Part No. M830320
Wi-Fi / BT / Zigbee Ceramic Antenna

2.4 GHz

Supports: Wi-Fi applications, Bluetooth, Zigbee, WLAN

Ceramic Wi-Fi / Bluetooth Antenna

2400 – 2485 MHz

KYOCERA AVX's series of Ceramic Isolated Magnetic Dipole™ (IMD) antennas deliver on the key needs of device designers for higher functionality and performance in smaller/thinner designs. These innovative antennas provide compelling advantages for Bluetooth® enabled mobile devices.

Real-World Performance and Implementation

Ceramic antennas may look alike on the outside, but the important difference is inside. Other antennas may contain simple PiFA or monopole designs that interact with their surroundings, complicating layout and compromising performance. KYOCERA AVX's antennas utilize patented IMD technology to deliver optimum performance in a miniature size configuration.

Greater Flexibility

KYOCERA AVX's first-in-class IMD technology enables you to develop designs that are more advanced and that deliver superior performance in reception critical applications.

Electrical Specifications

Typical performance on a 40 x 60 mm PCB

Frequency (MHz)	2400 – 2485
Peak Gain	1.8 dBi
Average Efficiency	72%
VSWR Match	2.0:1 max
Feed Point Impedance	50 ohms unbalanced
Polarization	Linear
Power Handling	0.5 Watt CW
Additional Resources	Download Application Note and Simulation Files

Mechanical Specifications & Ordering Part Number

Ordering Part Number	M830320
Size (mm)	8.0 x 3.0 x 1.3
Mounting	Surface mounted
Weight (grams)	0.2
Packaging	Tape & Reel, M830320 – 1,000 pieces per reel
Demo Board	M830320-01
Additional Resources	Download DXF, Gerber and 3D FIT Files

KEY BENEFITS

Stay-in-Tune

IMD antenna technology provides superior RF field containment, resulting in less interaction with surrounding components.

Quicker Time-to-Market

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

Environmental Compliance

Products are the latest RoHS version compliant.

APPLICATIONS

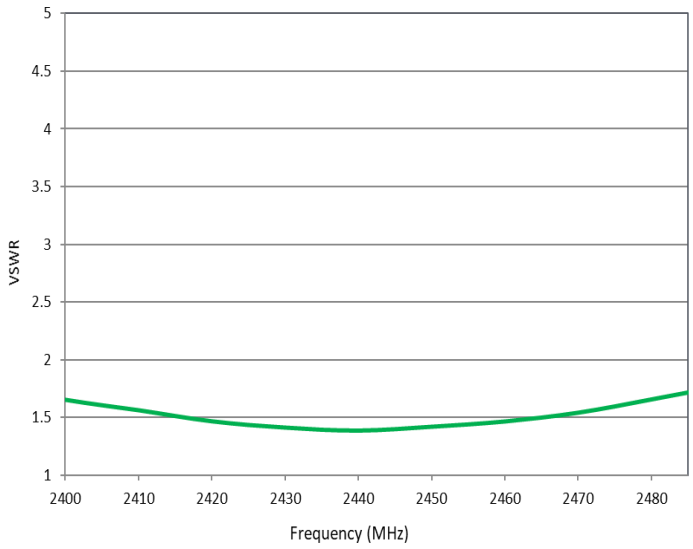
- Embedded design
- Cellular, Headsets, Tablets
- Gateway, Access Point
- Handheld
- Telematics
- Tracking
- Healthcare (FDA Class I)
- M2M, Industrial devices
- Smart Grid
- OBD-II

