902 – 928 MHz ISM Chip Antenna

Johanson Technology, Inc. (JTI) miniature RF ceramic chip antennas are made using Low Temperature Co-fired Ceramic (LTCC) technology which has the ability to embed low and high dielectric constants inside our antenna. This enables our components to have high detuning resilience and stability over extreme temperatures (~2ppm).

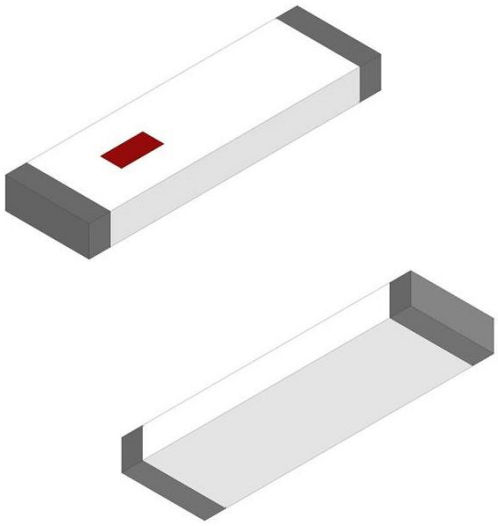
Recommended mounting locations for this antenna

PCB End



PCB Corner





General Specifications[1] [2]

Passband Frequency (MHz)	**902 - 928**
Impedance (Ω)	50
Return Loss (dB)	8.5 Min.
Peak Gain (dBi)	-1.0 Typ.
Average Gain (dBi)	-4.0 Typ.
Average Radiated Efficiency (%) – EVB1	25
Average Radiated Efficiency (%) – EVB2[3]	22

Maximum Ratings

Power Capacity (W)	2 Max. (CW)
Operating Temperature (°C)	-40 to +85
Recommended Storage Conditions post-installation (°C)	-40 to +85
Recommended Storage Conditions and Period for Unused T&R Product	45% - 75% RH +5 to +35 °C 18 Months Max.

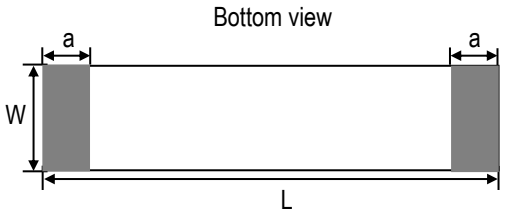
[1] Typical value represents average measurement at 25°C. Min./Max. values represent measurements over specified operating temperature.
[2] General specifications measured on Johanson's evaluation board P/N 0915AT43A0026001CE1. See pages 3-4.
[3] Measured Radiated Efficiency on Johanson's evaluation board P/N 0915AT43A0026001CE2. See pages 5-6.

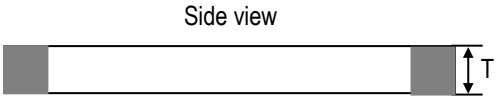
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Mechanical Dimensions

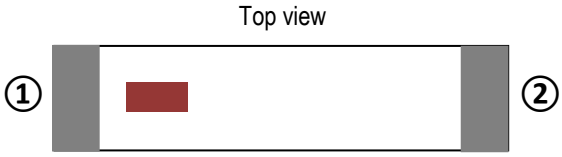
	Inches			Millimeters		
L	0.276	±	0.008	7.00	±	0.20
W	0.079	±	0.008	2.00	±	0.20
T	0.031	+0.004/-0.008		0.80	+0.10/-0.20	
a	0.020	±	0.012	0.50	±	0.30





Terminal Configuration[4]

Pin Number	Function
1	Feed
2	NC*



[4] The termination type is Nickel Tin. Go to: https://www.johansontechnology.com/ipcsoldering-profile for Typical Soldering Profile.

