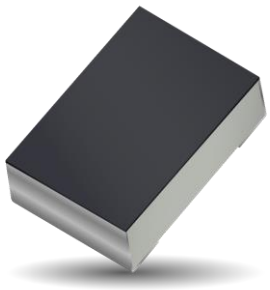
Part No. 9002133
ISM Chip Antenna
868 MHz & 915 MHz
Supports: ISM, LoRa



This ultra-small chip antenna designed for ISM applications exhibits the high efficiency in a small footprint and delivers the key needs to the device engineers for the higher functionality and better performance in a smaller and thinner designs. It covers 868 MHz or 915 MHz thanks to its tuning capability.

For further optimization to custom design and for support to integrate and test this antenna performance in your device, contact our Customer Support Team.

ISM Chip Antenna:

863 - 870 MHz

902 - 928 MHz

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.

Environmental Compliance
Comply with latest RoHS requirements

APPLICATIONS

- Embedded design
- Cellular, Headsets, Tablets
- Wearables
- Handheld
- IoT
- Smart home
- Telematics
- Tracking
- Healthcare (FDA Class I)
- M2M, Industrial devices

Electrical Specifications

Typical performance on 100 x 40 mm PCB

Frequency (MHz)	863 – 870	902 – 928
Peak Gain	0.5 dBi	1.2 dBi
Average Efficiency	53%	62%
VSWR	< 2.32:1	< 2.34:1
Feed Point Impedance	50 ohms unbalanced	
Polarization	Linear	
Power Handling	0.5 Watt CW	

Mechanical Specifications & Ordering Part Number

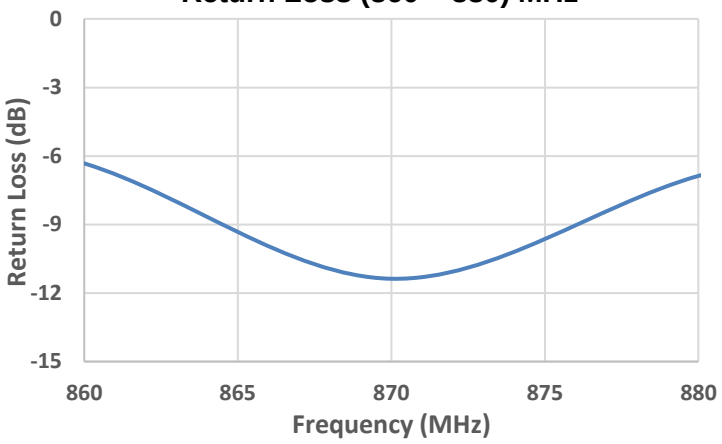
Ordering Part Number	9002133
Size (mm)	1.00 x 0.55 x 0.40
Mounting	Surface mounted to the PCB (SMT)
Weight (grams)	< 0.001
Packaging	Tape & Reel 9002133 – 5,000 pieces per reel
Demo Board	9002133-02 (for 868 MHz)
Operational Temperature Range	-55 °C to +125 °C
Storage Temperature / Humidity Condition	15 °C to +35 °C / ≤ 65%

KYOCERA AVX Embedded ISM Chip Antenna Specification
KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs

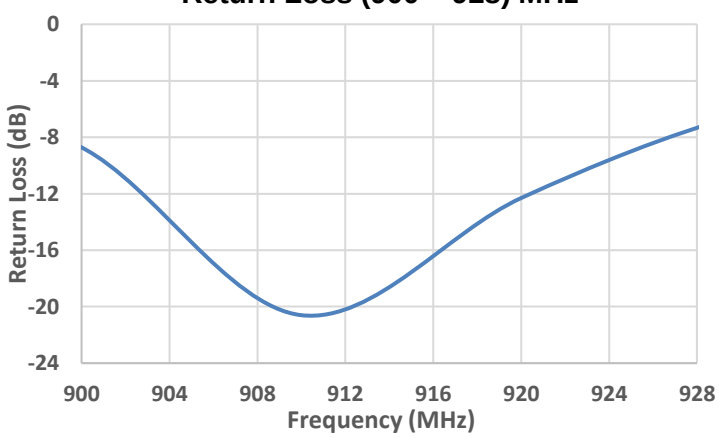
Return Loss, Efficiency, and Peak Gain Plots

