Part No. 1000424

On Ground BT / Wi-Fi Dual Band Stamped Metal Antenna

2.4 / 4.9 / 5.2 / 5.8 GHz (802.11 a/b/g/n/c + Japan)

Supports: Wi-Fi applications, Agriculture, Bluetooth, Zigbee, WLAN, Smart Home, Healthcare, Digital Signage

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2.4 GHz; 5 GHz

KEY BENEFITS

Stay-in-Tune

KYOCERA AVX 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

Comply with latest RoHS requirements

APPLICATIONS

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

KYOCERA AVX WLAN antennas deliver on the key needs of device designers for higher functionality and performance in smaller/thinner designs. This innovative antenna provides outstanding performance for 2.4 GHz and 5 GHz over metal surfaces, as it is designed to be on ground.

Real-World Performance and Implementation

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 or changing performance with use position. KYOCERA AVX's antennas utilize patented Isolated Magnetic Dipole (IMD) combined with a PIFA structure to deliver a unique size and performance combination.

Electrical Specifications

Typical Performance using 1000423 Demo Board with 100mm test cable in Free-space.

Frequency	2400 – 2485 MHz	4900 – 5825 MHz
Peak Gain	0.6 dBi	4.5 dBi
Average Efficiency	57%	75%
VSWR Match	2.5:1 max	
Feed Point Impedance	50 ohms unbalanced	
Polarization	Linear	
Operation Temperature	-40 to +85 °C	
Power Handling	2 Watt CW	

Mechanical Specifications & Ordering Part Number

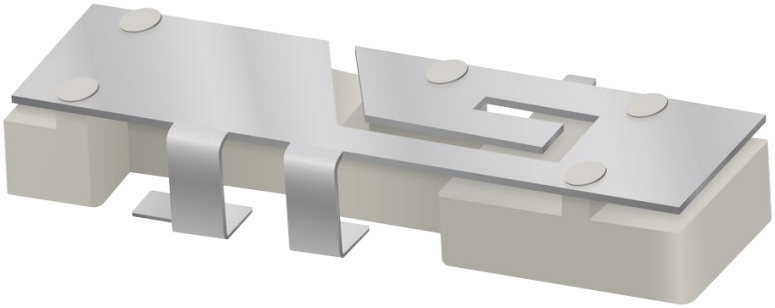
Ordering Part Number	1000424
Size (mm)	26.60 x 5.24 x 7.05
Weight (grams)	1.6
Mounting	SMT
Packaging	Tape & Reel
Storage Temperature (°C)	-40 to +85
Demo Board	1000423

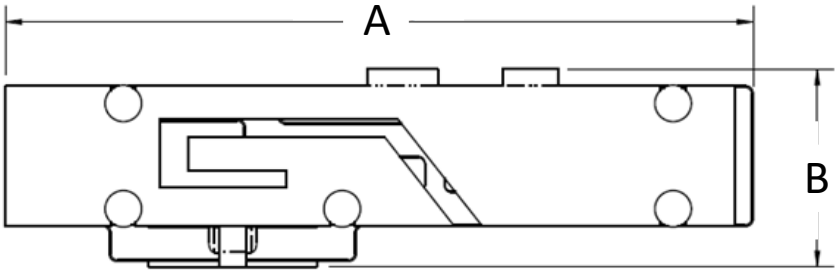
On Ground BT / Wi-Fi Dual Band Stamped Metal KYOCERA AVX Embedded Antenna Specifications
KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

Antenna Dimensions

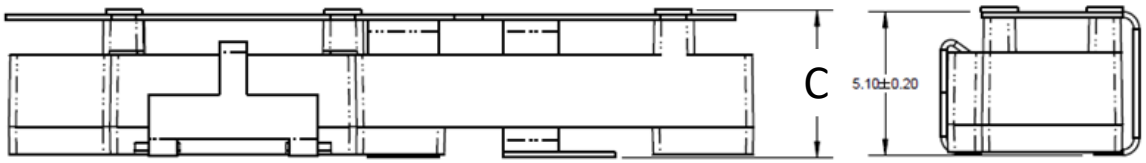
Typical antenna dimensions measured in mm.
Dimensions in () parenthesis are Reference Only.