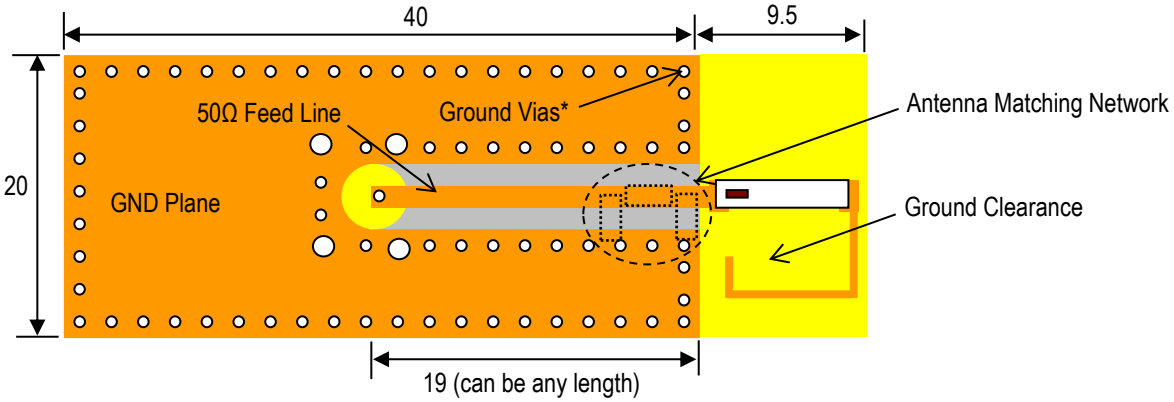
* This terminal must be soldered for anchoring and mechanical stability.

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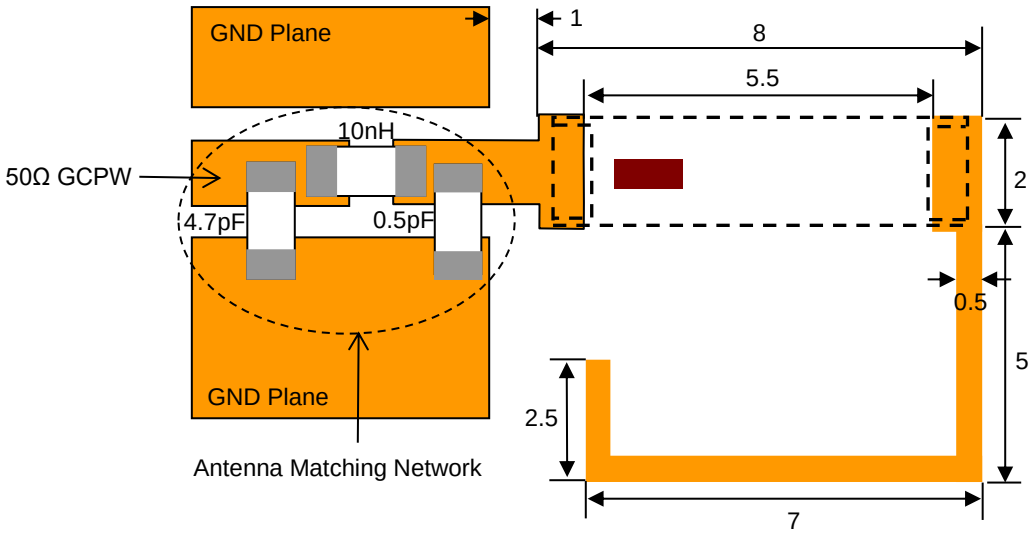
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Evaluation Board and Recommended Mounting Configuration 1 (P/N 0915AT43A0026001CE1)

All units in mm



*Note: Ground Vias are highly recommended to have better antenna efficiency.



JTI P/Ns for Matching Network[5]
Capacitor (4.7pF): QSCF500Q4R7B1GV001T
Inductor (10nH): LRC0402CJ10NGV001T
Capacitor (0.5pF): QSCF500Q0R5B1GV001T