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

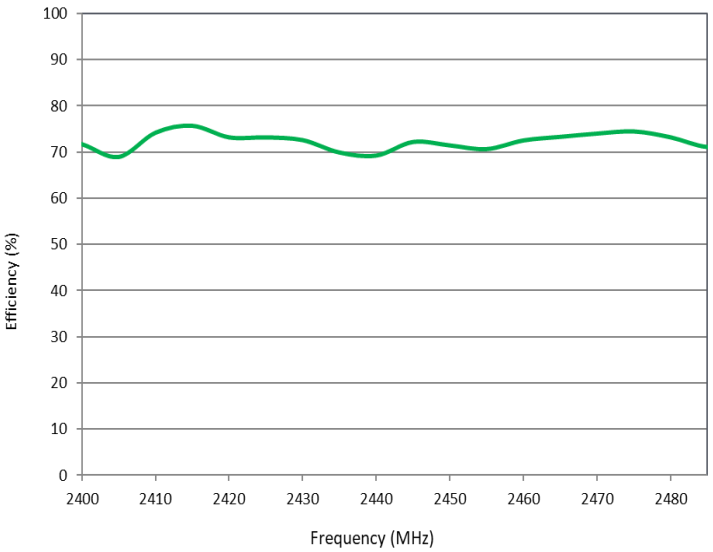
VSWR, Efficiency Plots

Typical performance on 40 x 60 mm PCB

VSWR

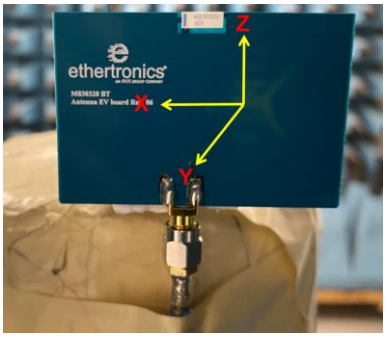


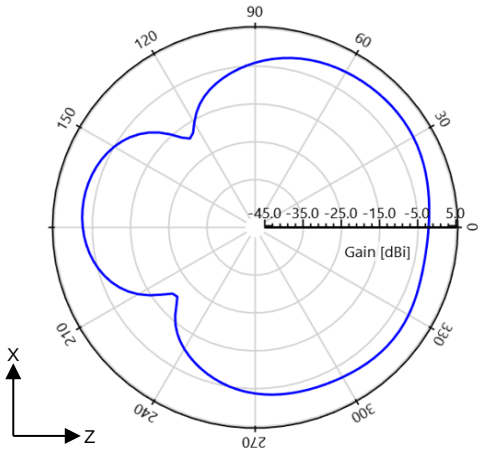
Efficiency

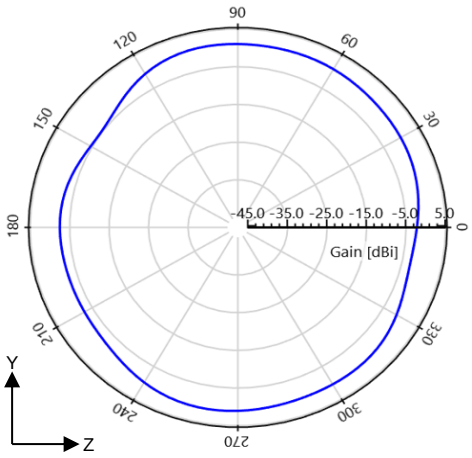


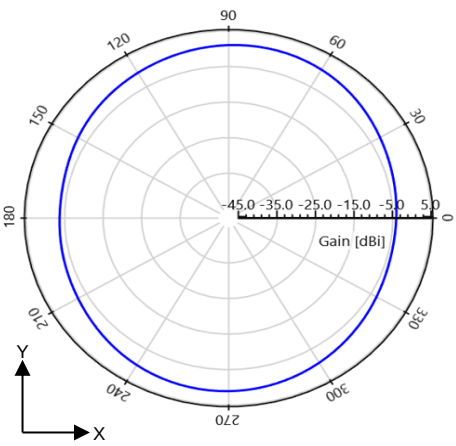
Antenna Radiation Patterns

Typical performance on 40 x 60 mm PCB
Measured @ 2440 MHz









tel +(1) 858.550.3820
email: antenna.info@KYOCERA-AVX.com

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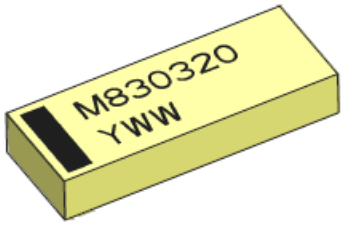
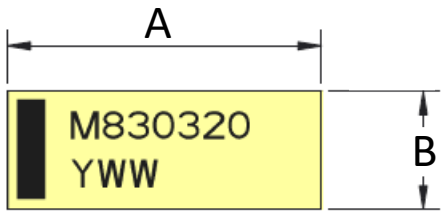
Antenna Dimensions