Part Number	A	B	C
1000424	26.60 ± 0.20	(7.05)	(5.24)

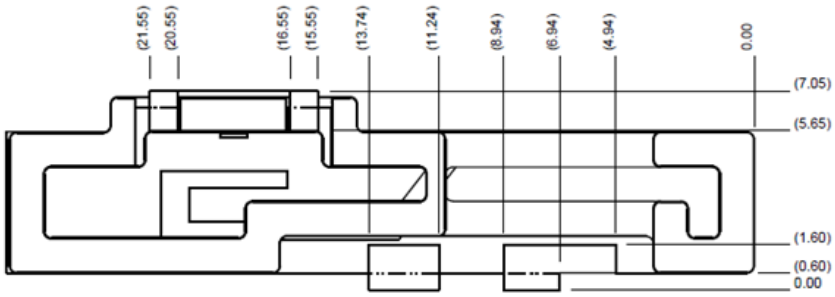




Top View



Side View



Bottom View

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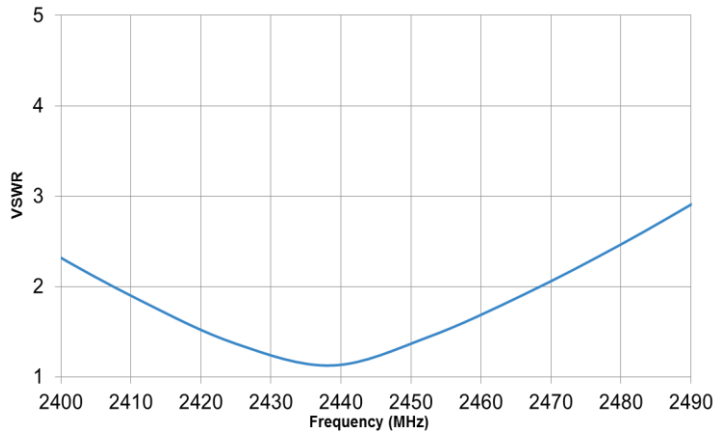
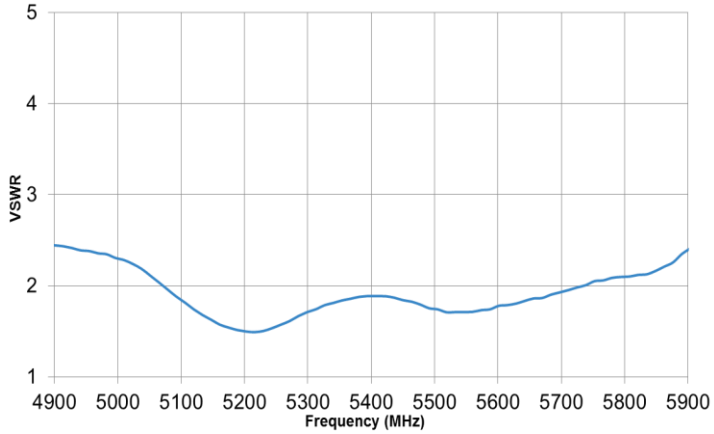
VSWR, Efficiency and Peak Gain Plots

Typical Performance using 1000423 Demo Board with 100 mm test cable in Free-space.

