 AM Show 01
- 10:05:01 AM SatEnvLayer100lg 02
- 10:05:01 AM ReInitLayer 02
- 10:05:03 AM SelfProbe 02 On
- 10:05:05 AM CloseDrawing 02 On
- 10:05:12 AM SelfInitPlot 02 On
- 10:05:26 AM ChangeReInit02lg 02

3DRadiationPattern



Frequency (MHz)	2400	2450	2500
Avg. Gain (dBi)	-0.23	-0.36	-0.51
Peck Gain (dBi)	0.65	0.91	0.88
Efficiency (%)	66	70	68