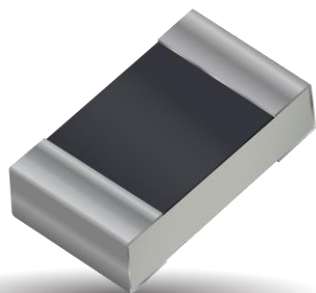


Part No. A1001312

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)

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

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

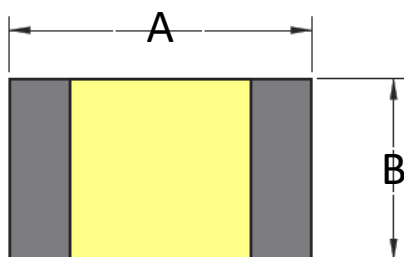
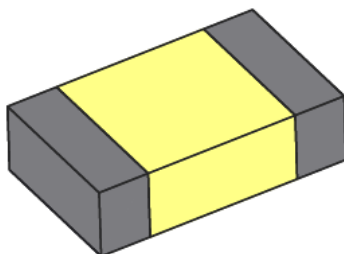
Ordering Part Number	A1001312
Size (mm)	2.00 x 1.20 x 0.55
Mounting	Surface mounted to the PCB
Weight (grams)	0.003
Packaging	Tape & Reel A1001312 – 5,000 pieces per reel
Demo Board	1001312-01 (2400 – 2485 MHz) 1001312-04 (UWB 6.0 – 8.5GHz)
Temperature Range	-50/+125 °C
Temperature Cycle	JESD22 Method 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	

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

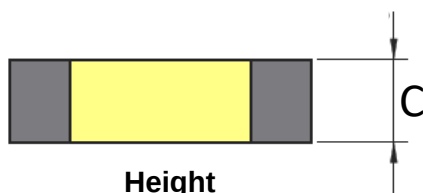
Antenna Dimensions

Typical antenna dimensions (mm)

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



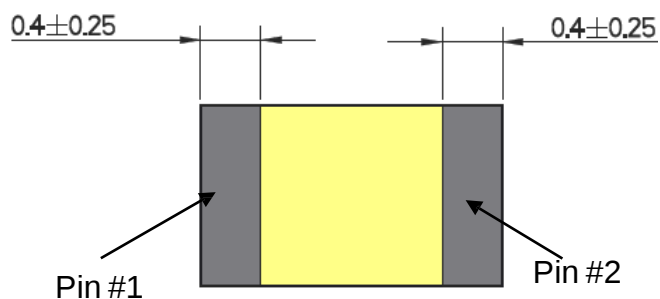
Top View



Height

Pin	Description
1	Feed
2	Ground

*Pin #1 and Pin #2 are interchangeable.