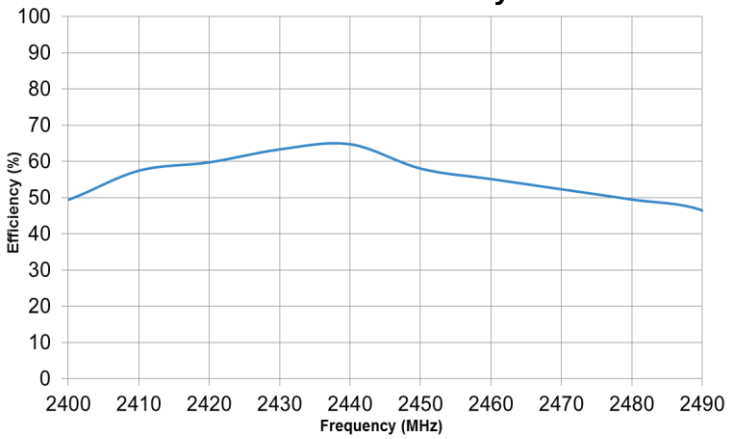
2.4 GHz VSWR



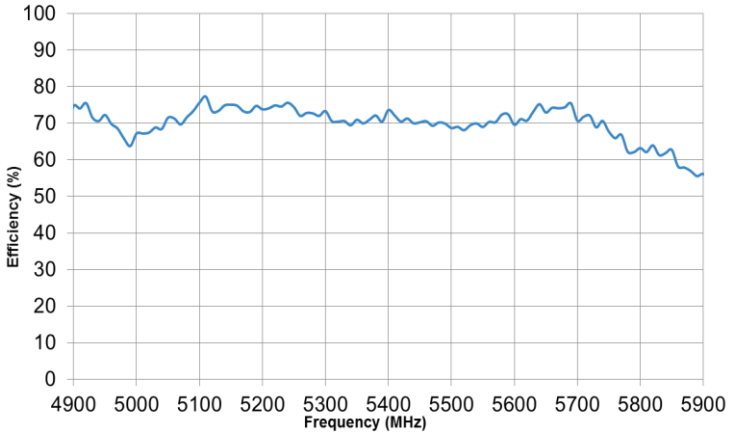
5 GHz VSWR



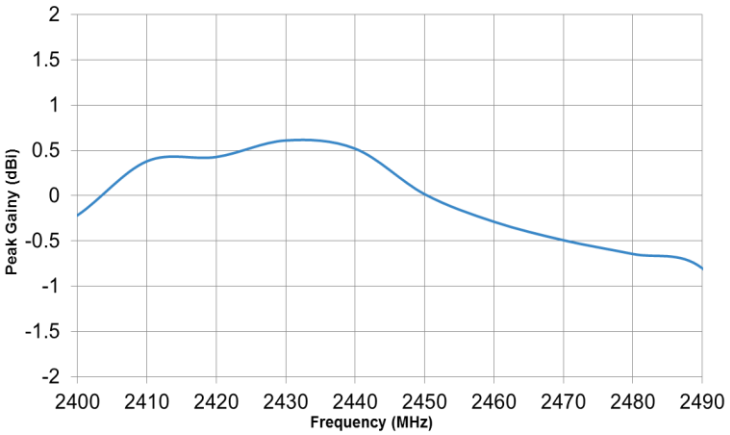
2.4 GHz Efficiency



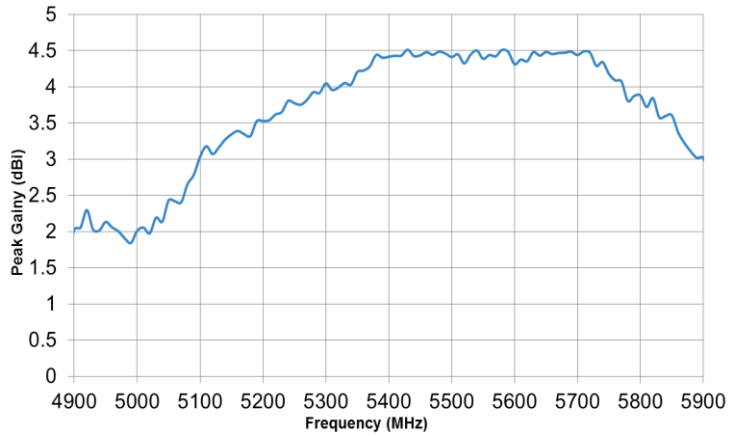
5 GHz Efficiency



2.4 GHz Peak Gain



5 GHz Peak Gain



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Peak Gain Data (2.4 GHz & 5 GHz)

Typical Performance using 1000423 Demo board with 100 mm test cable in Free-space.

Frequency (MHz)	Peak Gain (2400 - 2485 MHz)
2400	-0.216881401
2410	0.379225568
2420	0.426625926
2430	0.609200053
2440	0.518253236
2450	0.015778613
2460	-0.288999523
2470	-0.492501086
2480	-0.644476279
2490	-0.802073729