Typical Performance on 100 x 40 mm PCB

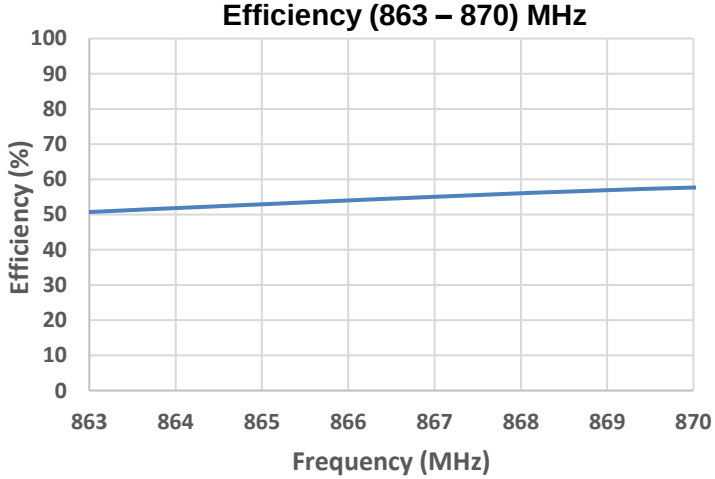
Return Loss (860 – 880) MHz



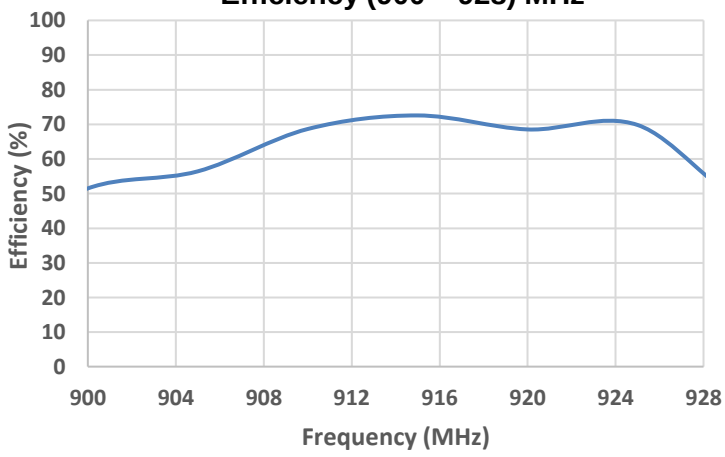
Return Loss (900 – 928) MHz



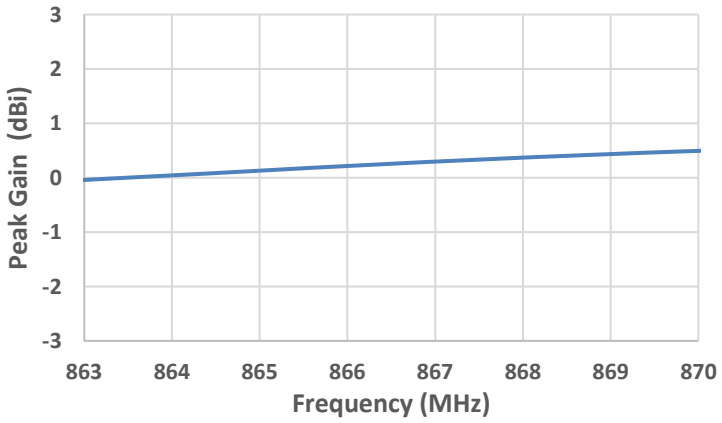
Efficiency (863 – 870) MHz



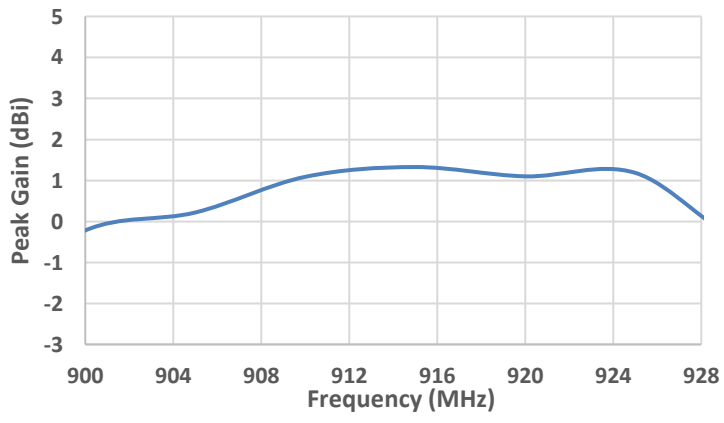
Efficiency (900 – 928) MHz