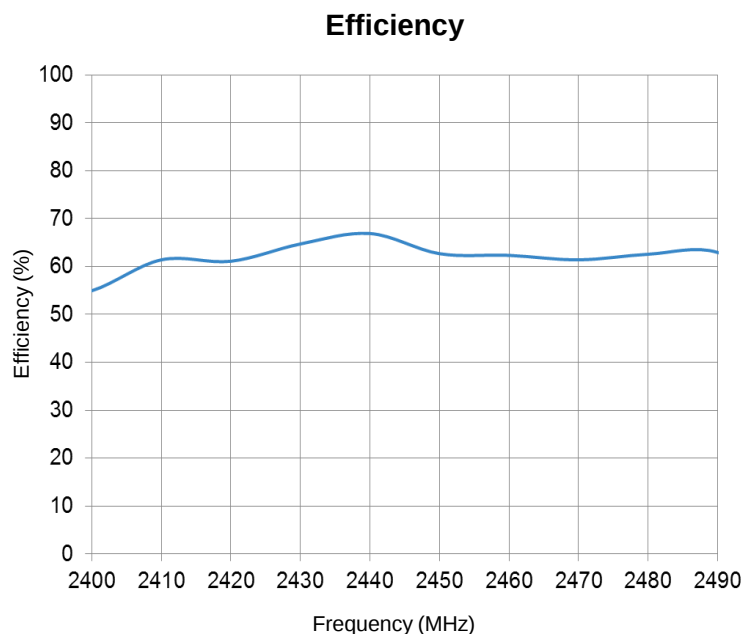
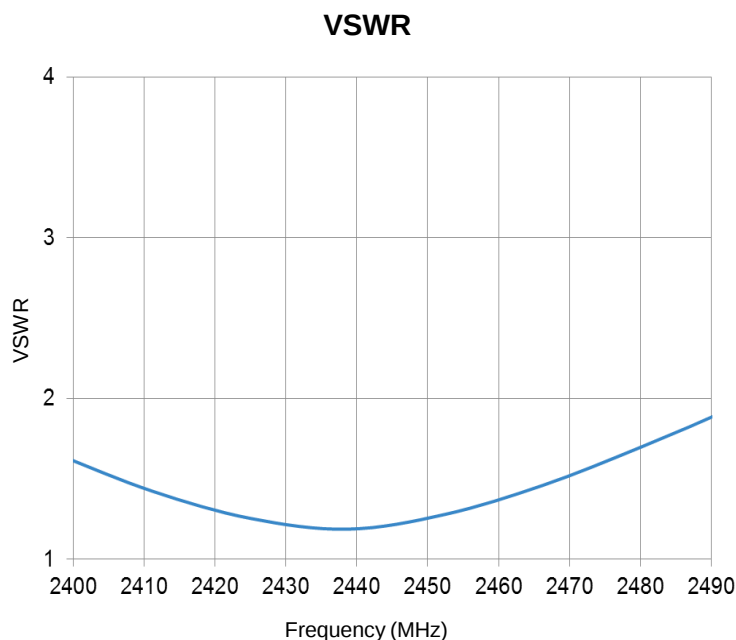
Bottom View

2.4 GHz Automotive KYOCERA AVX Embedded Ceramic Antenna Specifications

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VSWR and Efficiency Plots

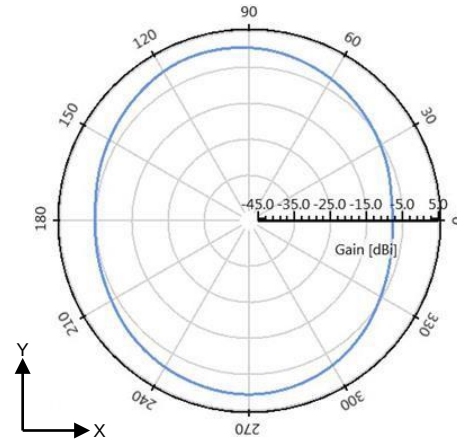
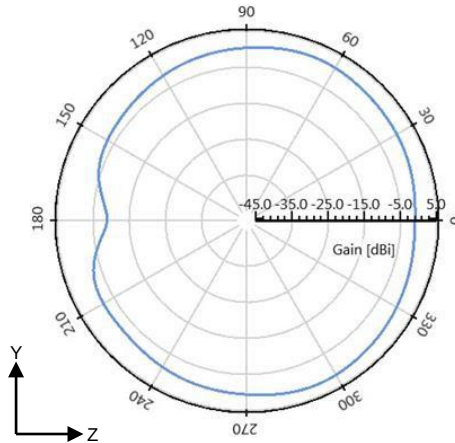
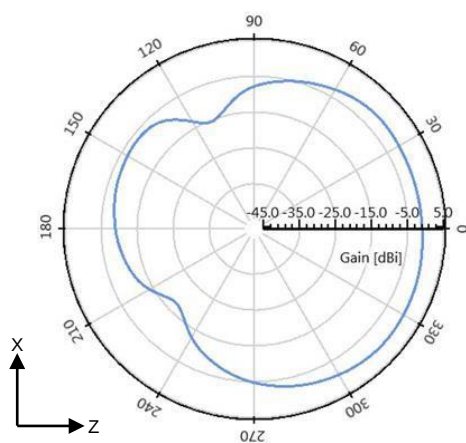
Typical Performance on 55 x 25 mm PCB



