

# Part No. 1002427

## ISM or ISM & BT or GPS Stamp Metal Embedded SMT Antenna

868 MHz, 915 MHz, 1.575 GHz, 2.4 GHz

Supports: Wi-Fi applications, Bluetooth, ISM, LoRa, GPS



KYOCERA AVX 1002427 stamp metal SMT antenna delivers the device designers' key needs for higher functionality and performance in smaller/thinner designs. This innovative antenna provides compelling advantages for all ISM, Bluetooth and GPS enabled devices.

### Unique Form Factors Support Advanced Industrial Designs

Smaller, more efficient on board embedded antennas break through restrictive design rules and provide new freedom in component placement. 1002427 offers 3 configurations for tuning, ISM layout, ISM and BT layout or GPS layout.

### ISM or ISM & BT or GPS Stamp Metal Embedded Antenna

868 MHz - 915 MHz,  
915 MHz – 2450 MHz,  
1560 MHz -1606 MHz,

#### KEY BENEFITS

##### Versatile Antenna

1002427 can be used to support ISM or GPS independently or ISM and BT combined, allowing reduced BOM complexity while maintaining great performances.

##### 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

### Electrical Specifications

Typical performance on 110 x 55 mm PCB in free space. Different antenna layout location per each frequency configuration tested.

Frequency	ISM Layout 868-915 MHz	ISM & BT Layout 915 / 2450 MHz	GPS Layout 1560—1606 MHz
Peak Gain	1.0 dBi	3.0 dBi	3.4 dBi
Average Efficiency	62%	67%	61%
VSWR Match	2.0:1 max		
Feed Point Impedance	50 ohms unbalanced		
Polarization	Linear		
Power Handling	2 Watt CW		
Additional Resources	<a href="#">Download Application Note and Simulation Files</a>		

### Mechanical Specifications & Ordering Part Number

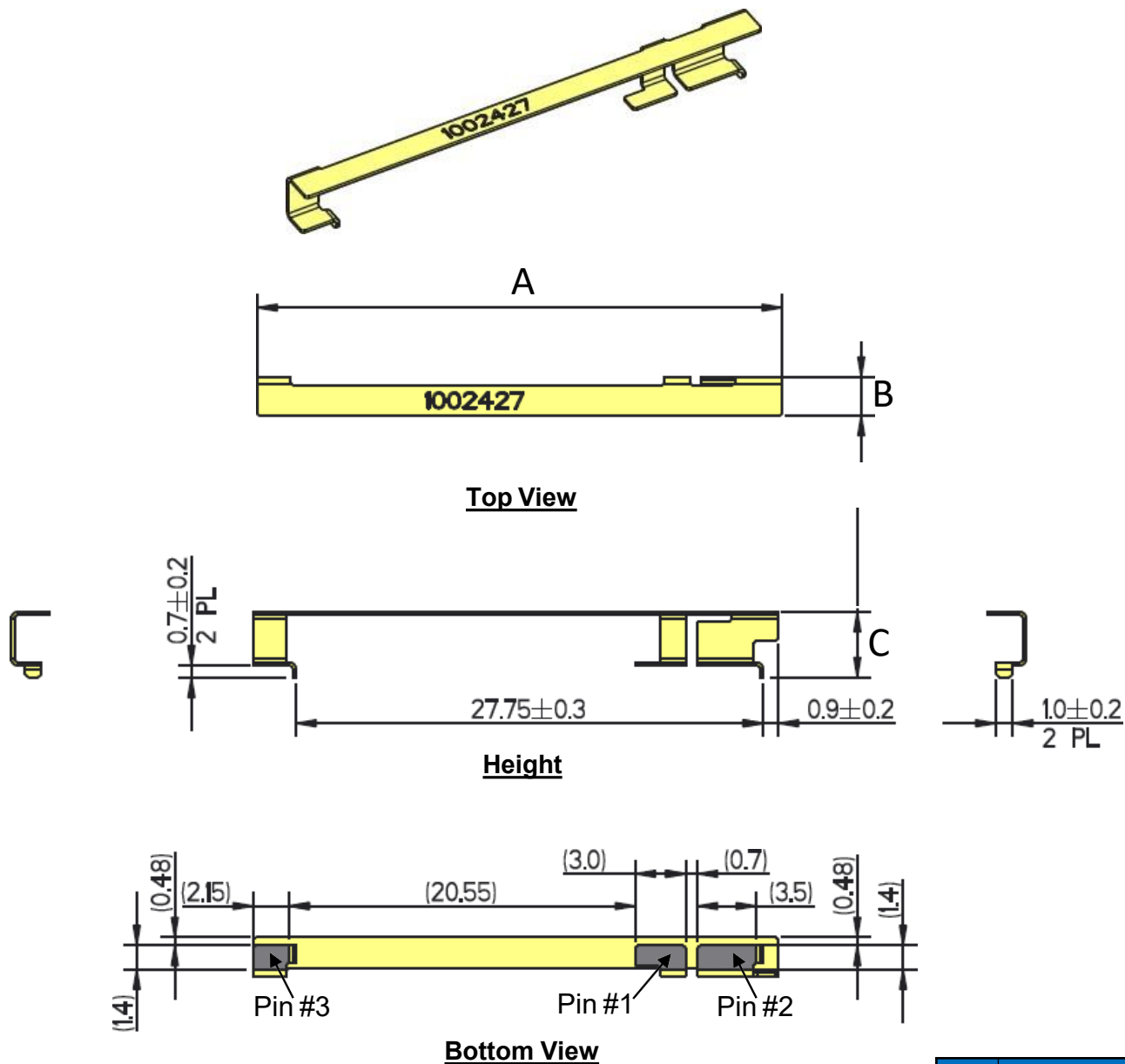
Ordering Part Number	1002427
Size (mm)	31.2 x 2.28 x 3.9
Weight (grams)	0.16
Mounting	SMT, Through-Hole, (P&P)
Packaging	Tape & Reel, 5,400 pieces per box, 1,800 per reel
Demo Board	1002427-01
Operation Temperature	-40 to +125°C
Storage Temperature	5 to 40°C @Humidity: 5% ~ 85%
Additional Resources	<a href="#">Download DXF, Gerber and 3D FIT Files</a>

ISM / GPS / BT Stamp Metal KYOCERA AVX Antenna Specifications  
 KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

**Antenna Dimensions (1002427)**

Typical antenna dimensions (mm)

Part Number	A (mm)	B (mm)	C (mm)
1002427	$31.2 \pm 0.3$	$2.28 \pm 0.3$	$3.9 \pm 0.4$