Peak Gain (863 – 870) MHz



Peak Gain (900 – 928) MHz



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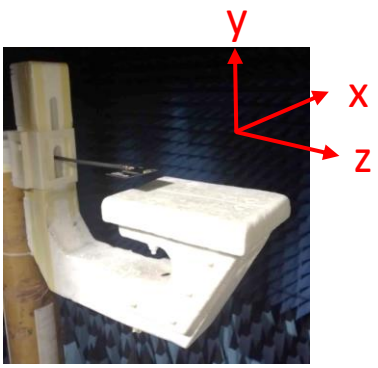
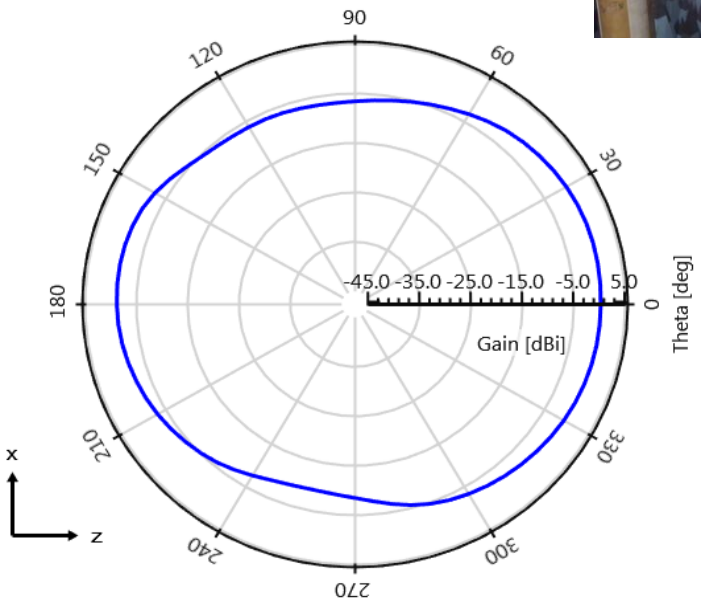
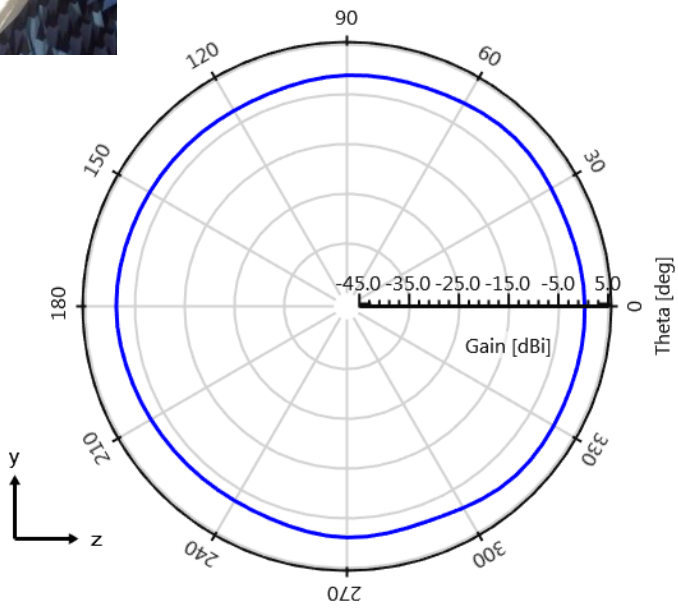
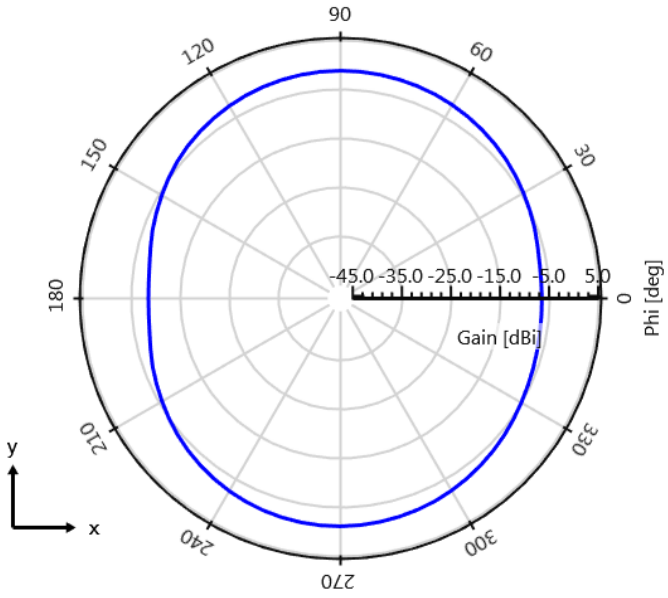
Antenna Radiation Patterns

