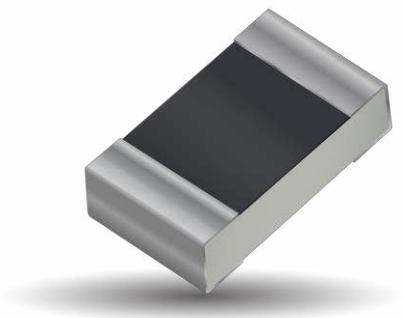
Part No. A1001312

Automotive Wi-Fi / BT / Zigbee or UWB Ceramic Antenna

2.4 GHz or 6.0 – 8.5 GHz

Supports: Wi-Fi applications, Agriculture, Automotive, Bluetooth, Zigbee, WLAN, Healthcare, UWB



*UWB layout offered in Appendix 1

Layouts:
1001312-01: Single Band 2.4 GHz
1001312-04: UWB 6.0 - 8.5 GHz
(Appendix 1)

KYOCERA AVX A-Series automotive antennas deliver on the key needs of device designers for higher functionality.

KYOCERA AVX has completed rigorous testing to qualify the A series antennas for automotive applications. This antenna has been AEC-Q200 tested. Customers must provide additional quality requirements, if any, to drive additional compliance testing.

Electrical Specifications

Typical performance on 55 x 25 mm PCB

Frequency	2400 – 2485 MHz	6.0 – 8.5 GHz
Peak Gain	1.88 dBi	Refer to Appendix 1
Average Efficiency	62%	
VSWR Match	1.8:1 max	
Feed Point Impedance	50 ohms unbalanced	
Polarization	Linear	
Power Handling	0.5 Watt CW	

Mechanical Specifications & Ordering Part Number

Ordering Part Number	A1001312
Size (mm)	2.00 x 1.20 x 0.55
Mounting	Surface mounted to the PCB
Weight (grams)	0.003
Packaging	Tape & Reel A1001312 – 5,000 pieces per reel
Demo Board	1001312-01 (2400 – 2485 MHz) 1001312-04 (UWB 6.0 – 8.5GHz
Temperature Range	-50/+125 °C
Temperature Cycle	JESD22 Method JA-104
Temperature Exposure	MIL-STD-202 Method 108
High Temperature & High Humidity	MIL-STD-202 Method 103
Mechanical Shock	MIL-STD-202 Method 213
Vibration	MIL-STD-202 Method 204
IMDS and PPAP available	

KEY BENEFITS

Greater Flexibility with Unique Form Factors

KYOCERA AVX' technology helps you deliver more advanced ergonomic designs without adverse impact on product performance.

Quicker Time-to-Market

By optimizing antenna size, performance and emissions, customer and regulatory specifications are more easily met.

AEC-Q200 Test Complete Reliability

Products are the latest RoHS version compliant.

APPLICATIONS

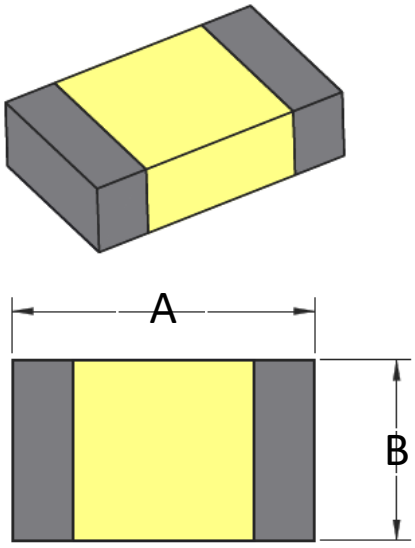
- Embedded design
- Handheld
- Smart Grid
- OBD-II
- UWB
- Telematics
- Tracking
- Healthcare
- M2M, Industrial devices

2.4 GHz Automotive KYOCERA AVX Embedded Ceramic Antenna Specifications
KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs

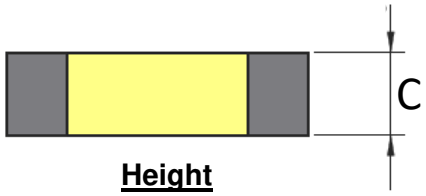
Antenna Dimensions

Typical antenna dimensions (mm)