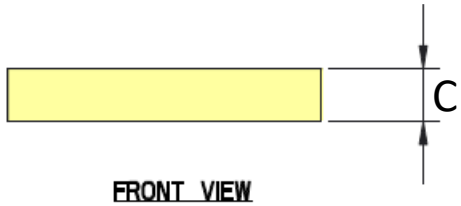
Typical antenna dimensions (mm)

Part Number	A (mm)	B (mm)	C (mm)
M830320	8.0 ± 0.2	3.0 ± 0.2	1.33 ± 0.1



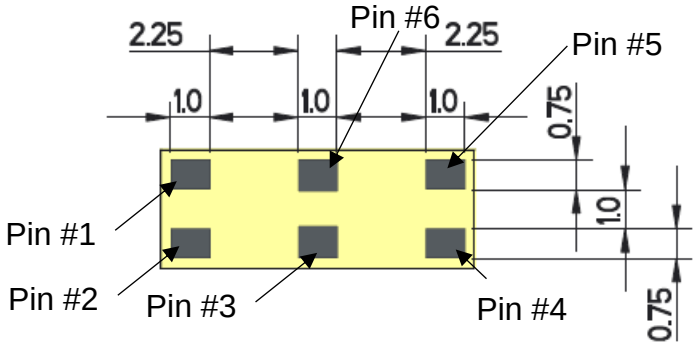


TOP VIEW



FRONT VIEW

Pin	Description
1	Feed
2	Ground
3	Dummy Pad
4	Tuning Pad
5	Dummy Pad
6	Dummy Pad



BOTTOM VIEW

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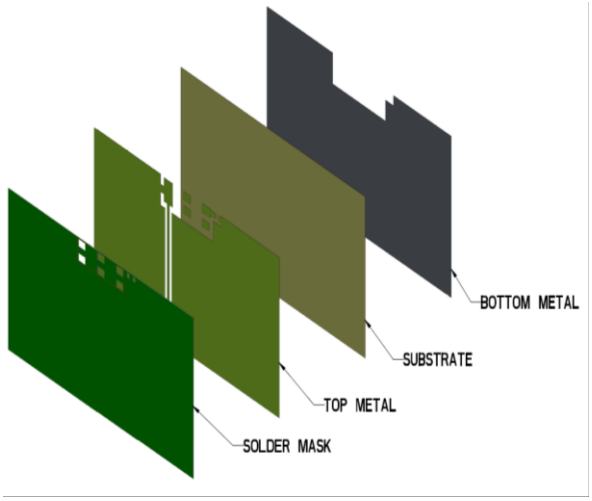
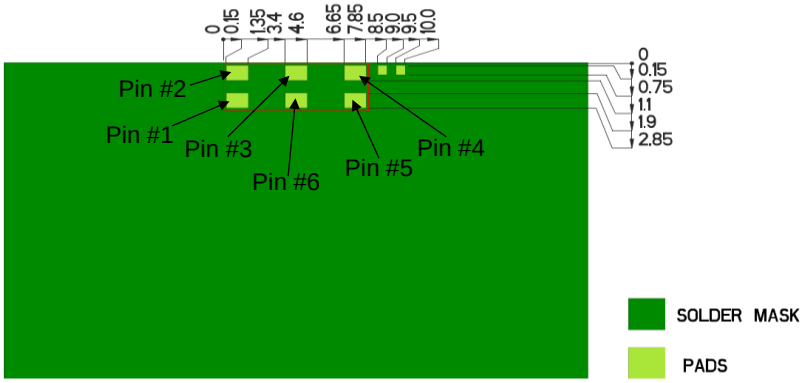
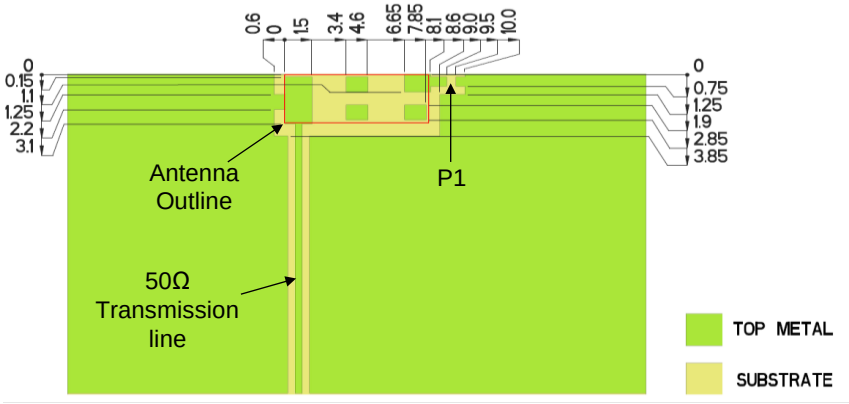
Antenna Layout