Typical Performance on 100 x 40 mm PCB
Measured @ 870 MHz









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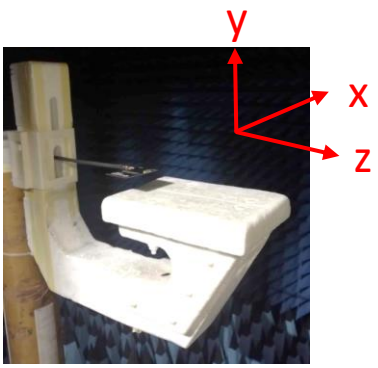
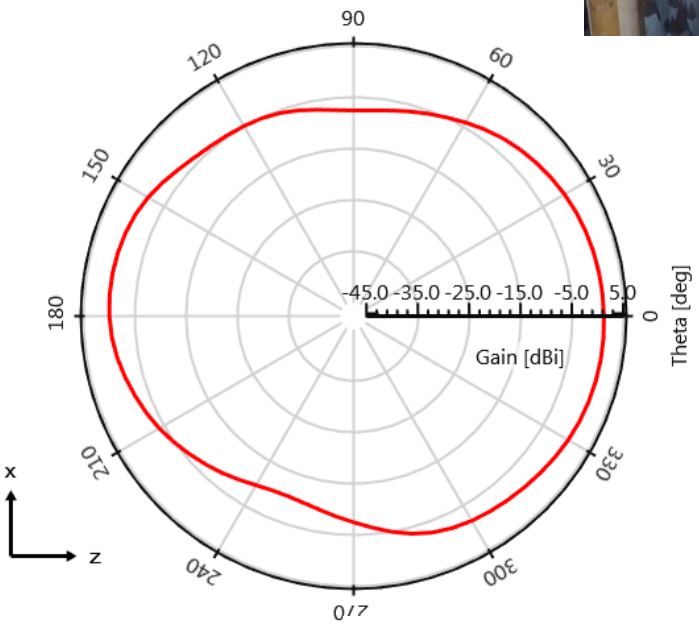
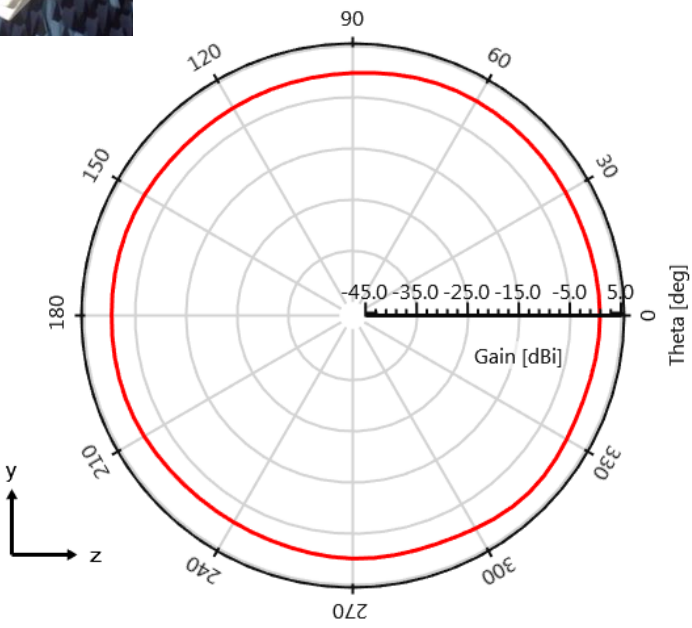
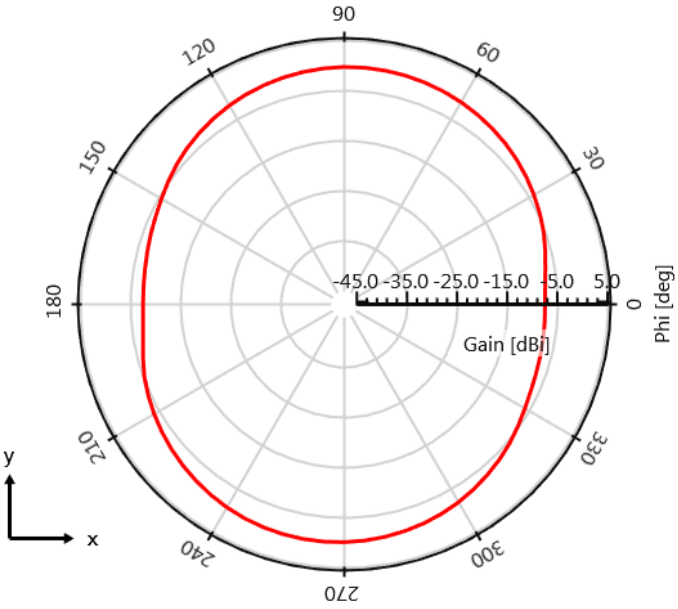
Antenna Radiation Patterns