Part Number	A	B	C
A1001312	2.0 ± 0.3	1.2 ± 0.3	0.55 ± 0.2



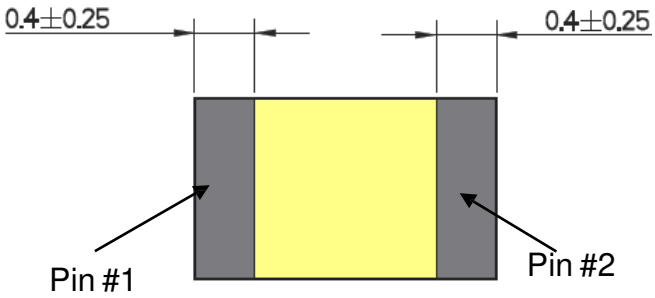
Top View



Height

Pin	Description
1	Feed
2	Ground

*Pin #1 and Pin #2 are interchangeable.



Bottom View

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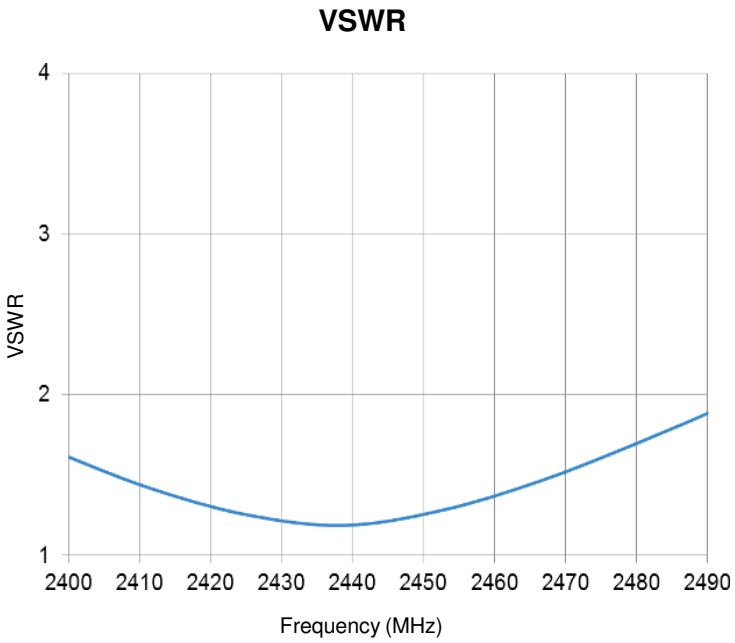
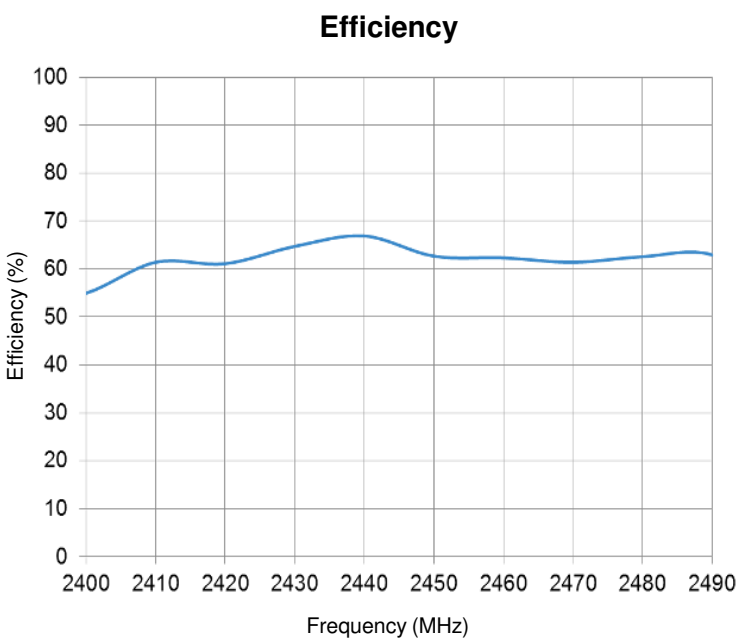
VSWR and Efficiency Plots