Antenna Radiation Patterns

Typical performance on 55 x 25 mm PCB

Measured @ 2440 MHz

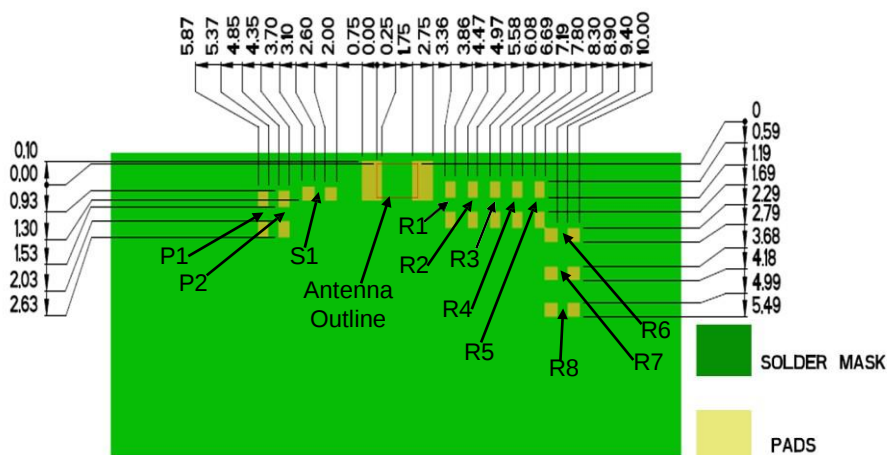
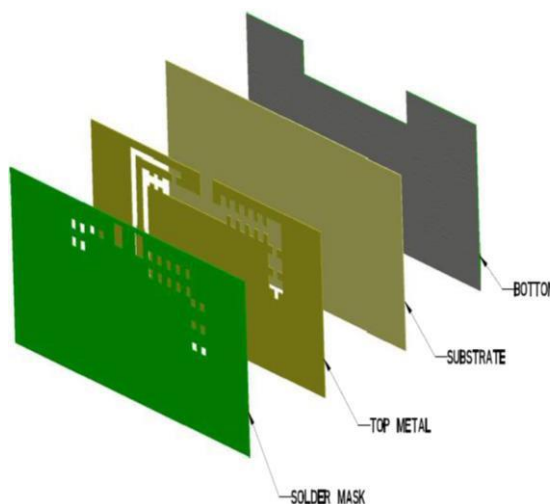


2.4 GHz Automotive KYOCERA AVX Embedded Ceramic Antenna Specifications

KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs

Antenna 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

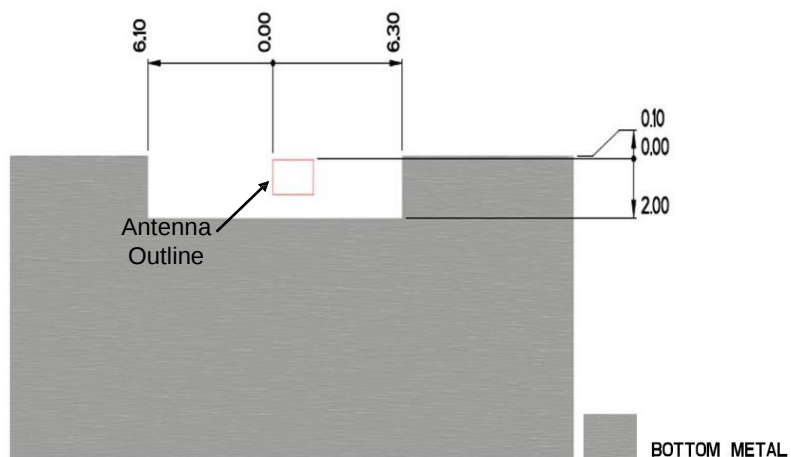
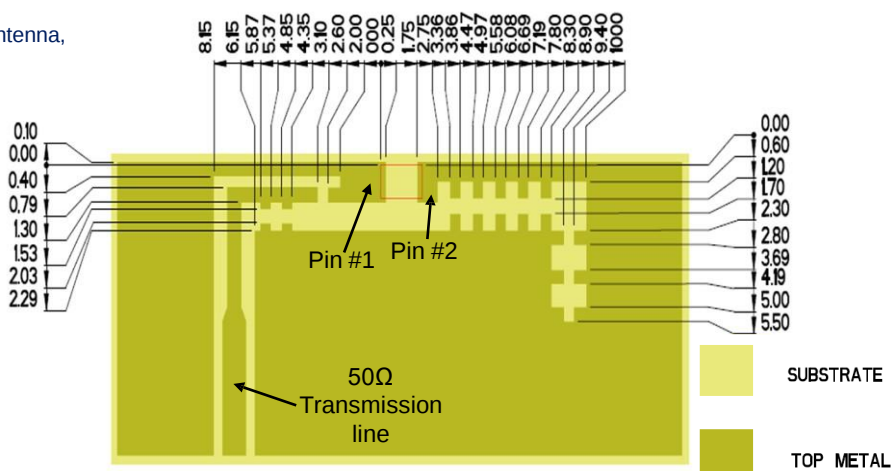
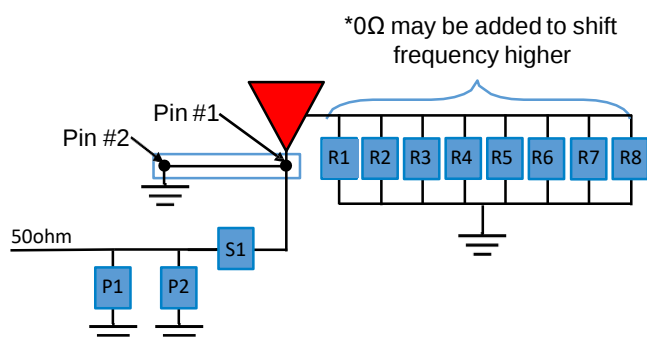
Pin Descriptions