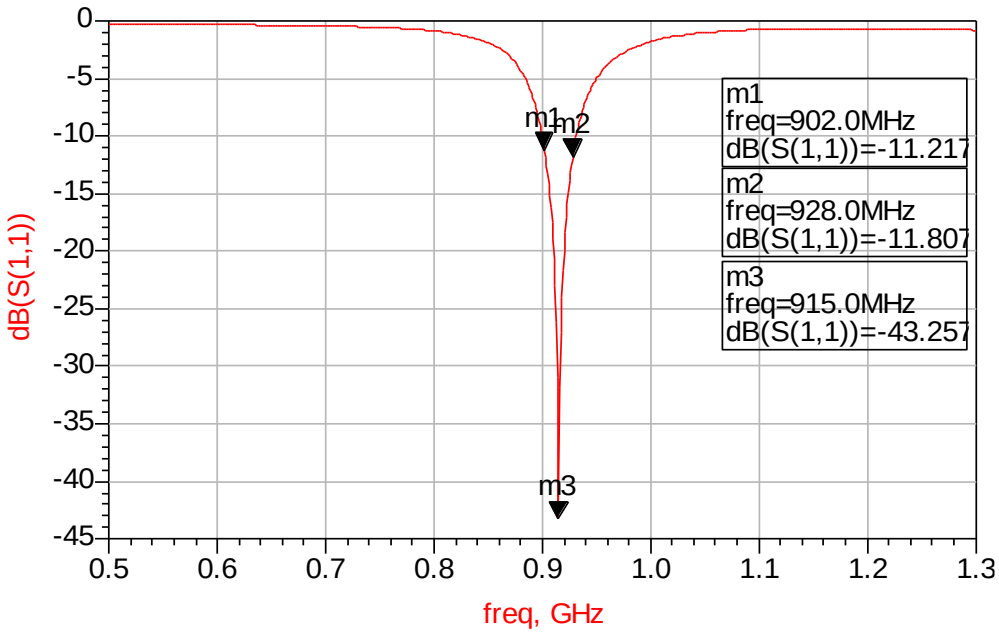
If you'd like the CAD PCB layout or have any questions,
contact our application engineers at https://www.johansontechnology.com/ask-a-question

[5] It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network. The antenna matching network values above are used when the antenna is mounted on Johanson's