Frequency (MHz)	Peak Gain (4900 - 5825 MHz)
4900	2.026889415
4910	2.052869239
4920	2.297410665
4930	2.026052559
4940	2.015495394
4950	2.133464749
4960	2.059126015
4970	2.004691122
4980	1.909319887
4990	1.842342736
5000	2.009193148
5010	2.055427488
5020	1.975665839
5030	2.19190427
5040	2.137972795
5050	2.43065023
5060	2.418750072
5070	2.405186455
5080	2.654227918
5090	2.784781508
5100	3.032284913
5110	3.179591947
5120	3.071104319
5130	3.164906547
5140	3.274098013
5150	3.344801762
5160	3.392270861
5170	3.346795486
5180	3.321070412
5190	3.524740428
5200	3.529587771
5210	3.539375239
5220	3.619021104
5230	3.65334765
5240	3.806128393
5250	3.775176381
5260	3.75296785
5270	3.821044541
5280	3.92644379
5290	3.916222552
5300	4.04911316
5310	3.956828811
5320	3.992502068
5330	4.053946453
5340	4.032265804
5350	4.206101274
5360	4.22645108
5370	4.285563871
5380	4.44282844
5390	4.402828674
5400	4.416813832
5410	4.430367561
5420	4.432564423
5430	4.514615307
5440	4.426340728
5450	4.43649872
5460	4.479079678
5470	4.444790233
5480	4.487185247
5490	4.462317851
5500	4.412593093
5510	4.450596467
5520	4.32503557
5530	4.443827081
5540	4.503414861
5550	4.388159213
5560	4.441143159
5570	4.423576137
5580	4.511690605
5590	4.482948152
5600	4.314066614
5610	4.378100291
5620	4.355424139
5630	4.482305401
5640	4.432848576
5650	4.483063475
5660	4.453902502
5670	4.46945411
5680	4.472194556
5690	4.486841666
5700	4.441216303
5710	4.490023313
5720	4.473085385
5730	4.290837561
5740	4.343336312
5750	4.179666899
5760	4.090898468
5770	4.07507582
5780	3.805734575
5790	3.873365002
5800	3.882433096
5810	3.721868119
5820	3.844102561
5830	3.577855

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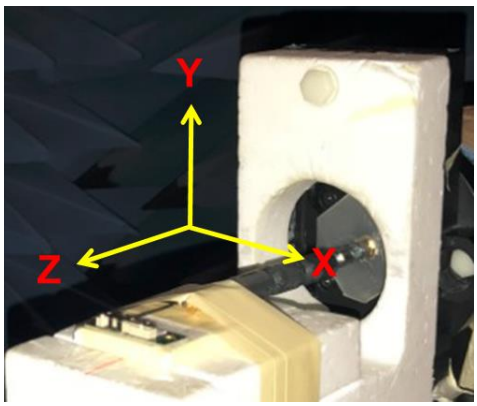
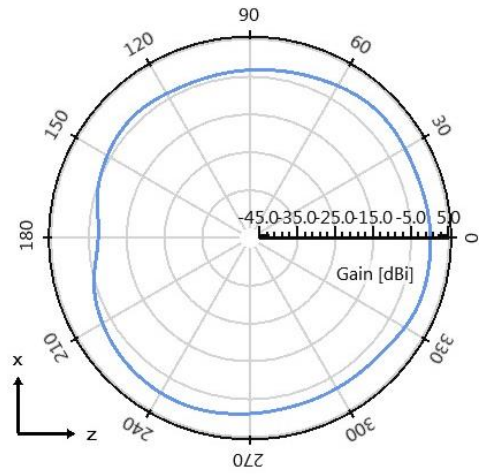
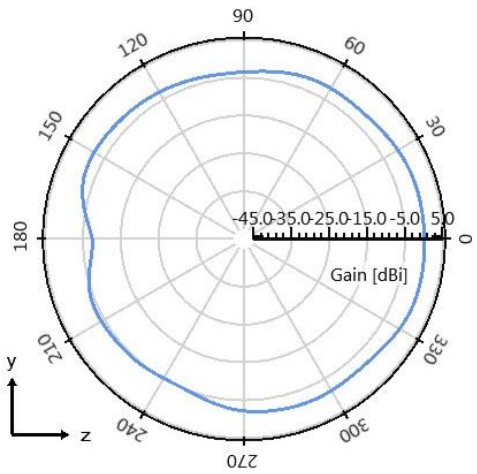
Antenna Radiation Patterns