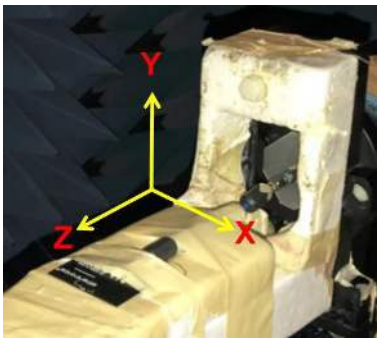
Typical Performance on 55 x 25 mm PCB

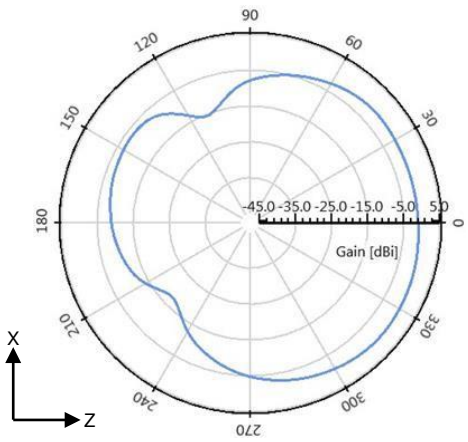


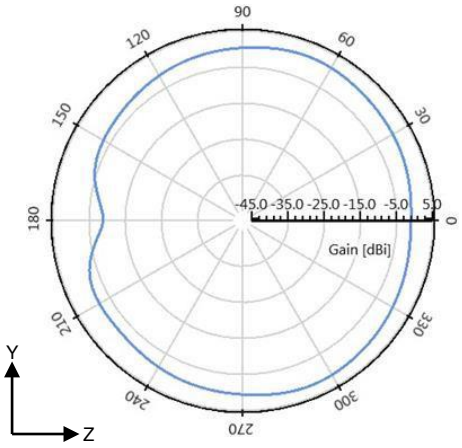


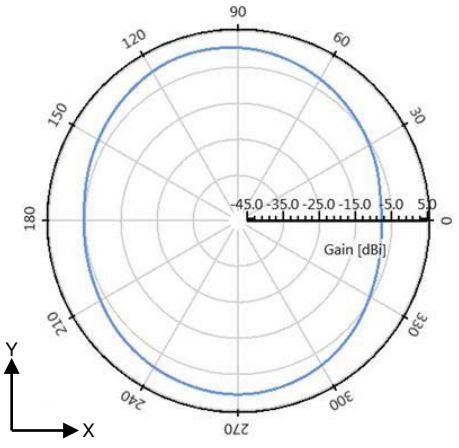
Antenna Radiation Patterns

Typical performance on 55 x 25 mm PCB
Measured @ 2440 MHz









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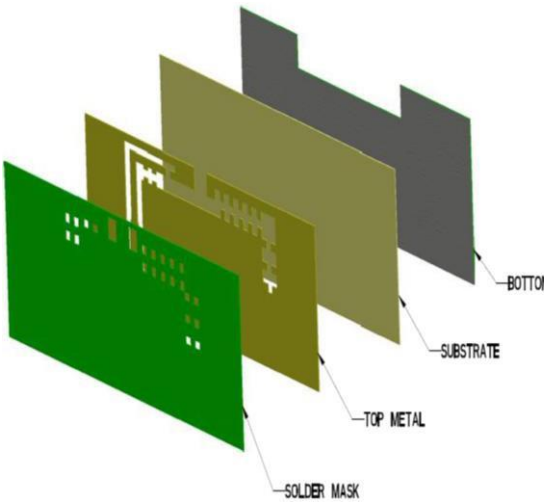
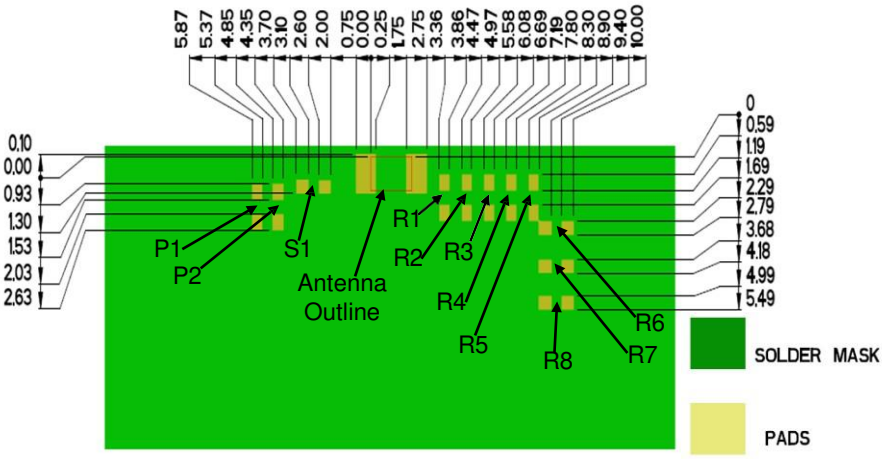
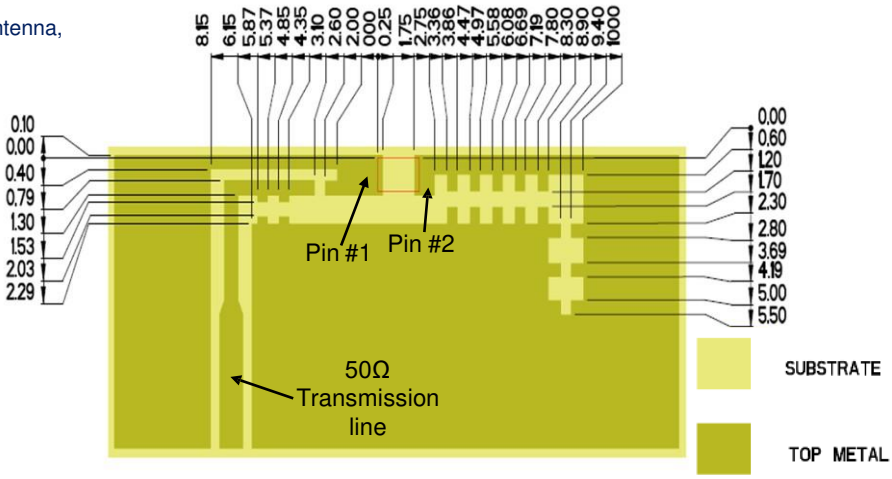
Antenna Layout (1001312-01)