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

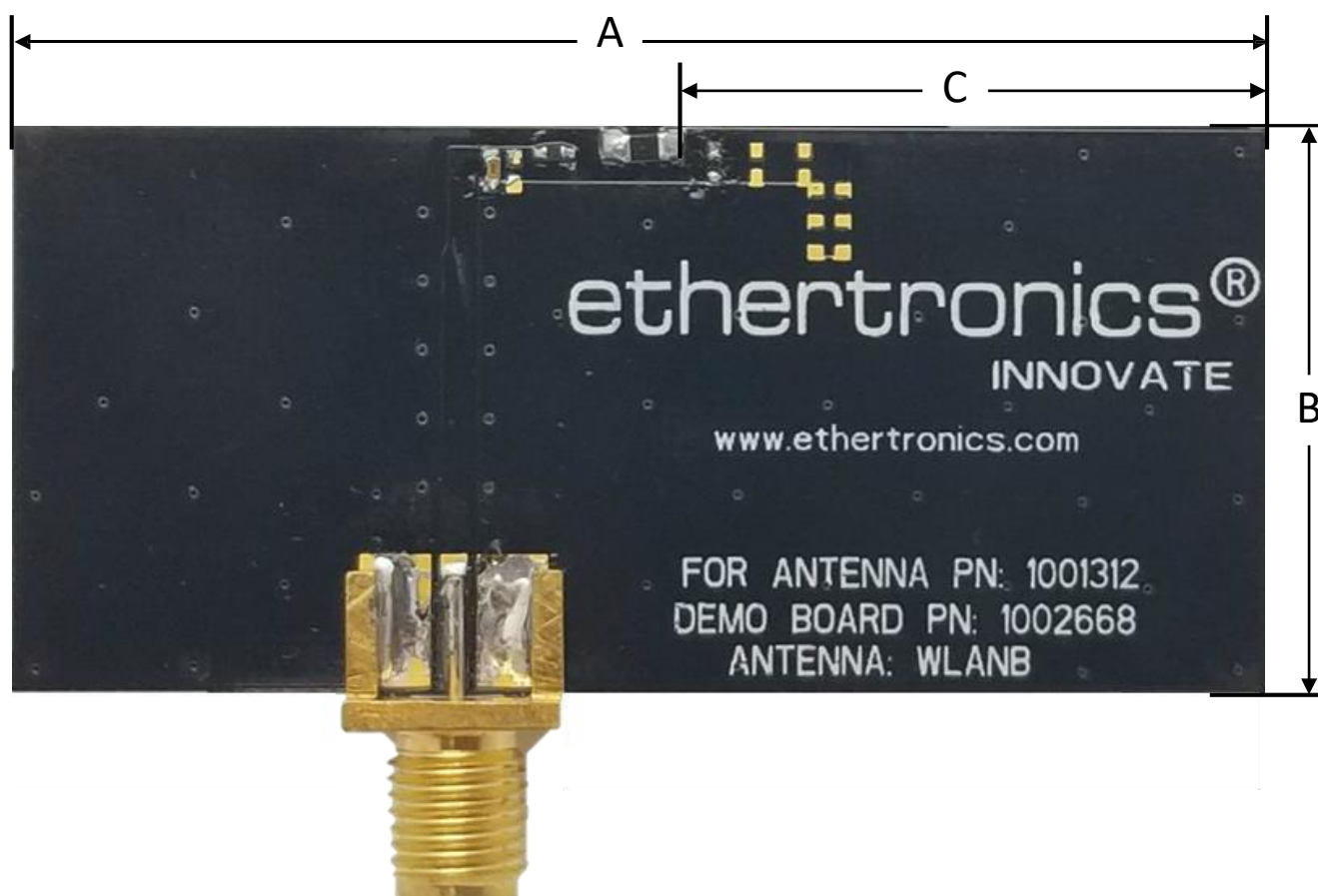


2.4 GHz Automotive KYOCERA AVX Embedded Ceramic Antenna Specifications
KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs

Antenna Demo Board

Typical layout dimensions (mm)

Part Number	A	B	C
1001312-01	55.0	25.0	26.0