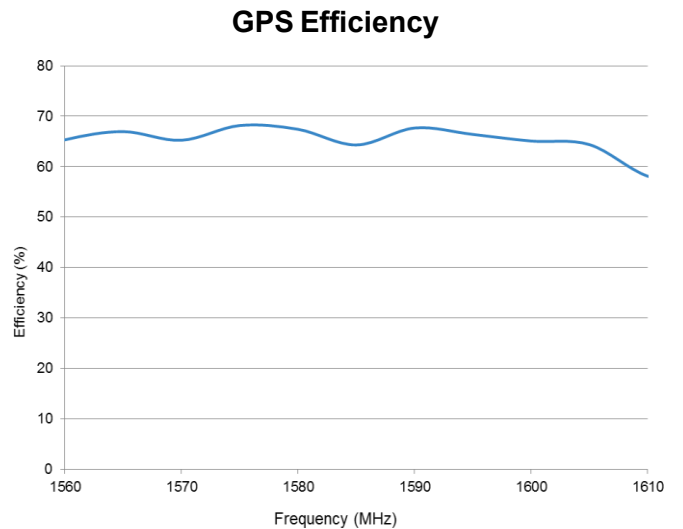
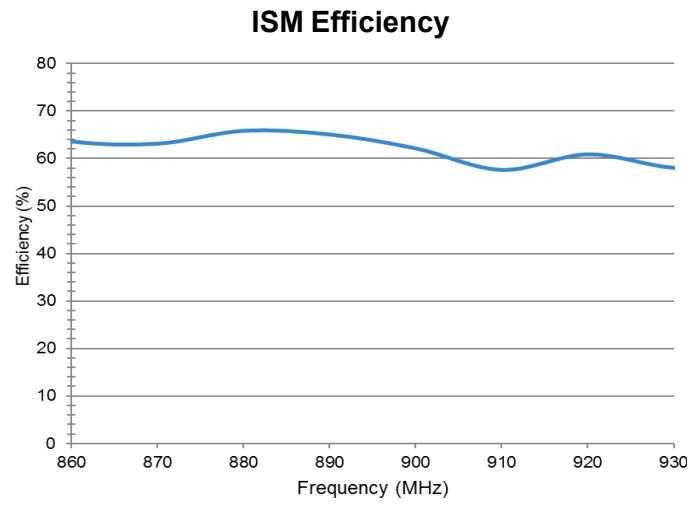
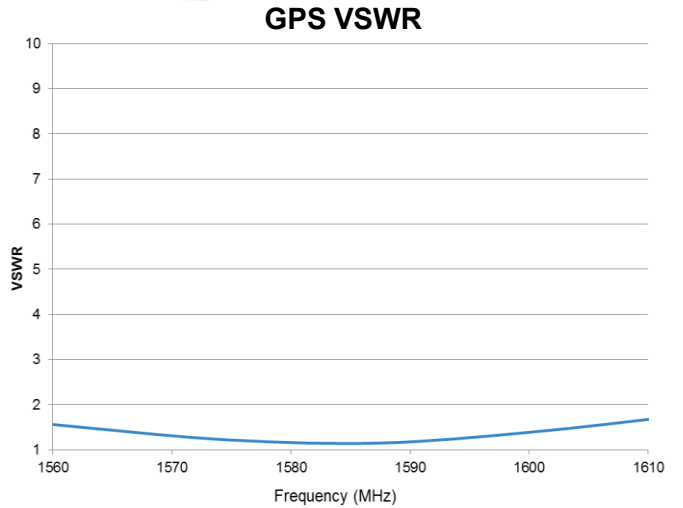
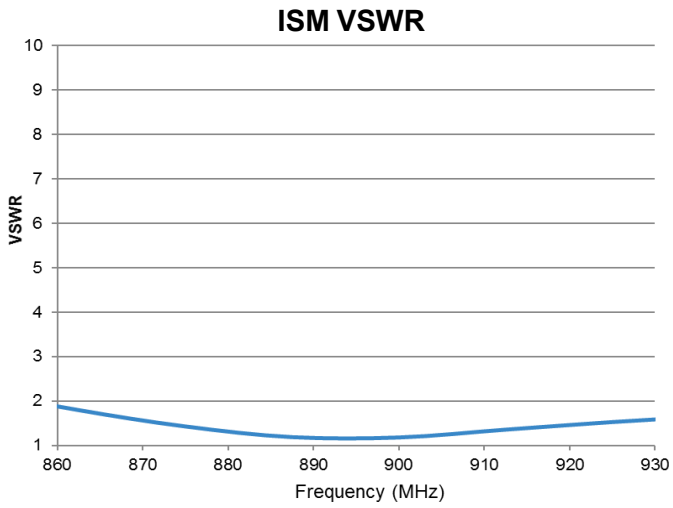
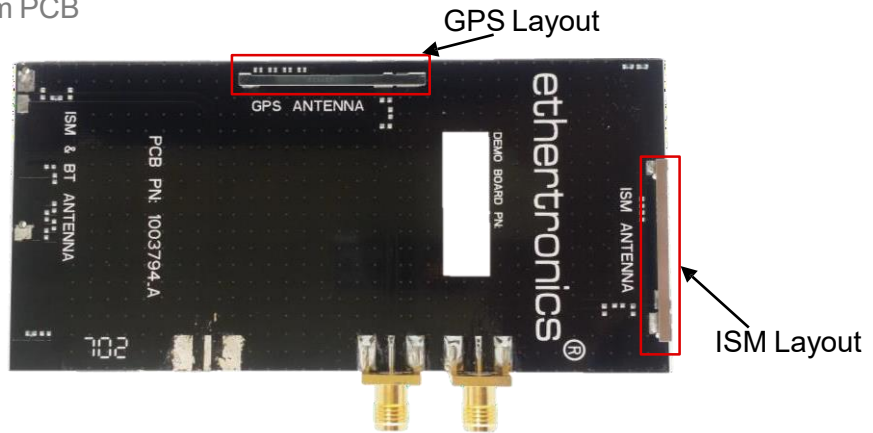
Pin#	Description
1	Feed
2	Ground
3	Dummy Pad

1002427 ISM or GPS layout performances (Single Band antenna)  
 KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

**VSWR and Efficiency Plots (ISM layout or GPS layout, Single Band antenna)**

Typical performance on 110 x 55 mm PCB

**Single Band antenna layout (ISM or GPS)**



Downloaded from [Arrow.com](http://Arrow.com)