Typical layout dimensions (mm)





- Additional VIAS : Diam. 0.2mm to be placed around antenna, (no vias on transmission lines).
- Via holes must be covered by solder mask



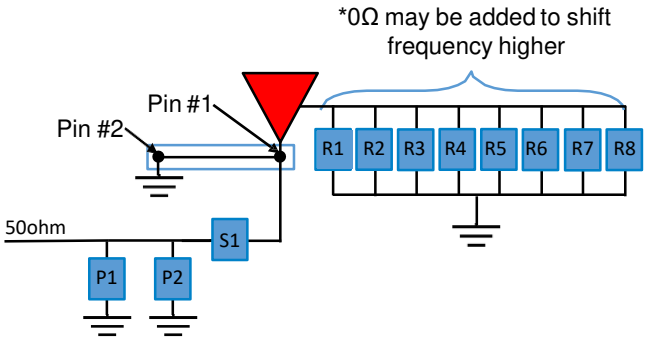
Pin Descriptions

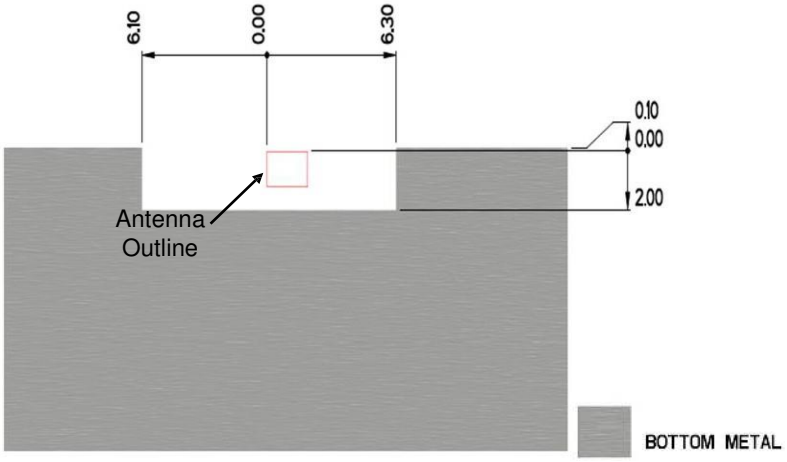
Pin#	Description
1	Feed
2	Ground

Matching Pi Network (Demo Board)

Component	Value	Tolerance
P1	4.7nH	±0.1nH
P2	DNI	N/A
S1	0Ω	N/A
R1	0Ω	N/A
R2 – R8	DNI	N/A