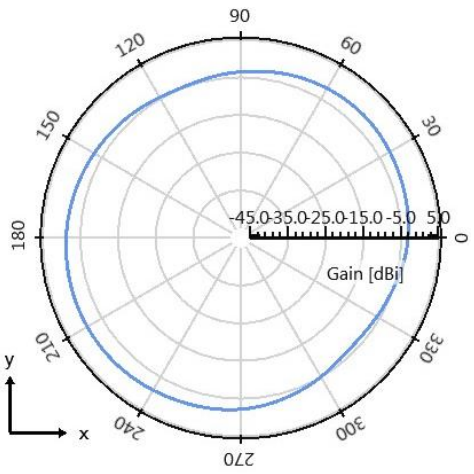
Typical Performance using 1000423 Demo board with 100 mm test cable in Free-space.
Measured @ 2440 MHz, 5000 MHz



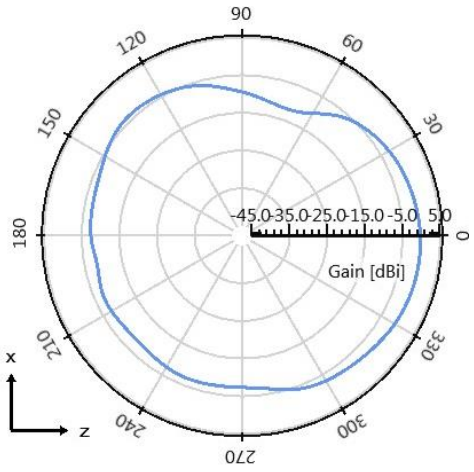
Measured @ 2440 MHz

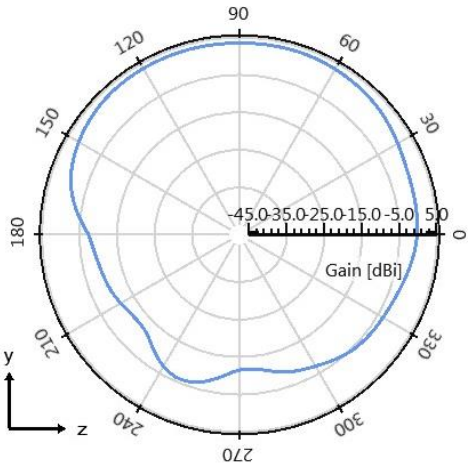


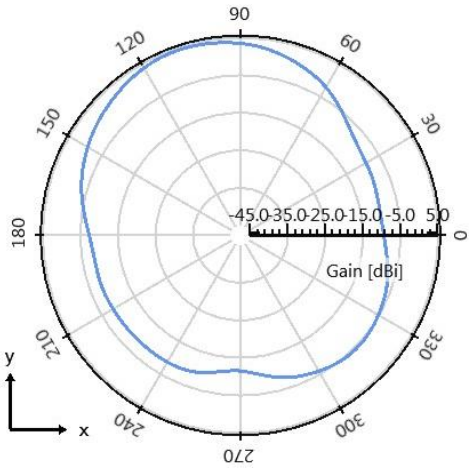




Measured @ 5000 MHz







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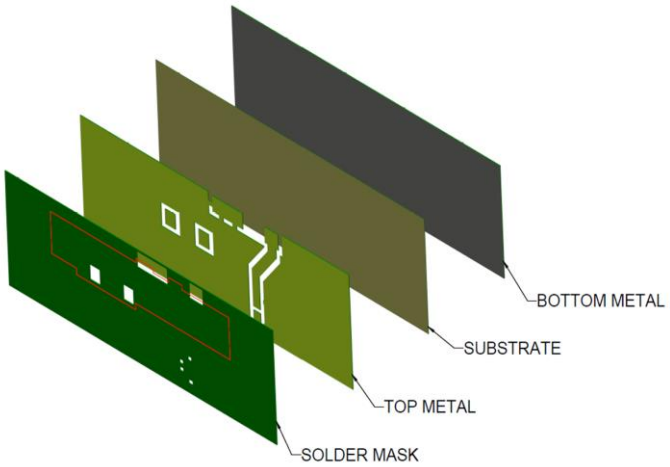