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



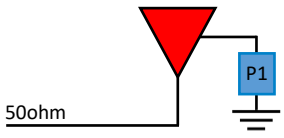
Pin Descriptions

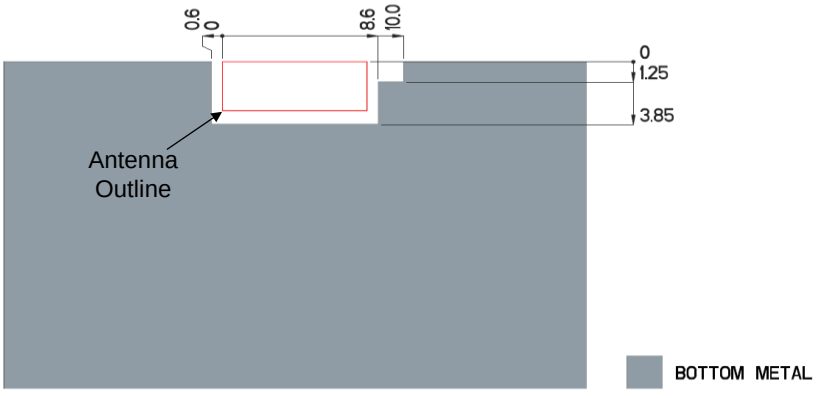
Pin#	Description
1	Feed
2	Ground
3	Dummy Pad
4	Tuning Pad
5	Dummy Pad
6	Dummy Pad

Matching Network (Demo Board)

Component	Value	Tolerance
P1	0Ω	N/A

*Actual matching values depend on customer design





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Antenna Layout Tips (General reference)

Important, layout guidelines for correct operation of KYOCERA AVX's Ceramic Antennas. Please read guidelines below before laying out the antenna in a device. Figure 1 shows the typical antenna layout. Figure 2 shows KYOCERA AVX'santenna layout.

Other

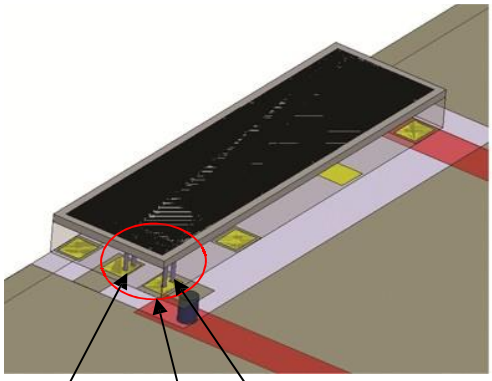

Figure 1
Typical Antenna Layout

KYOCERA AVX's

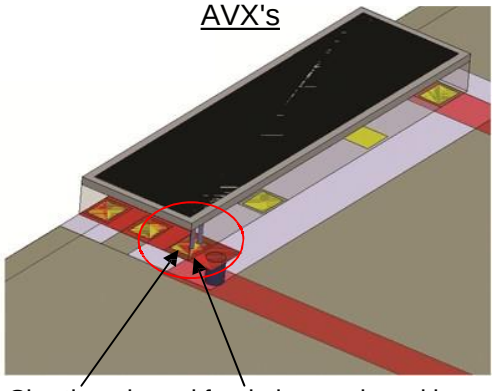

Figure 2
KYOCERA AVX's Antenna Layout
(Required)

- The antenna tuning loop is formed by the PCB layout.
- The feed pin and shorting pin are combined because it requires very close proximity to achieve more band- width.