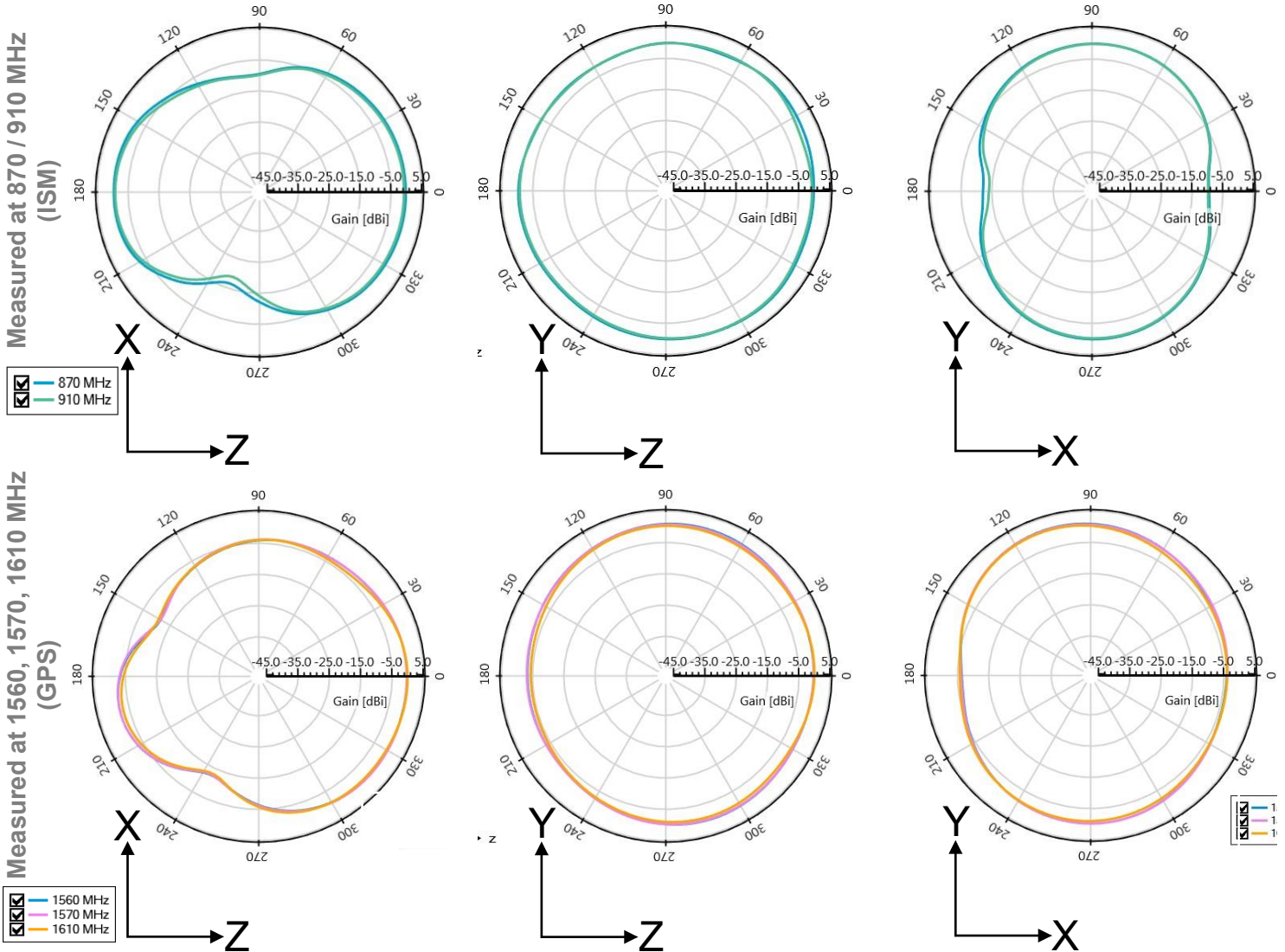
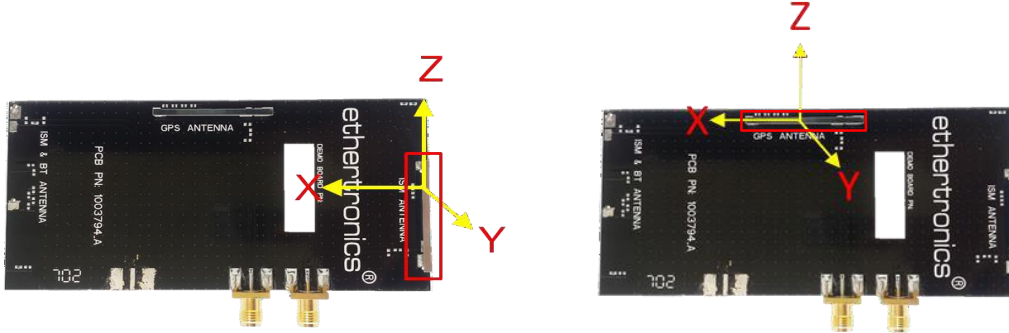
1002427 ISM or GPS layout performances (Single Band antenna)  
 KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

**Antenna Radiation Patterns (ISM layout or GPS layout, Single Band antenna)**

Typical performance on 110 x 55 mm PCB  
 Measured @ 870, 910, 1560, 1570, 1610 MHz

**Single Band antenna  
 (ISM Layout Orientation)**

**Single Band antenna  
 (GPS Layout Orientation)**

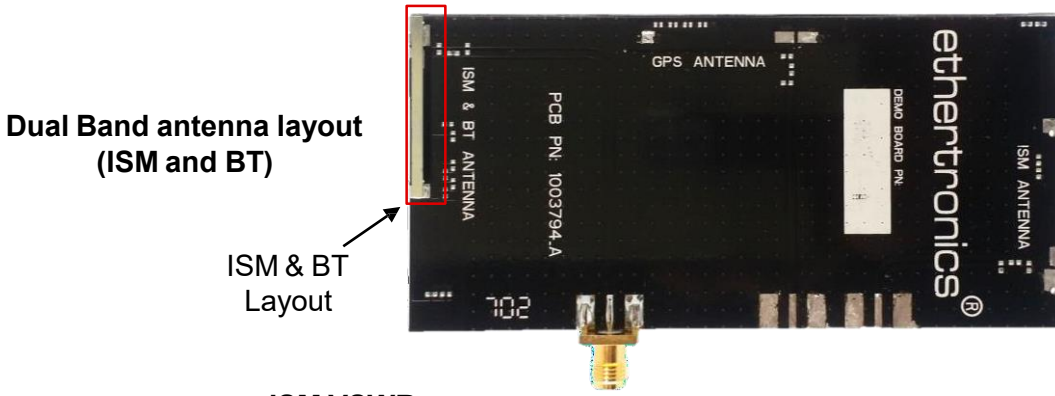


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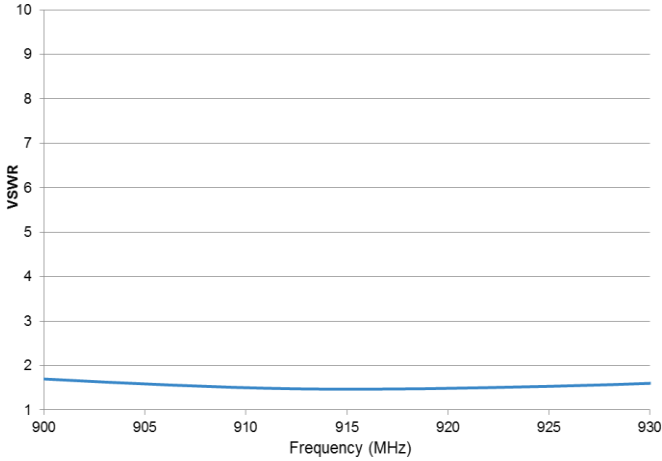
1002427 ISM & BT layout performances (Dual Band antenna)  
 KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