*Actual matching values depend on customer design





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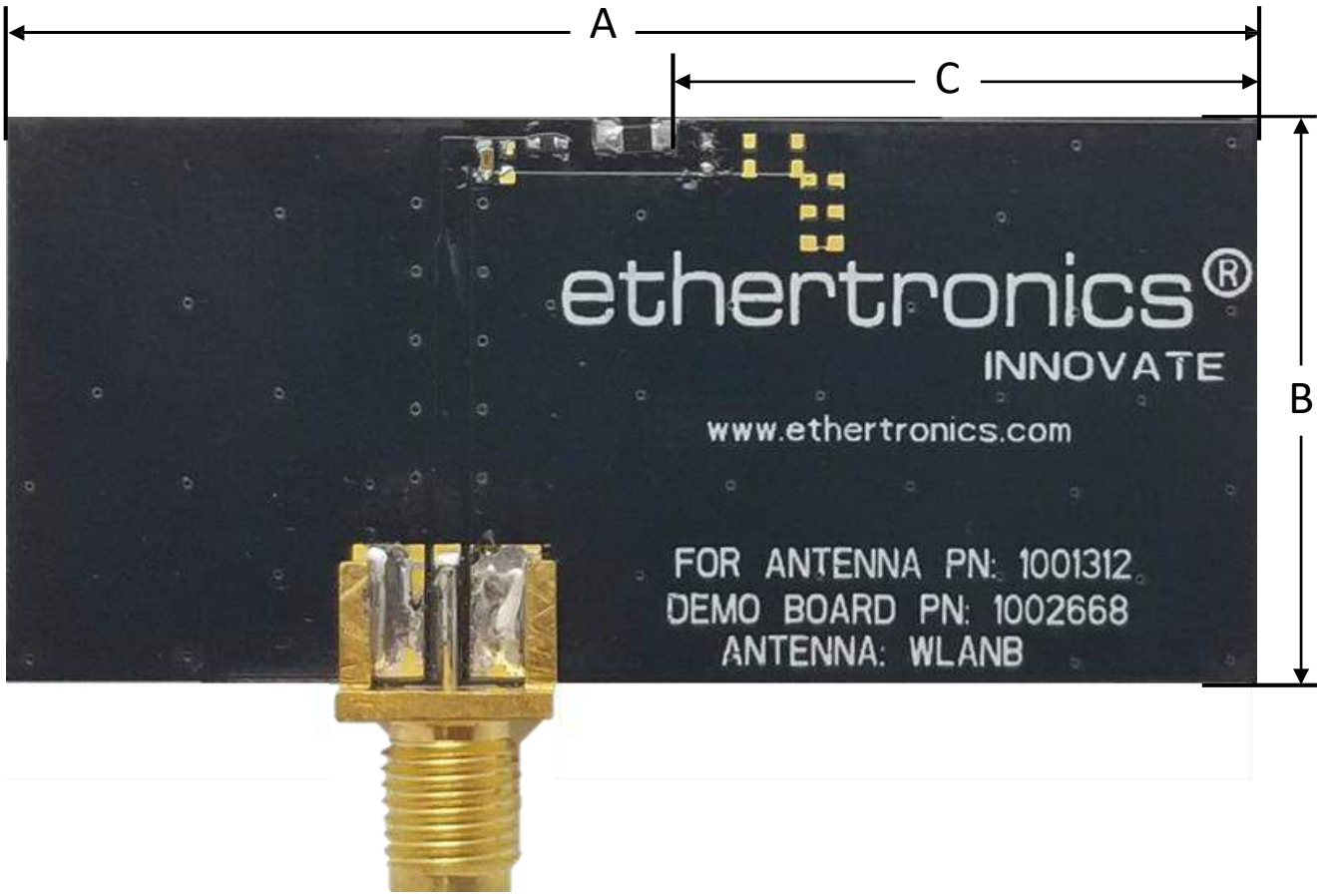
Antenna Demo Board

Typical layout dimensions (mm)

Part Number	A	B	C
1001312-01	55.0	25.0	26.0



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Appendix 1 Automotive UWB KYOCERA AVX Embedded Ceramic Antenna Specifications
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Appendix 1

Appendix 1 gives instructions on how to achieve UWB performances through layout and impedance matching network.
(6.0 – 8.5 GHz)

Frequency (GHz)	6.0 – 8.5
Peak Gain	4.8 dBi
Average Efficiency	84%
VSWR Match	2.0:1 max
Feed Point Impedance	50 ohms unbalanced
Polarization	Linear
Power Handling	2 Watt CW