Appendix 1 Automotive UWB KYOCERA AVX Embedded Ceramic Antenna Specifications
KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

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

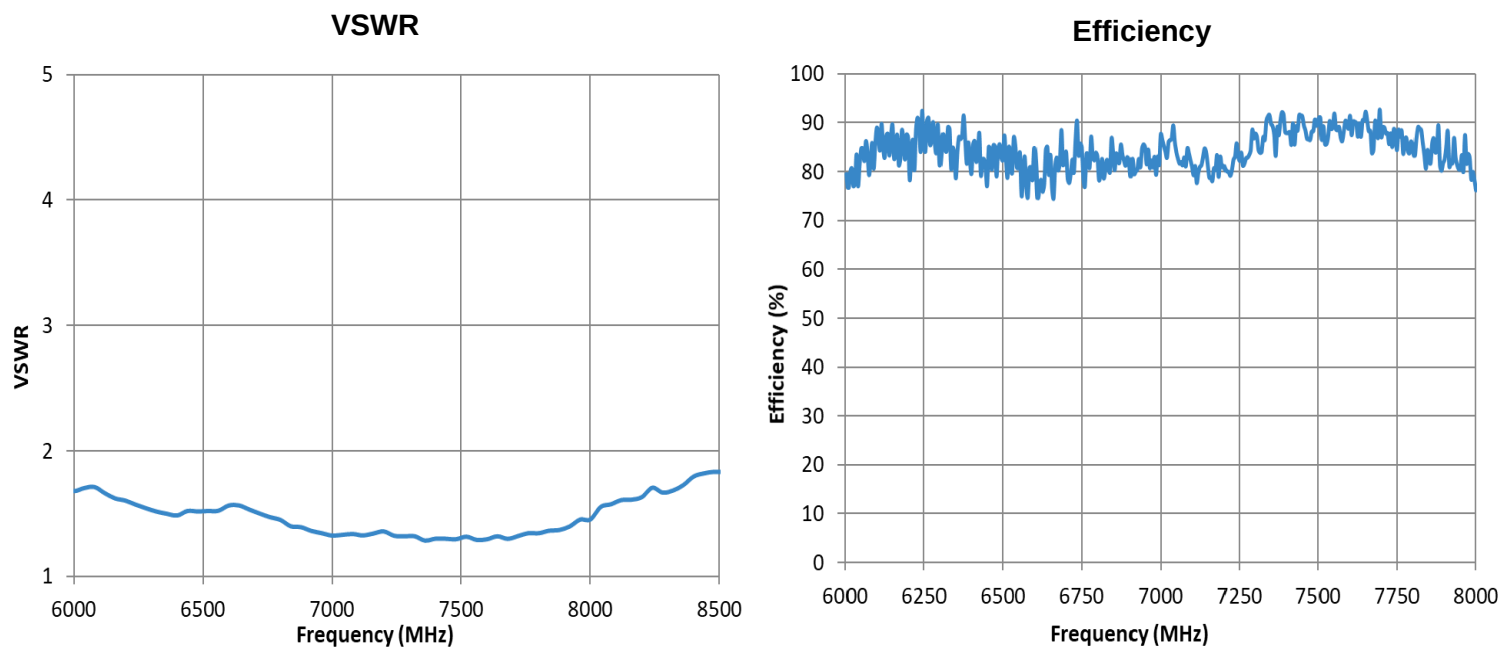
*Data shown above has Appendix 1 matching applied on 26.0 x 25.0 mm PCB,
Using UWB 1001312-04 layout