evaluation board. The optimal matching values will vary depending on the layout, thickness, material, etc. Go to: https://www.johansontechnology.com/tuning for more information.

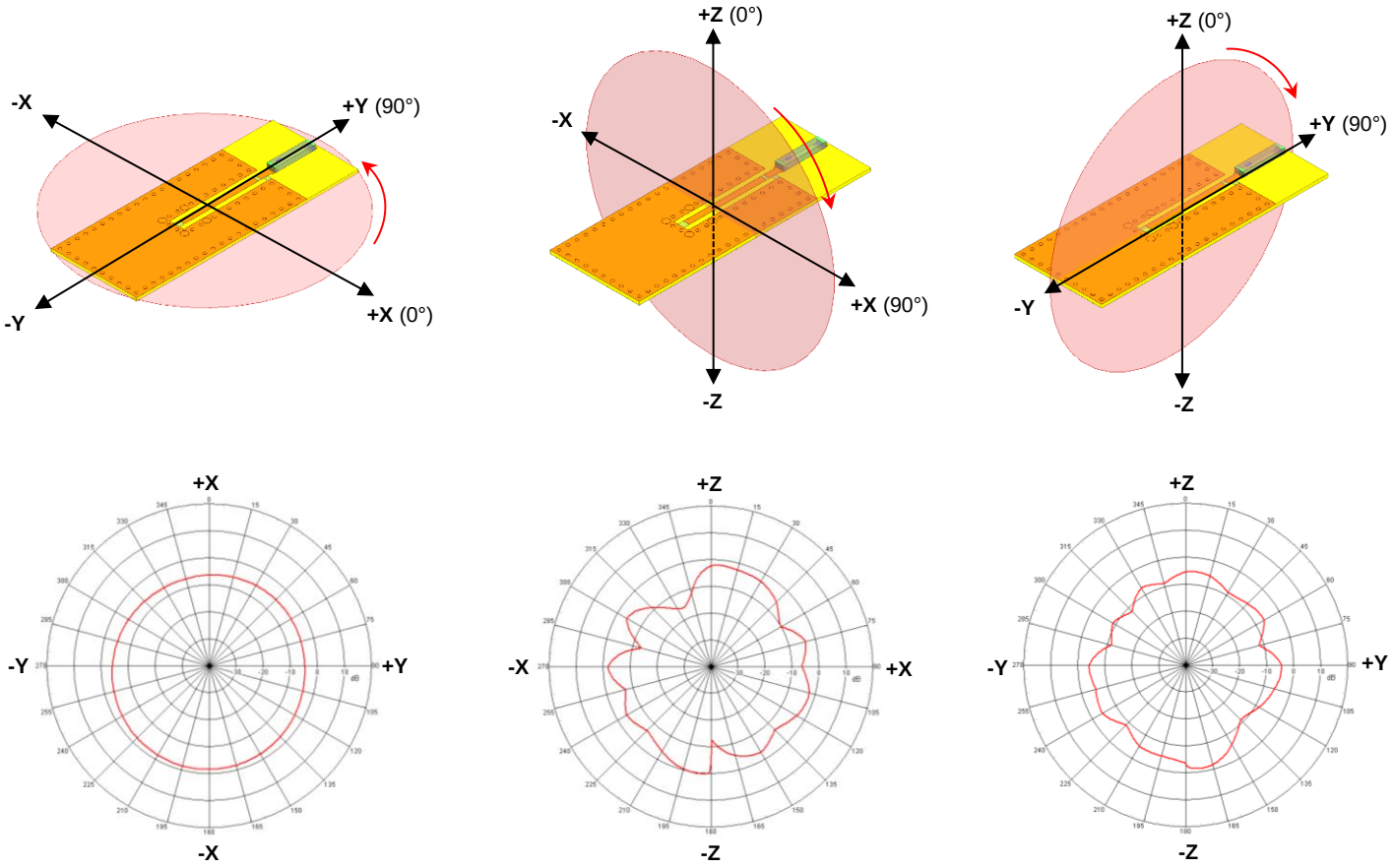
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Evaluation Board Typical Return Loss Measurement (P/N 0915AT43A0026001CE1)