*Data shown above has Appendix 1 matching applied on 26.0 x 25.0 mm PCB,
Using UWB 1001312-04 layout

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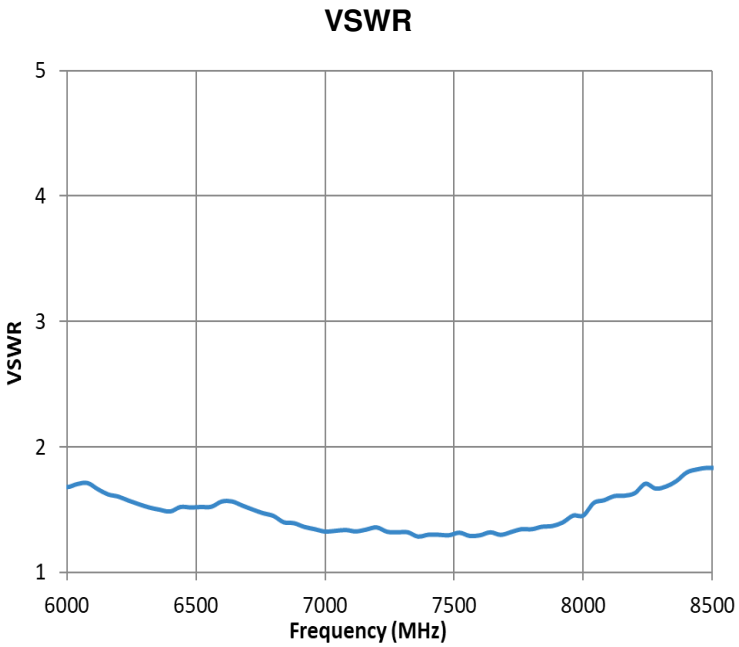
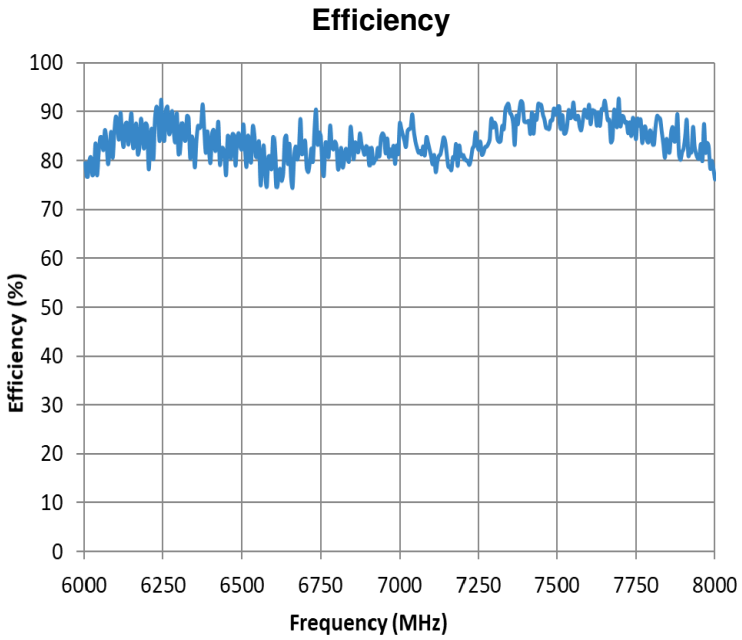
VSWR and Efficiency Plots

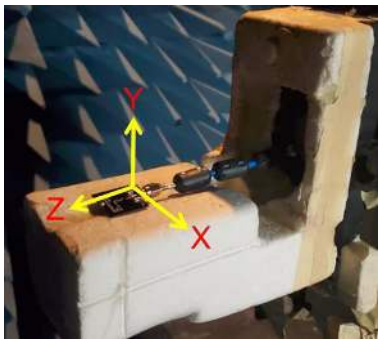
Typical Performance on 26.0 x 25.0 mm PCB