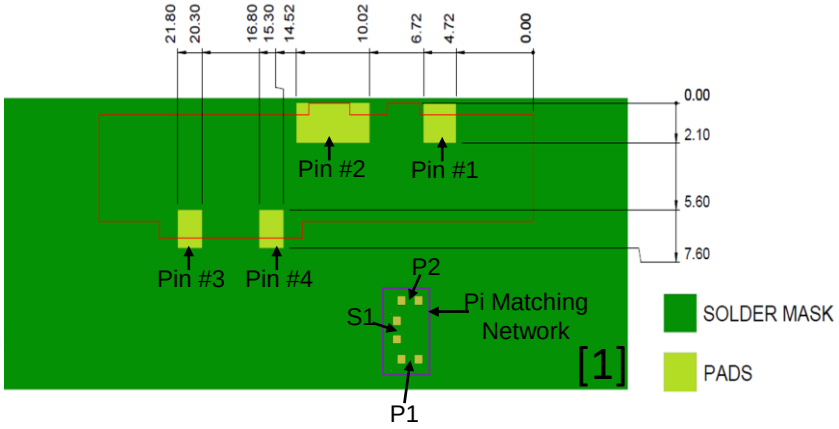
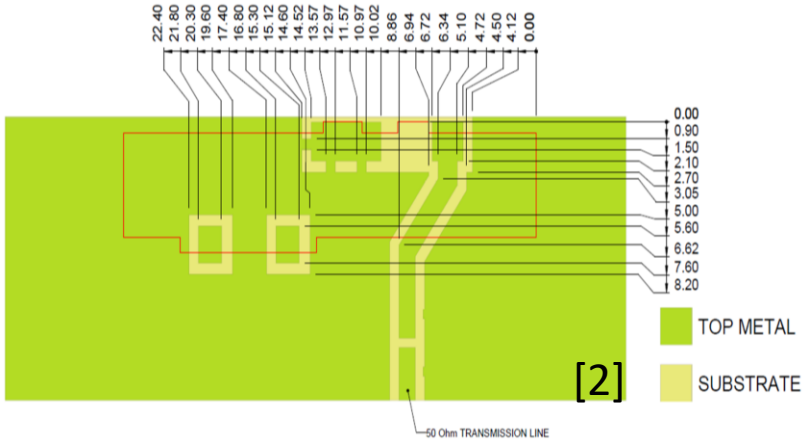
Antenna Layout (1000424)

Typical layout dimensions (mm)







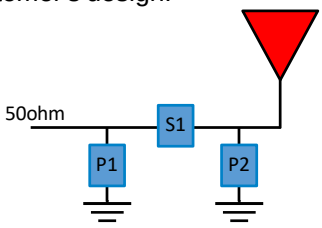
Pin Descriptions

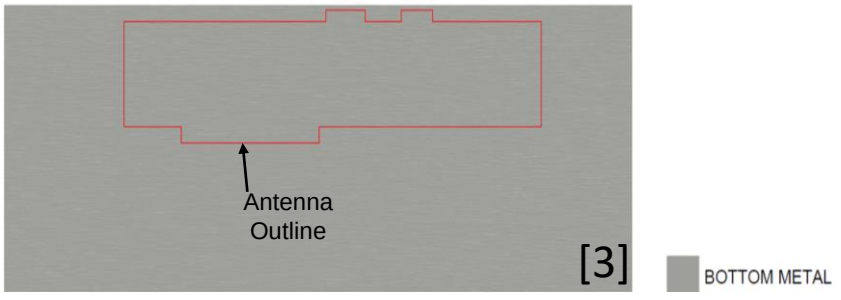
Pin#	Description
1	Feed
2	Ground
3	Dummy Pad
4	Dummy Pad

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's design.