Typical Performance on 100 x 40 mm PCB
Measured @ 915 MHz









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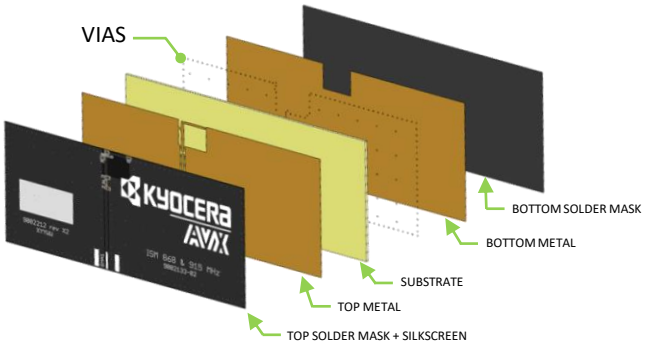
Antenna Layout (9002133-02)

Typical layout dimensions (mm)



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

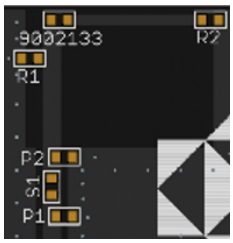
Pin Description

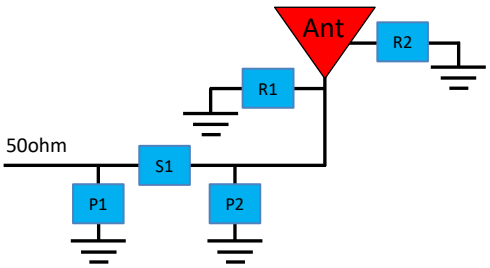
Pin#	Description
1	Feed
2	Ground

Matching Pi Network (Demo Board)

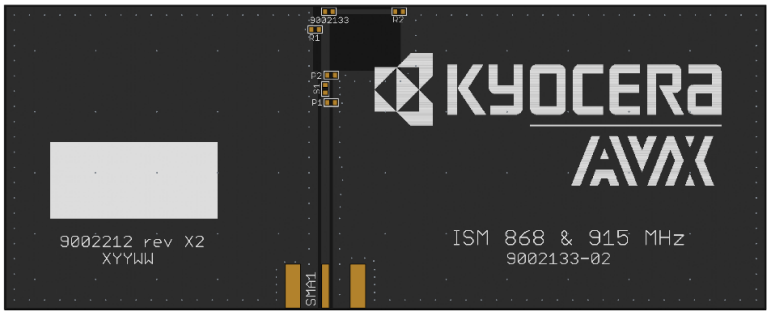
Component	Value	Tolerance
R1	100pF	±1%
R2	5.1pF	±0.1pF
P1	N/A	N/A
S1	0 ohm	N/A
P2	N/A	N/A