**VSWR and Efficiency Plots (ISM and BT layout, Dual Band antenna)**

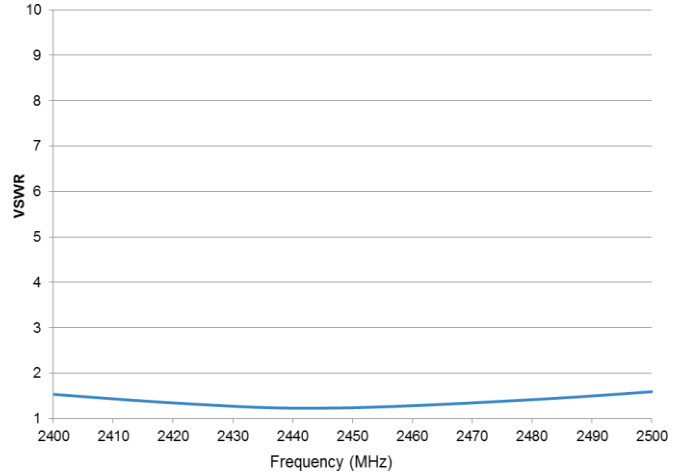
Typical performance on 110 x 55 mm PCB



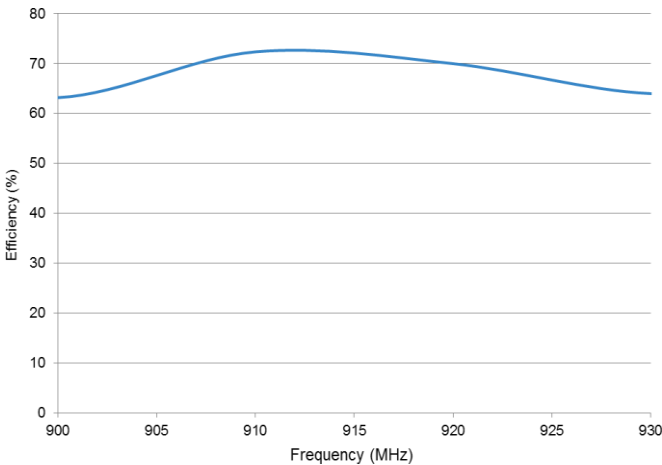
**ISM VSWR**



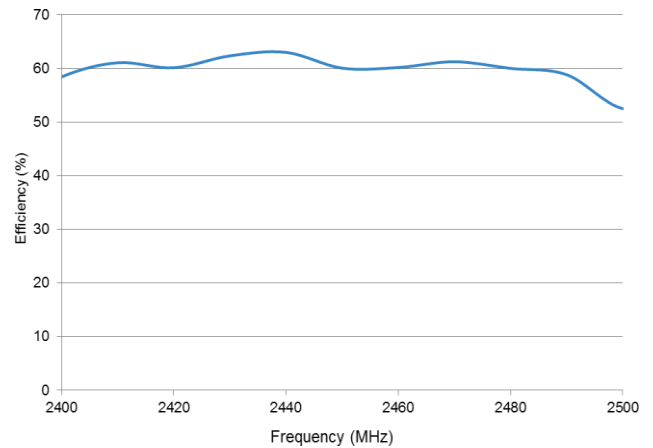
**BT VSWR**



**ISM Efficiency**



**BT Efficiency**

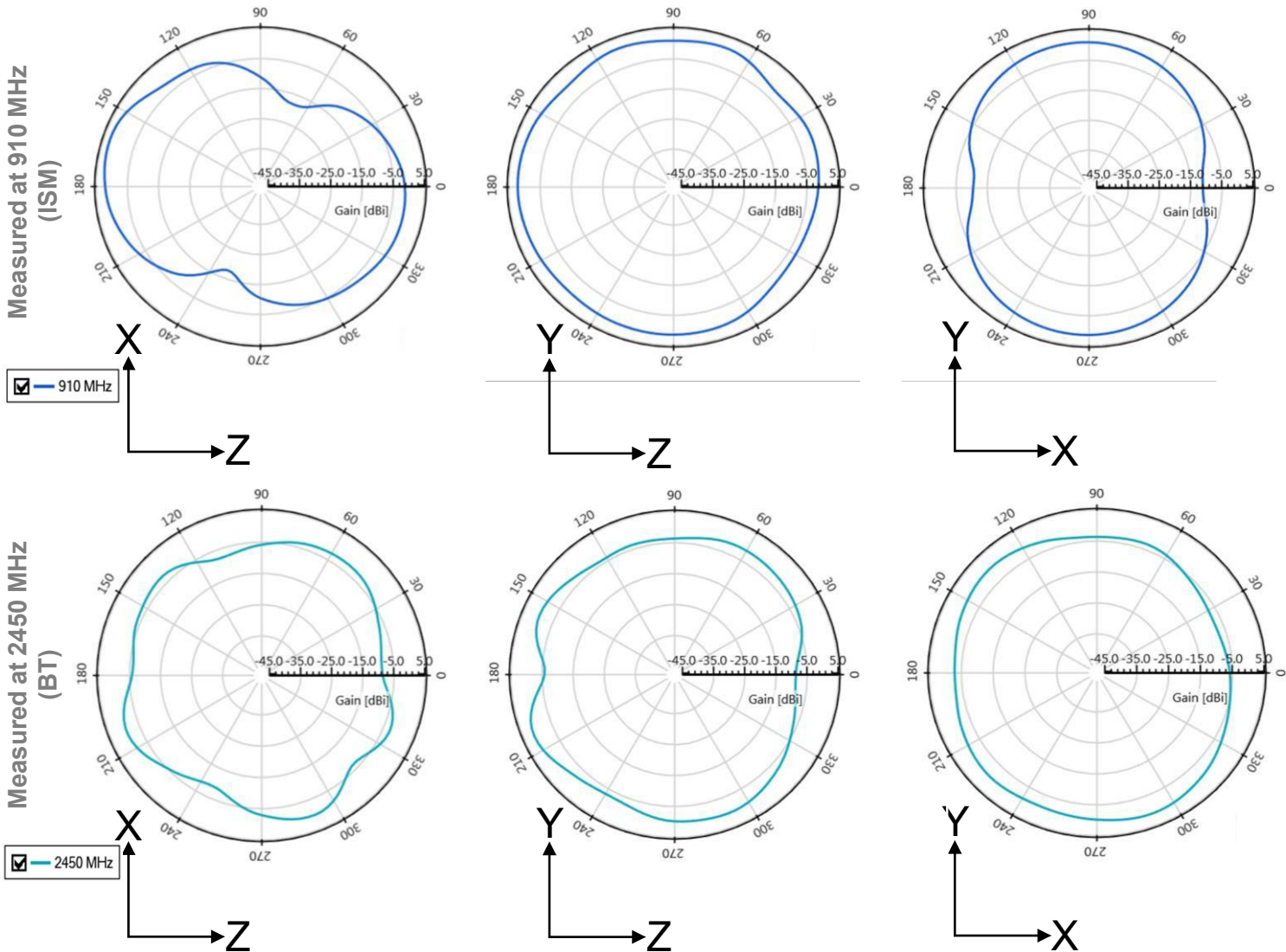
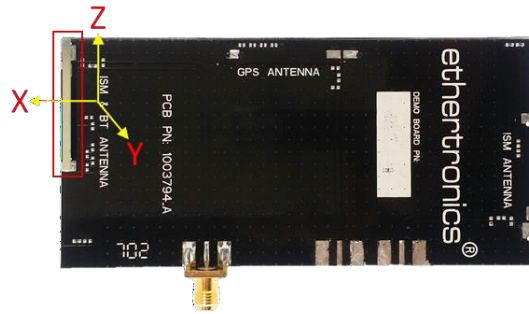