Appendix 1 Automotive UWB KYOCERA AVX Embedded Ceramic Antenna Specifications
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VSWR and Efficiency Plots

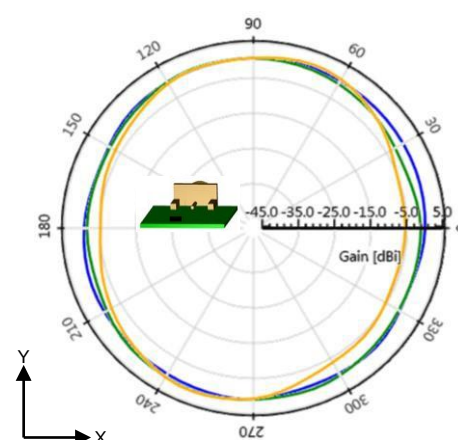
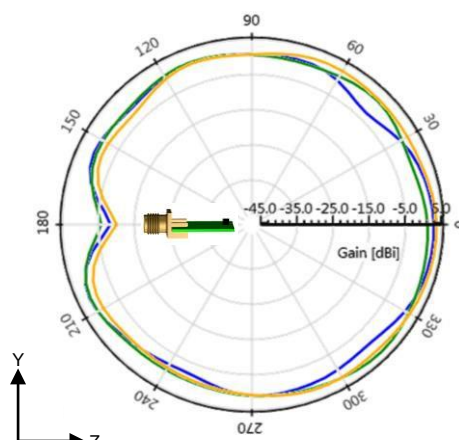
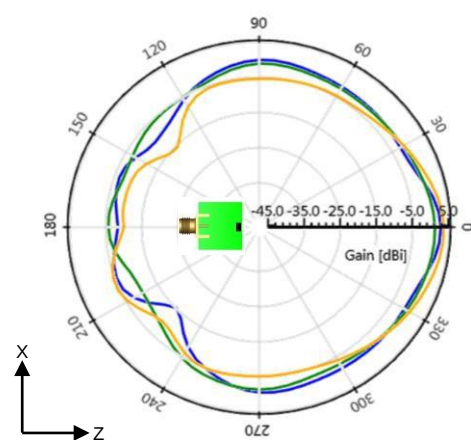
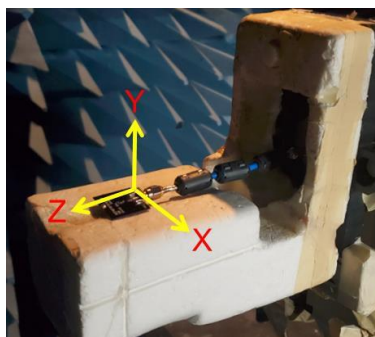
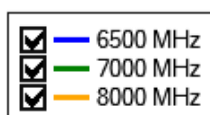
Typical Performance on 26.0 x 25.0 mm PCB