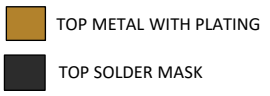
*Actual matching values depend on customer design



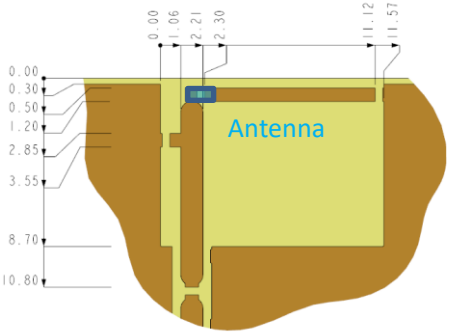


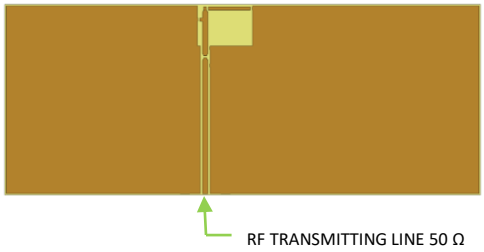
Top Solder mask + Silkscreen:

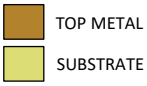




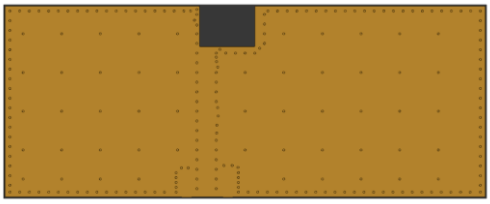
Top Metal Part + Substrate:

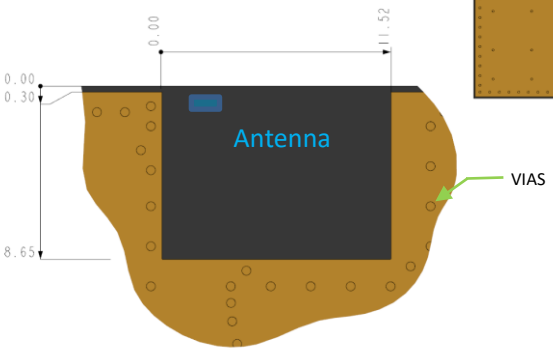


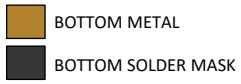




Bottom Metal Part + Bottom Solder Mask:







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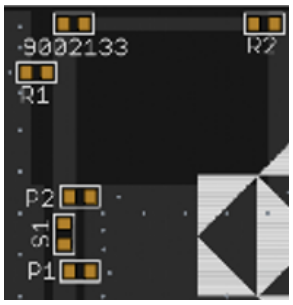
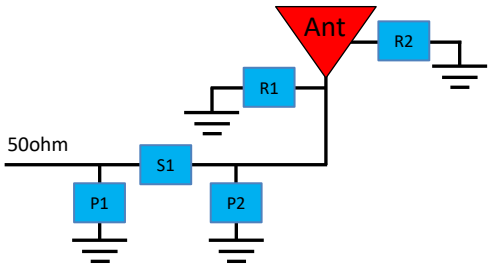
Matching circuits

Typical Performance on 100 x 40 mm PCB





Tunned at 868 MHz:

Matching Pi Network (Demo Board)

Component	Value	Tolerance
R1	100pF	±1%
R2	5.1pF	±0.1pF
P1	N/A	N/A
S1	0 ohm	N/A
P2	N/A	N/A

*Actual matching values depend on customer design

Tunned at 915 MHz:

Matching Pi Network (Demo Board)

Component	Value	Tolerance
R1	82pF	±1%
R2	3.9pF	±0.1pF
P1	N/A	N/A
S1	0 ohm	N/A
P2	N/A	N/A

*Actual matching values depend on customer design

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Antenna Demo Board (9002133-02)

Typical layout dimensions (mm)

Part Number	A	B	C
9002133-02	(100.0)	(40.0)	(0.80)

*Dimensions in () parenthesis are Reference Only.

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