1002427 ISM & BT layout performances (Dual Band antenna)  
 KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

**Antenna Radiation Patterns (ISM & BT layout, Dual Band antenna)**

Typical performance on 110 x 55 mm PCB  
 Measured @ 910, 2450 MHz

**Dual Band antenna  
 (ISM & BT Layout Orientation)**

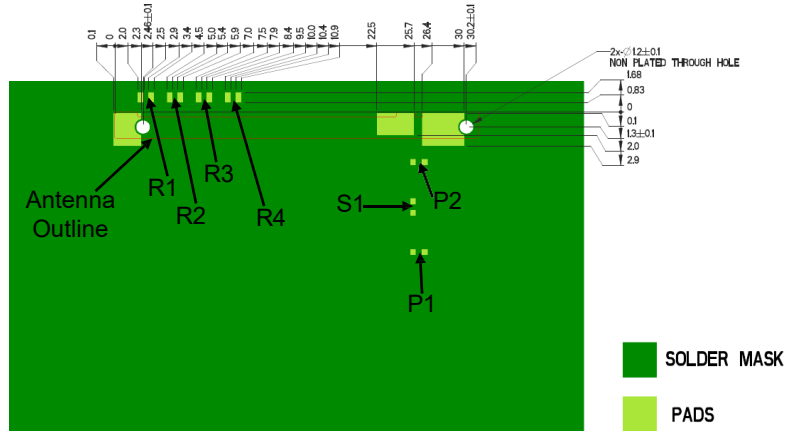
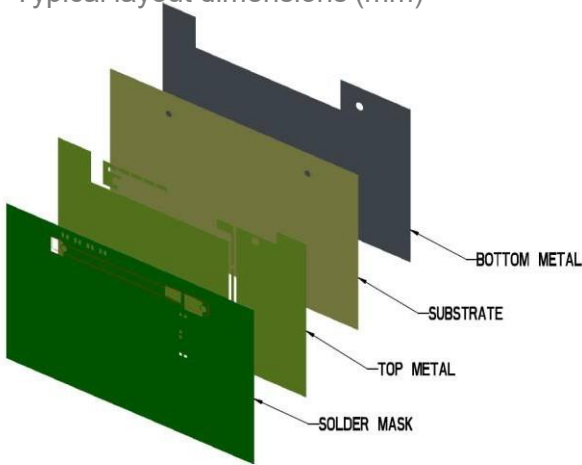


Downloaded from [Arrow.com](http://Arrow.com)

**ISM / GPS / BT Stamp Metal KYOCERA AVX Antenna Specifications (GPS Single Band antenna)**  
 KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

**Antenna Layout (GPS Layout ONLY)**

Typical layout dimensions (mm)



\* VIAS: Diam. 0.2mm, (no vias on transmission lines).  
 Via holes must be covered by solder mask

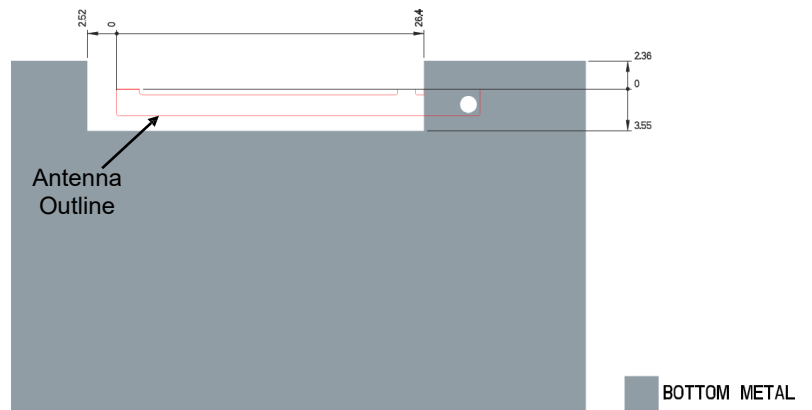
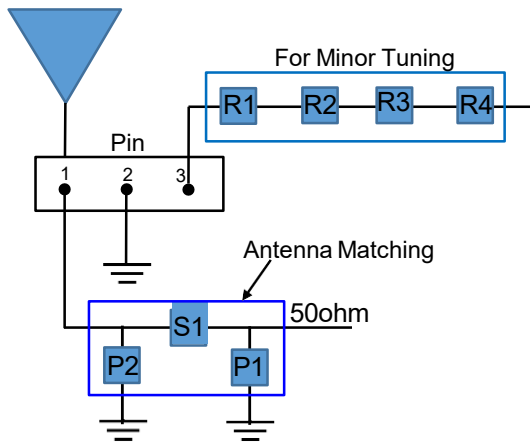
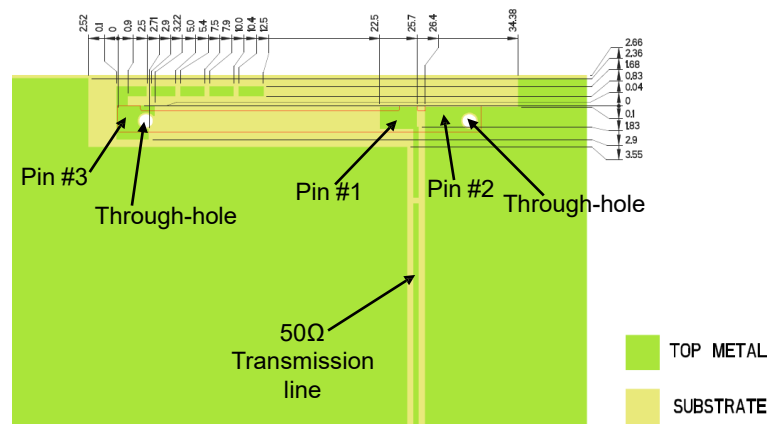
**Pin Descriptions**