Antenna Radiation Patterns

Typical performance on 26.0 x 25.0 mm PCB

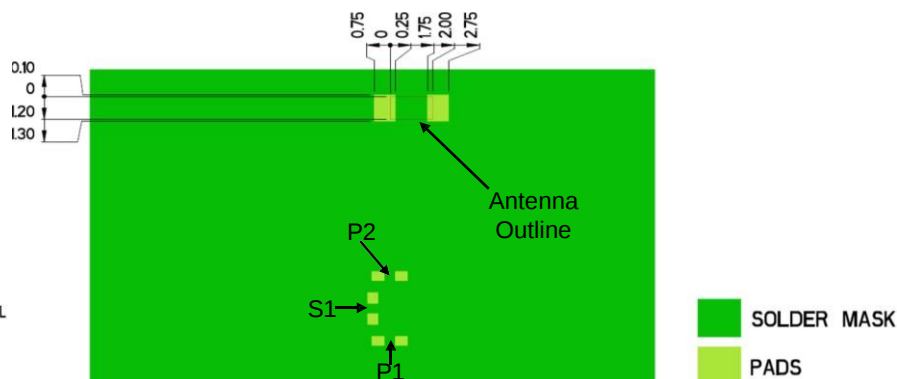
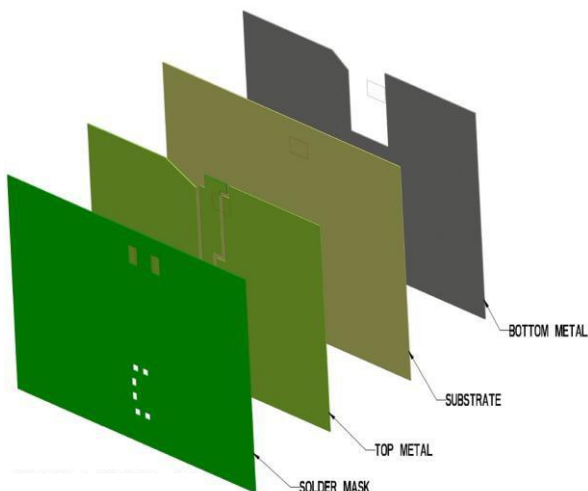
Measured @ 6500, 7000, 8000 MHz



Appendix 1 Automotive UWB KYOCERA AVX Embedded Ceramic Antenna Specifications
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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

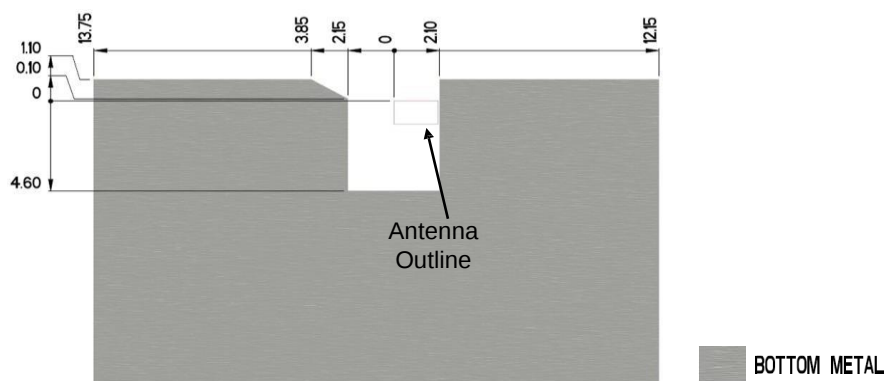
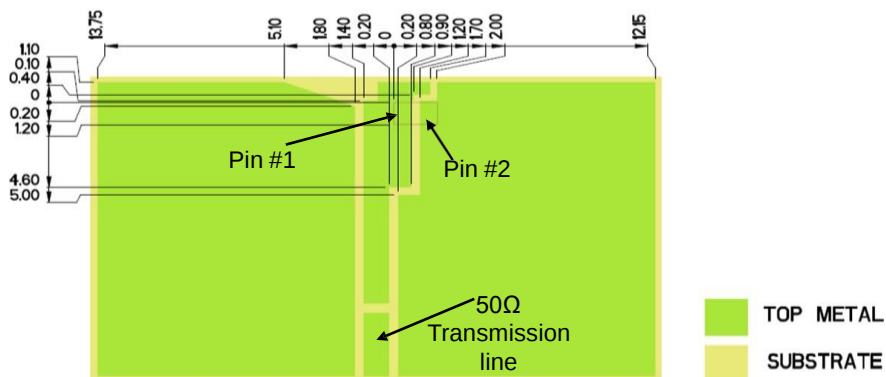
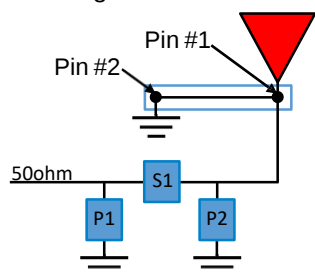
Pin Descriptions

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



Appendix 1 Automotive UWB KYOCERA AVX Embedded Ceramic Antenna Specifications
KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

Antenna Demo Board

Typical layout dimensions (mm)

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