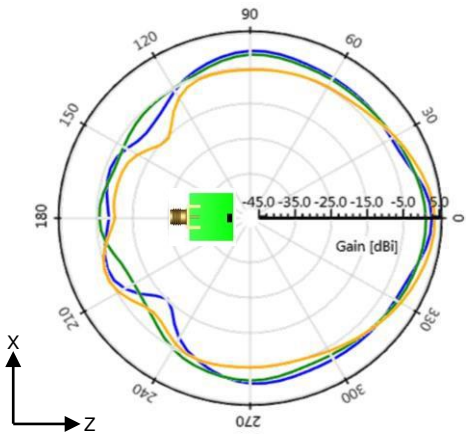


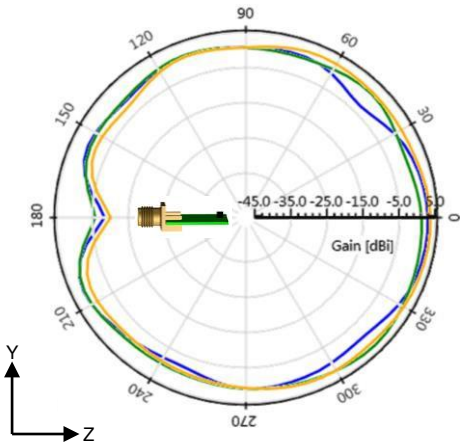


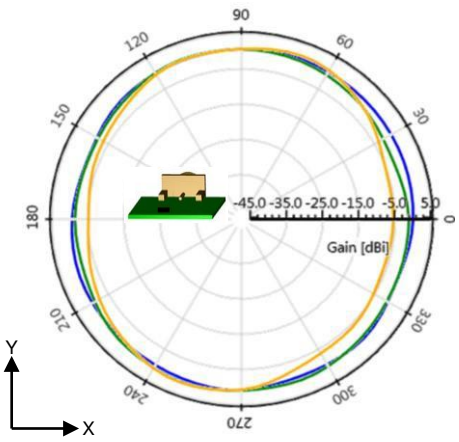
Antenna Radiation Patterns

Typical performance on 26.0 x 25.0 mm PCB
Measured @ 6500, 7000, 8000 MHz









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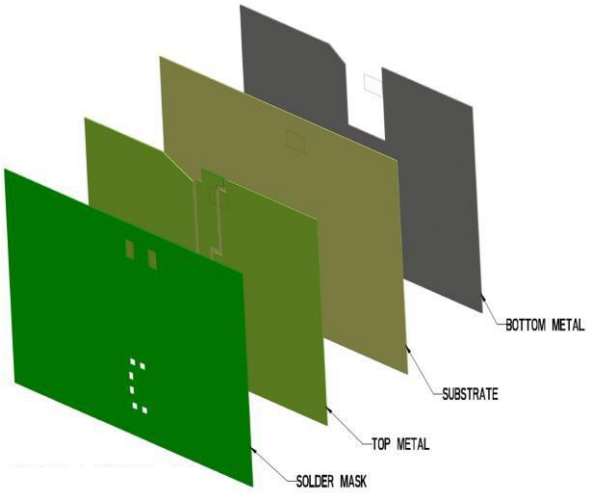
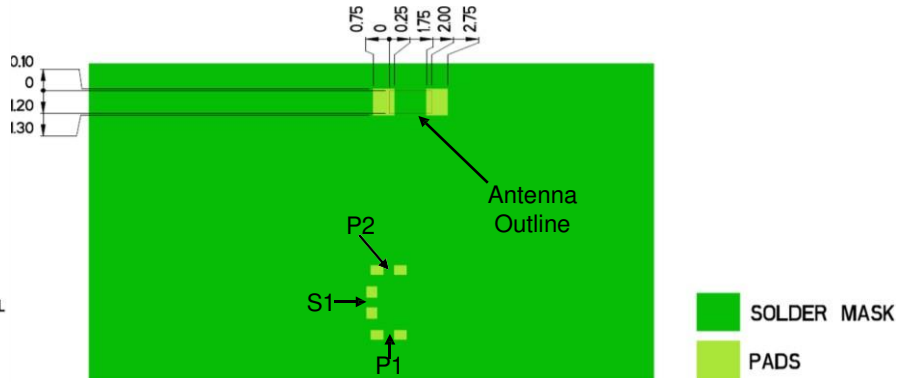
Antenna Layout (1001312-04)

Typical layout dimensions (mm)