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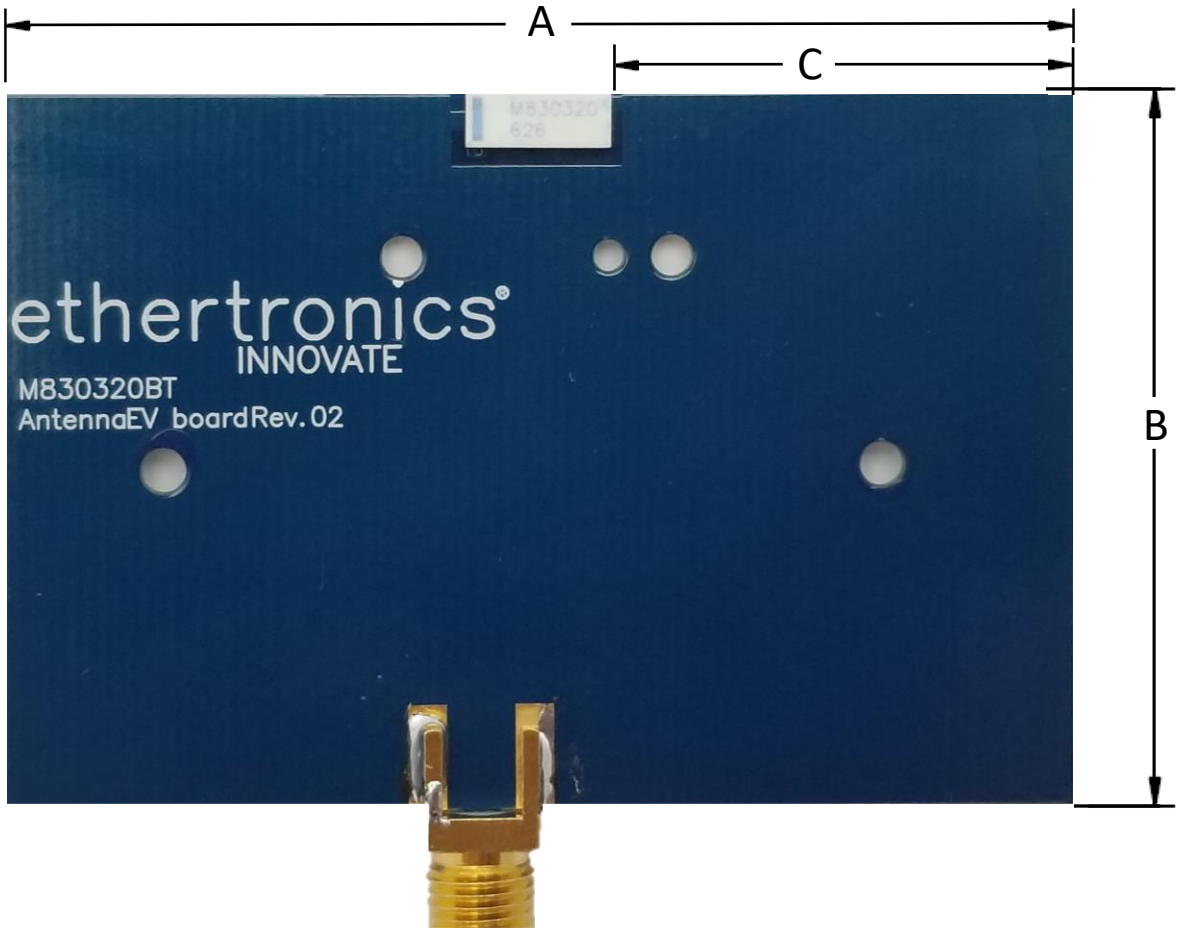
Antenna Demo Board

Typical layout dimensions (mm)

Part Number	A (mm)	B (mm)	C (mm)
M830320-01	60.0	40.0	26.0



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Additional Resources – M830320

Simulation Files:
HFSS (23 R1): https://www.kyocera-avx.com/download/antennas/ansys-hfss/23r1/M830320_08232022_23r1.zip
HFSS (19R3-22R2): https://www.kyocera-avx.com/download/antennas/ansys-hfss/19r3/M830320_08232022_19r3.zip

Application Note:
https://www.kyocera-avx.com/docs/techinfo/ApplicationNotes/Antenna-AppNotes/AVX-E_AppNote-M-Series.pdf

3D FIT File:
https://www.kyocera-avx.com/download/antennas/ME-FIT/M830320_ME_fit.zip

DXF File:
https://www.kyocera-avx.com/download/antennas/3D-DXF/M830320_3D-DXF.zip

Gerber File:
https://www.kyocera-avx.com/download/antennas/GERBER/M830320_GERBERS.zip

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email: antenna.info@KYOCERA-AVX.com