Pin#	Description
1	Feed
2	Ground
3	Dummy Pad

**Matching & Tuning Component Values**

Component	Value	Tolerance
P1	DNI	N/A
S1	0Ω	N/A
P2	3.0pF	±0.05pF
R1 - R4	DNI	N/A

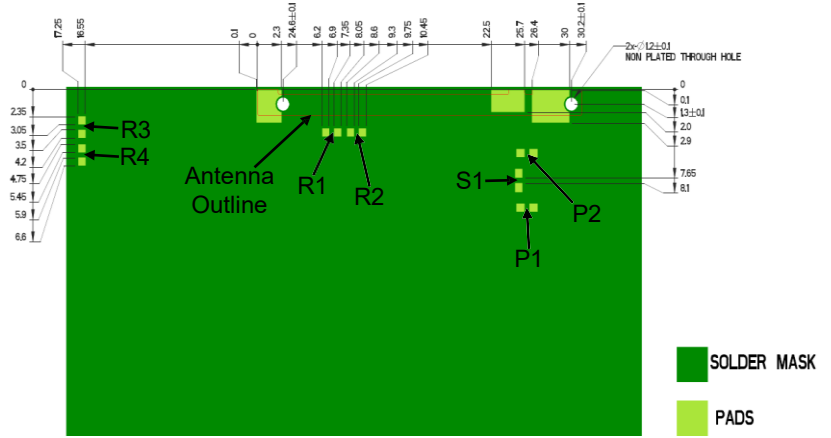
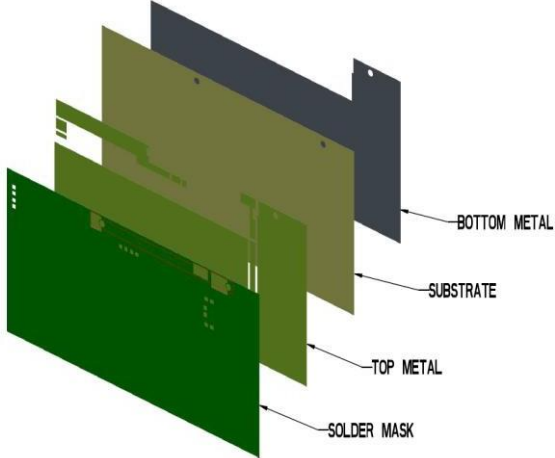
\*Actual matching values depend on customer design



ISM / GPS / BT Stamp Metal KYOCERA AVX Antenna Specifications (ISM Single Band antenna)  
 KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

### Antenna Layout (ISM Layout ONLY)

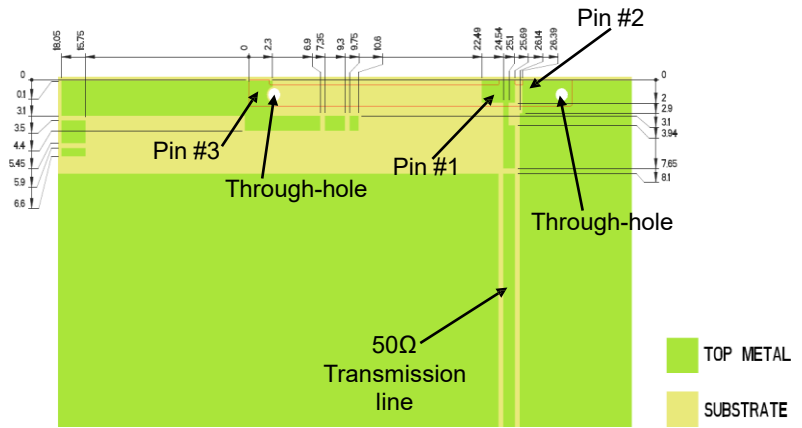
Typical layout dimensions (mm)



\* VIAS: Diam. 0.2mm, (no vias on transmission lines).  
 Via holes must be covered by solder mask

#### Pin Descriptions

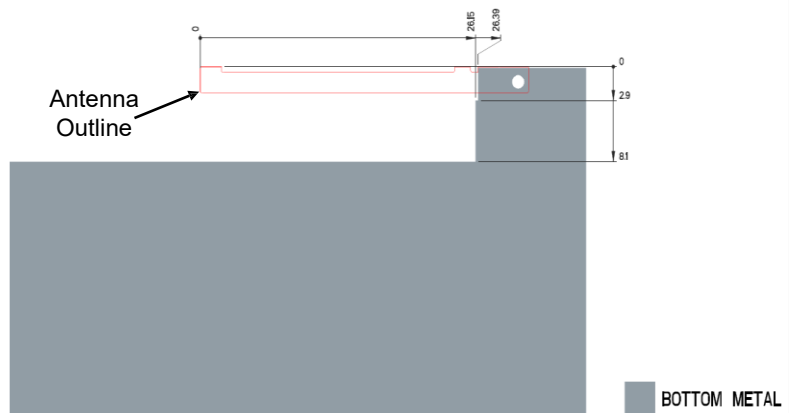
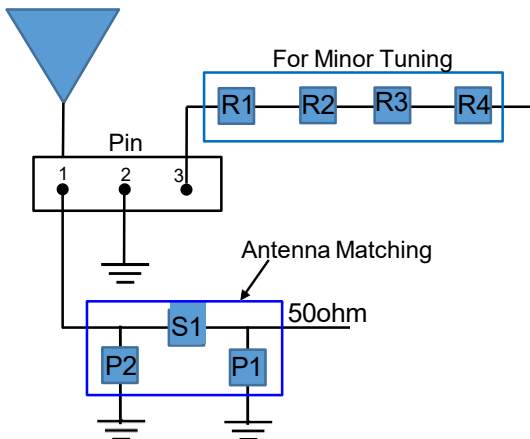
Pin#	Description
1	Feed
2	Ground
3	Dummy Pad



#### Matching & Tuning Component Values

Component	Value	Tolerance
P1	DNI	N/A
S1	5.6pF	±0.05pF
P2	1.8pF	±0.05pF
R1 - R4	0Ω	N/A

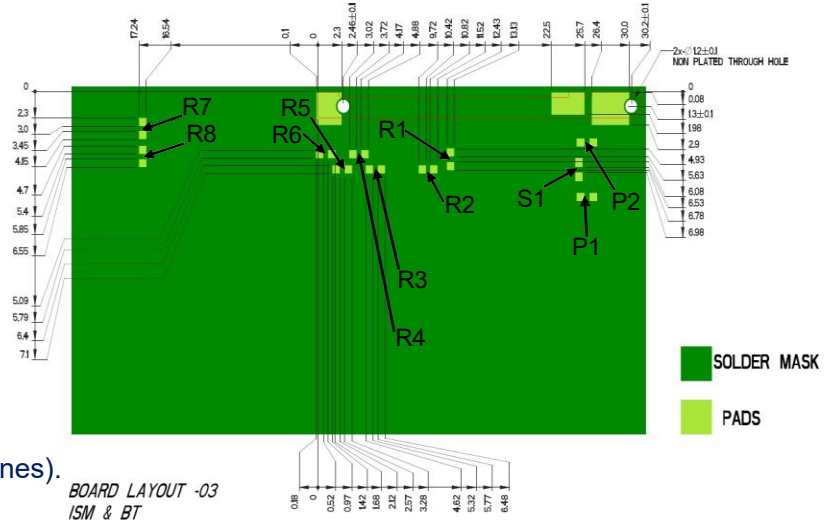
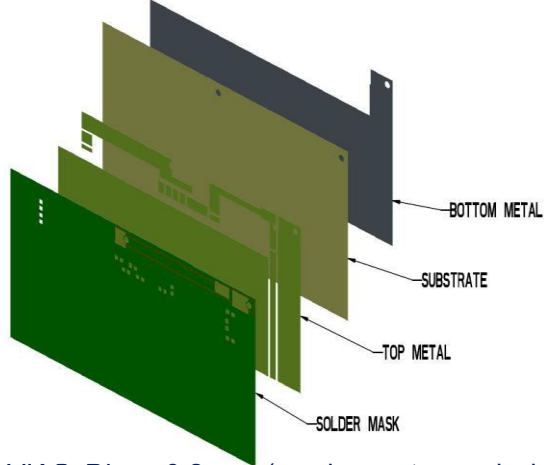
\*Actual matching values depend on customer design