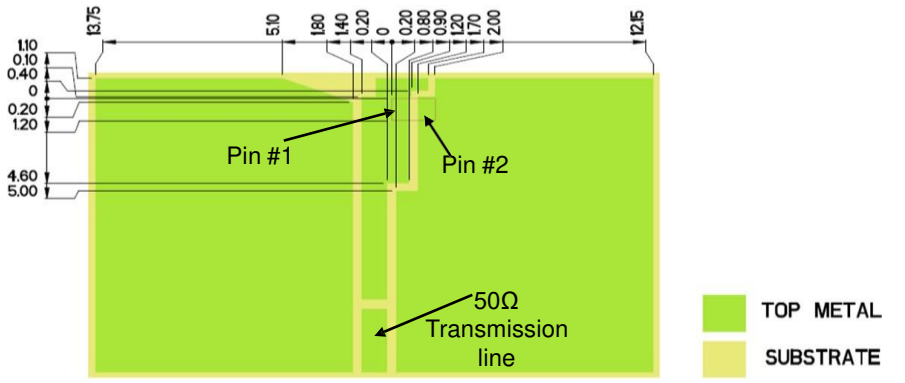




- Additional VIAS : Diam. 0.2mm to be placed around antenna, (no vias on transmission lines).
- Via holes must be covered by solder mask

Pin Descriptions

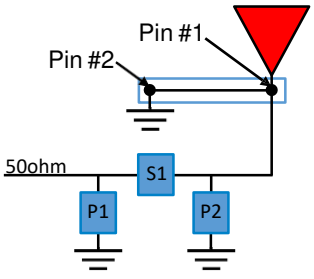
Pin#	Description
1	Feed
2	Ground

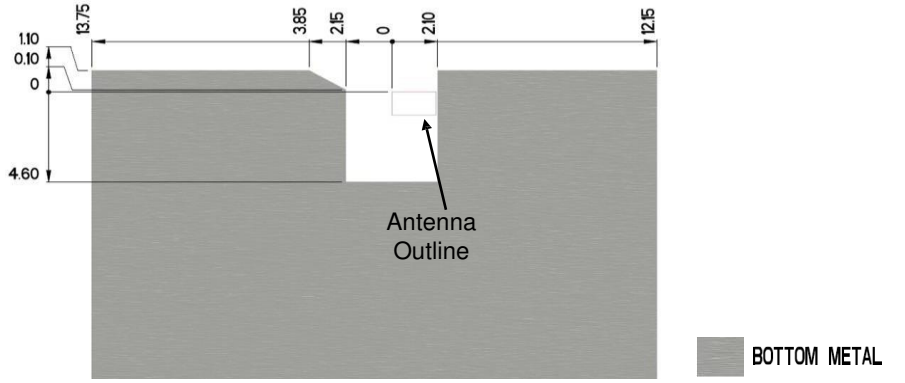


Matching Pi Network (Demo Board)

Component	Value	Tolerance
P1	DNI	N/A
S1	0Ω	N/A
P2	DNI	N/A

*Actual matching values depend on customer design





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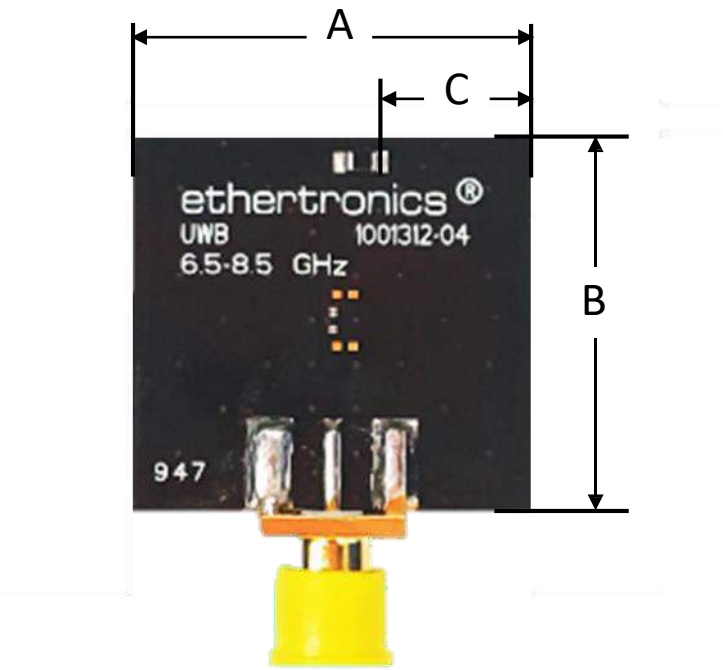
Antenna Demo Board

Typical layout dimensions (mm)

Part Number	A	B	C
1001312-04	26.0 ± 0.25	25.0 ± 0.25	10.15



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