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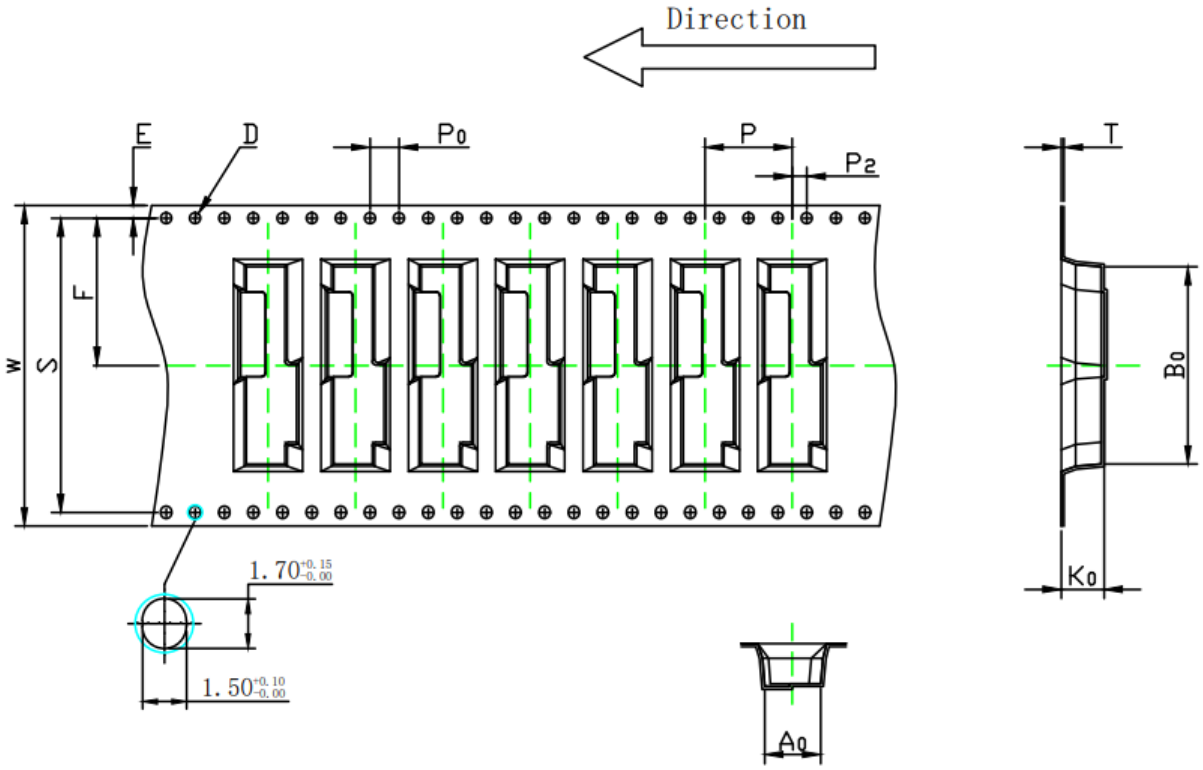
Tape and Reel Specifications



Notes.

1. The cumulative allowable tolerance of the distance between ten round holes is ± 0.20mm
2. The allowable bending of 250mm tape is 1mm : if the tape is straightened, and I guess the bending cannot be controlled within 1mm. 3. Ao/Bo dimension is defined by 0.30mm high at the bottom of the groove
4. Ko dimension is defined from the inner surface of the groove bottom to the upper surface of the molding
5. All dimensions are defined to EIA-481-C standard measurement definition
6. Material: black PS material
7. Material thickness: 0.40 ± 0.05mm
8. 13 "reel length: 10.20 Meter
9. 13 "number of pieces per reel : 800 psc (pcs?)
10. The unspecified draft angle is 5 °
11. The codes for key inspection dimension : W, Po, P, P2, E, F, T, Ao, Bo, Ko

W	44.00 +0.30 −0.30	P	12.00 ±0.10	A_0	7.70 ±0.10	B_0	27.10 ±0.10
S	40.40 ±0.10	P_0	4.00 ±0.10	A_1	±0.10	B_1	±0.10
E	1.75 ±0.10	P_2	2.00 ±0.10	A_2	±0.10	B_2	±0.10
F	20.20 ±0.10	D_0	φ1.50 +0.10 −0.00	K_0	5.90 ±0.10		
T	0.40 +0.05 −0.05	D_1	φ2.00 +0.10 −0.00	K_1	±0.10		

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SMT Manufacturing and Assembly Guidelines

KYOCERA AVX's antennas are designed for high volume board assembly. Because different product designs use different numbers and types of devices, solder paste, and circuit boards, no single manufacturing process is best for all PCBs. The following recommendations have been determined by KYOCERA AVX, based on successful manufacturing processes.

These antennas are designed for automated pick and place surface mounting. However, as with any SMT device, KYOCERA AVX antennas can be damaged by the use of excessive force during the handling or mounting operation.

Paste Stencil Recommendation

KYOCERA AVX recommends the paste stencil thickness of 0.1 mm and according to the latest revision of the IPC-7525 Stencil Design Guidelines.

SMT Reflow Recommendation

The recommended method for soldering the antenna to the board is forced convection reflow soldering. Please refer to the latest IPC/JEDEC J-STD-020 standard for the optimal SMT Reflow Temperature profile to use.

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