ISM / GPS / BT Stamp Metal KYOCERA AVX Antenna Specifications (ISM & BT Dual Band antenna)  
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**Antenna Layout (ISM & BT Layout ONLY)**

Typical layout dimensions (mm)



\* VIAS: Diam. 0.2mm, (no vias on transmission lines).  
 Via holes must be covered by solder mask

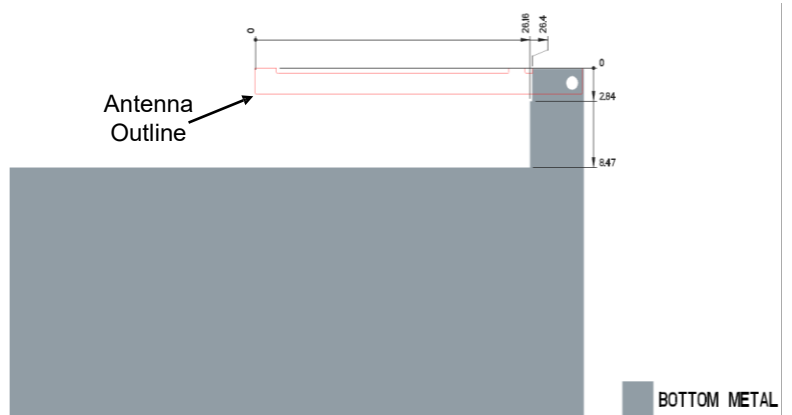
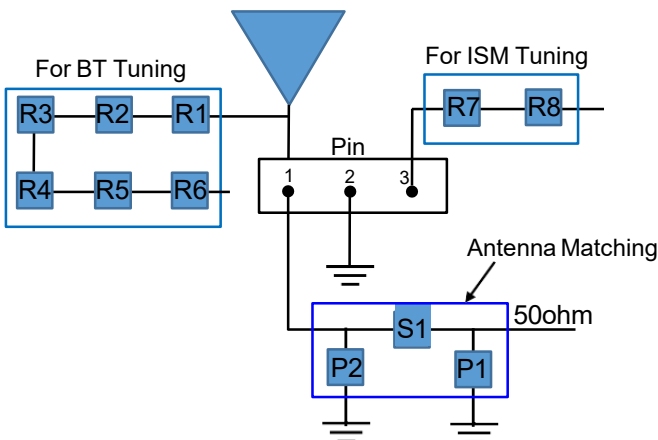
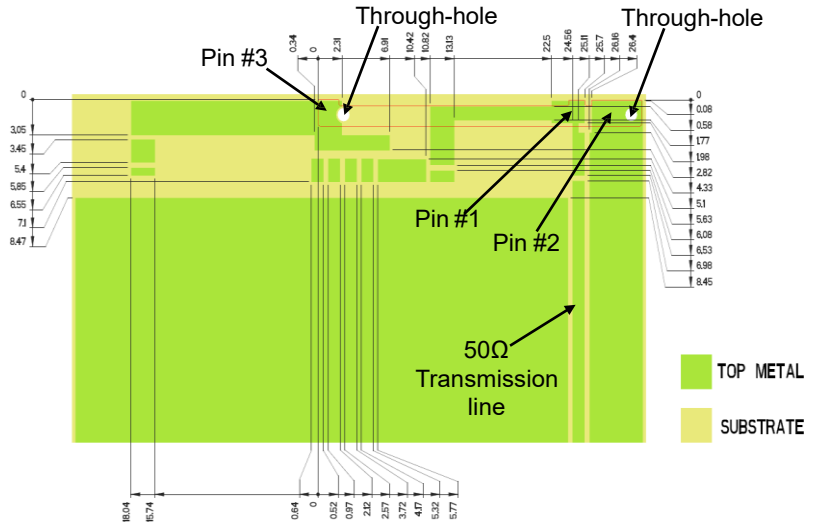
**Pin Descriptions**

Pin#	Description
1	Feed
2	Ground
3	Dummy Pad

**Matching & Tuning Component Values**

Component	Value	Tolerance
P1	DNI	N/A
S1	5.0pF	±0.05pF
P2	DNI	N/A
R1 – R8	DNI	N/A

\*Actual matching values depend on customer design

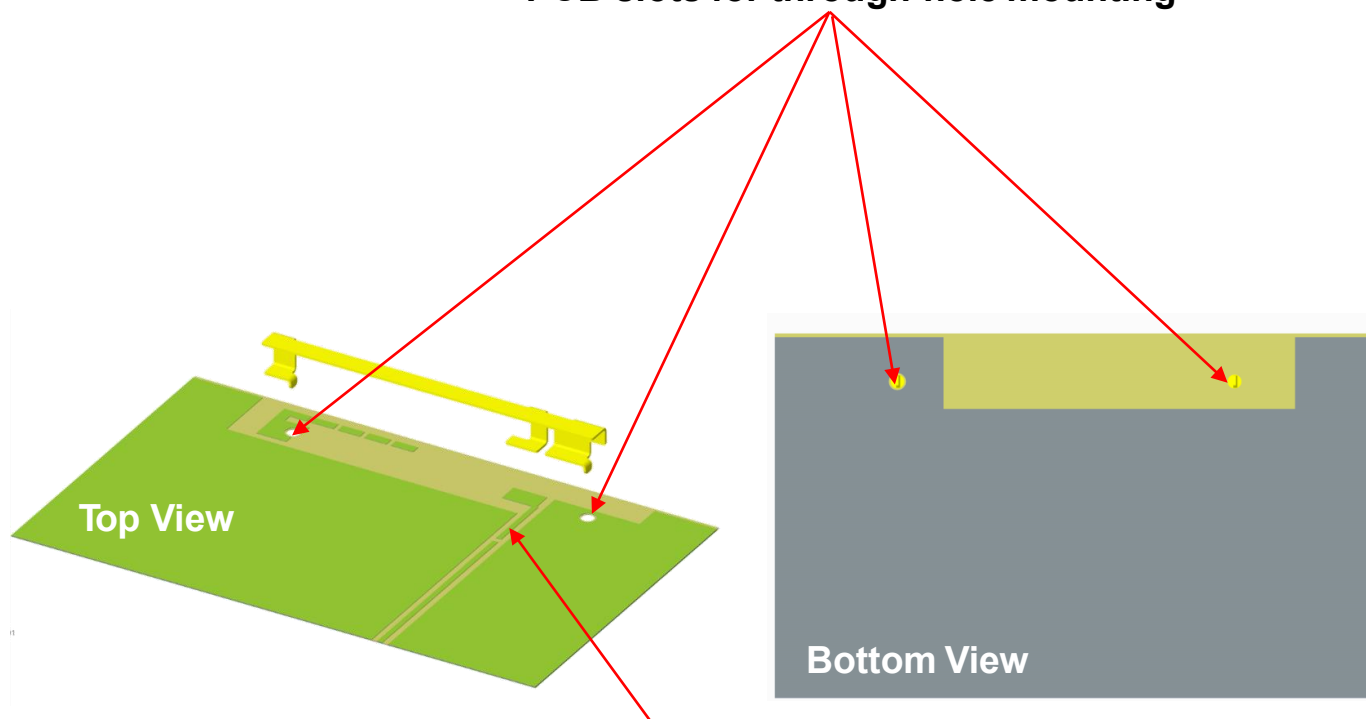


ISM / GPS / BT Stamp Metal KYOCERA AVX Antenna Specifications  
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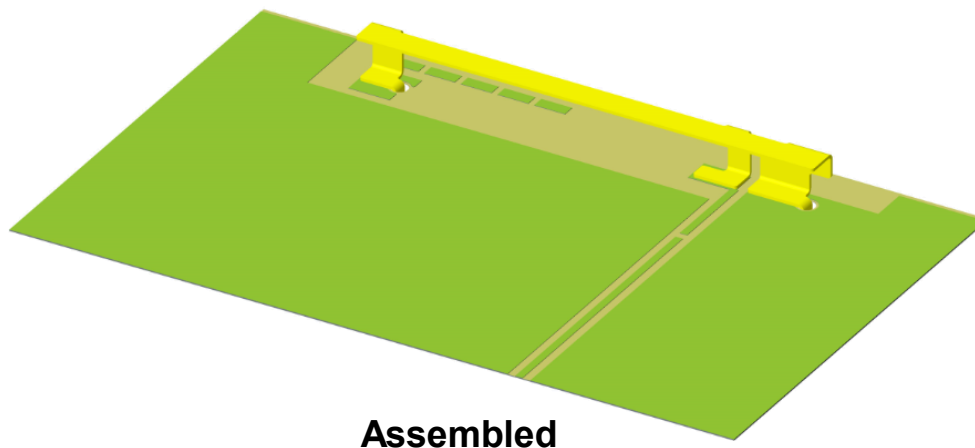
**Antenna Layout cont. (through hole mounting)**

Typical layout dimensions (mm)

**PCB slots for through-hole mounting**



**A 50 ohm transmission line needs to be designed and connected at this location**



**Assembled**

ISM / GPS / BT Stamp Metal KYOCERA AVX Antenna Specifications  
KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

### Additional Resources – 1002427 ISM Stamp Metal Embedded SMT Antenna

**3D FIT File:**

[https://www.kyocera-avx.com/download/antennas/ME-FIT/1002427\\_ME\\_fit.zip](https://www.kyocera-avx.com/download/antennas/ME-FIT/1002427_ME_fit.zip)

**Application Note:**

[https://www.kyocera-avx.com/docs/techinfo/ApplicationNotes/Antenna-AppNotes/AVX-E\\_AppNote-1002427.pdf](https://www.kyocera-avx.com/docs/techinfo/ApplicationNotes/Antenna-AppNotes/AVX-E_AppNote-1002427.pdf)

**DXF File:**

[https://www.kyocera-avx.com/download/antennas/3D-DXF/1002427-ISM\\_3D-DXF.zip](https://www.kyocera-avx.com/download/antennas/3D-DXF/1002427-ISM_3D-DXF.zip)

**Gerber File:**

[https://www.kyocera-avx.com/download/antennas/GERBER/1002427-ISM\\_GERBERS.zip](https://www.kyocera-avx.com/download/antennas/GERBER/1002427-ISM_GERBERS.zip)

**Simulation File:**

CST: [https://www.kyocera-avx.com/download/antennas/CST/1002427\\_\(Antenna&EVB\)\\_CST\\_05292024.zip](https://www.kyocera-avx.com/download/antennas/CST/1002427_(Antenna&EVB)_CST_05292024.zip)

### Additional Resources – 1002427 ISM & Bluetooth Stamp Metal Embedded SMT Antenna

**3D FIT File:**

[https://www.kyocera-avx.com/download/antennas/ME-FIT/1002427\\_ME\\_fit.zip](https://www.kyocera-avx.com/download/antennas/ME-FIT/1002427_ME_fit.zip)

**Application Note:**

[https://www.kyocera-avx.com/docs/techinfo/ApplicationNotes/Antenna-AppNotes/AVX-E\\_AppNote-1002427.pdf](https://www.kyocera-avx.com/docs/techinfo/ApplicationNotes/Antenna-AppNotes/AVX-E_AppNote-1002427.pdf)

**DXF File:**

[https://www.kyocera-avx.com/download/antennas/3D-DXF/1002427-ISM-BT\\_3D-DXF.zip](https://www.kyocera-avx.com/download/antennas/3D-DXF/1002427-ISM-BT_3D-DXF.zip)

**Gerber File:****Simulation File:**

CST: [https://www.kyocera-avx.com/download/antennas/CST/1001932FT\\_061224\\_CST-23r1.zip](https://www.kyocera-avx.com/download/antennas/CST/1001932FT_061224_CST-23r1.zip)

### Additional Resources – 1002427 GPS Stamp Metal Embedded SMT Antenna

**3D FIT File:**

[https://www.kyocera-avx.com/download/antennas/ME-FIT/1002427\\_ME\\_fit.zip](https://www.kyocera-avx.com/download/antennas/ME-FIT/1002427_ME_fit.zip)

**Application Note:**

[https://www.kyocera-avx.com/docs/techinfo/ApplicationNotes/Antenna-AppNotes/AVX-E\\_AppNote-1002427.pdf](https://www.kyocera-avx.com/docs/techinfo/ApplicationNotes/Antenna-AppNotes/AVX-E_AppNote-1002427.pdf)

**DXF File:**

[https://www.kyocera-avx.com/download/antennas/3D-DXF/1002427-GPS\\_3D-DXF.zip](https://www.kyocera-avx.com/download/antennas/3D-DXF/1002427-GPS_3D-DXF.zip)

**Gerber File:**

[https://www.kyocera-avx.com/download/antennas/GERBER/1002427-GPS\\_GERBERS.zip](https://www.kyocera-avx.com/download/antennas/GERBER/1002427-GPS_GERBERS.zip)

**Simulation File:**

CST: [https://www.kyocera-avx.com/download/antennas/CST/1002427\\_\(Antenna&EVB\)\\_CST\\_05292024.zip](https://www.kyocera-avx.com/download/antennas/CST/1002427_(Antenna&EVB)_CST_05292024.zip)