Evaluation Board Typical 2D Radiation Patterns @915MHz (P/N 0915AT43A0026001CE1)

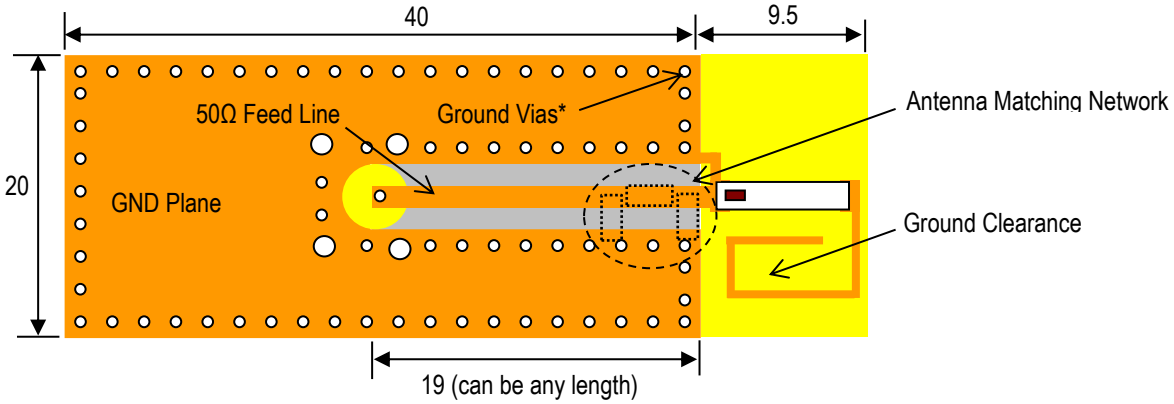


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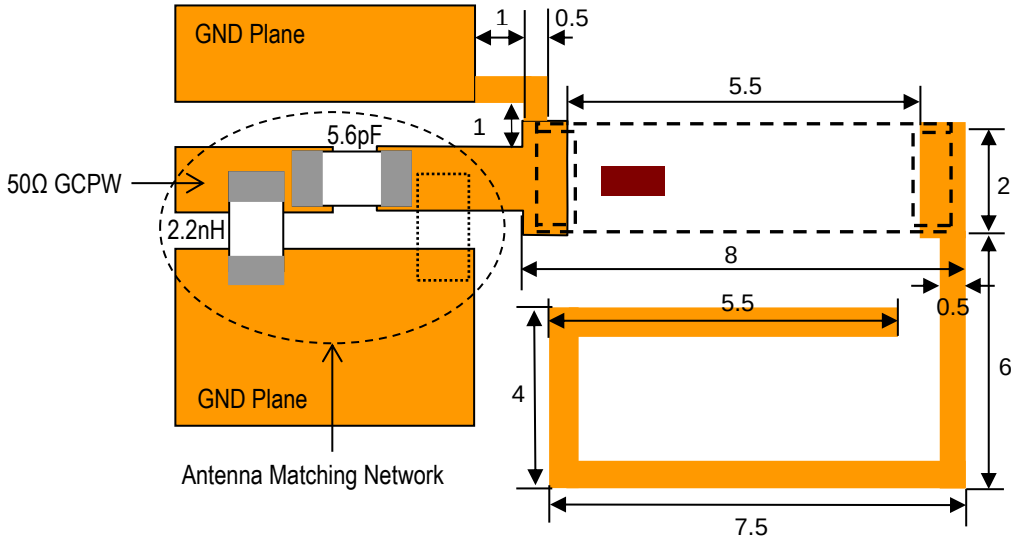
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Evaluation Board and Recommended Mounting Configuration 2 (P/N 0915AT43A0026001CE2)

All units in mm



*Note: Ground Vias are highly recommended to have better antenna efficiency.



JTI P/Ns for Matching Network[6]
Inductor (2.2nH): LRC0402CS2N2GV001T
Cap (5.6pF): QSCF500Q5R6B1GV001T

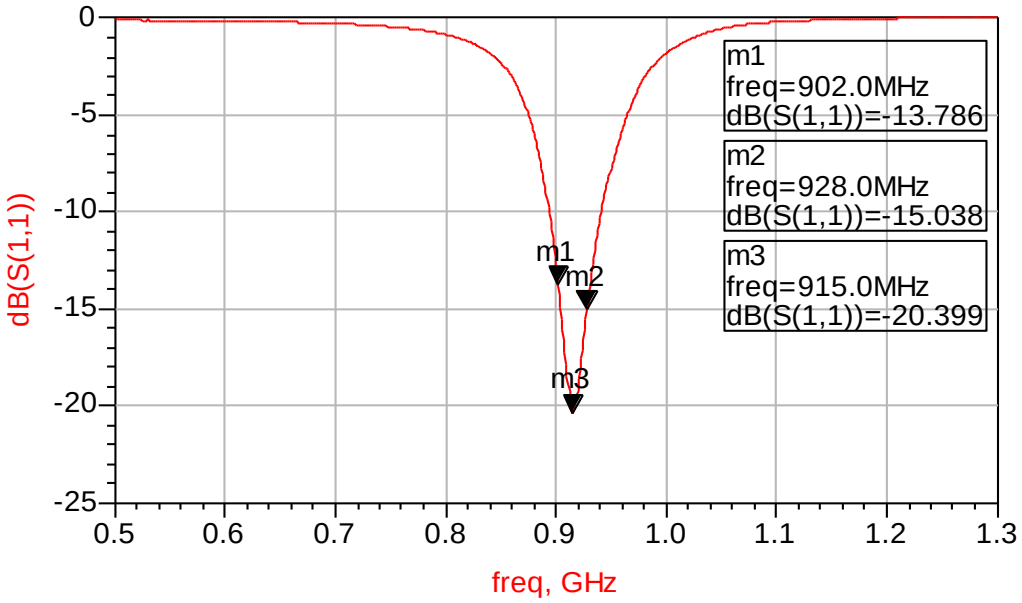
If you'd like the CAD PCB layout or have any questions,
contact our application engineers at https://www.johansontechnology.com/ask-a-question

[6] It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network. The antenna matching network values above are used when the antenna is mounted on Johanson's evaluation board. The optimal matching values will vary depending on the layout, thickness, material, etc. Go to: https://www.johansontechnology.com/tuning for more information.

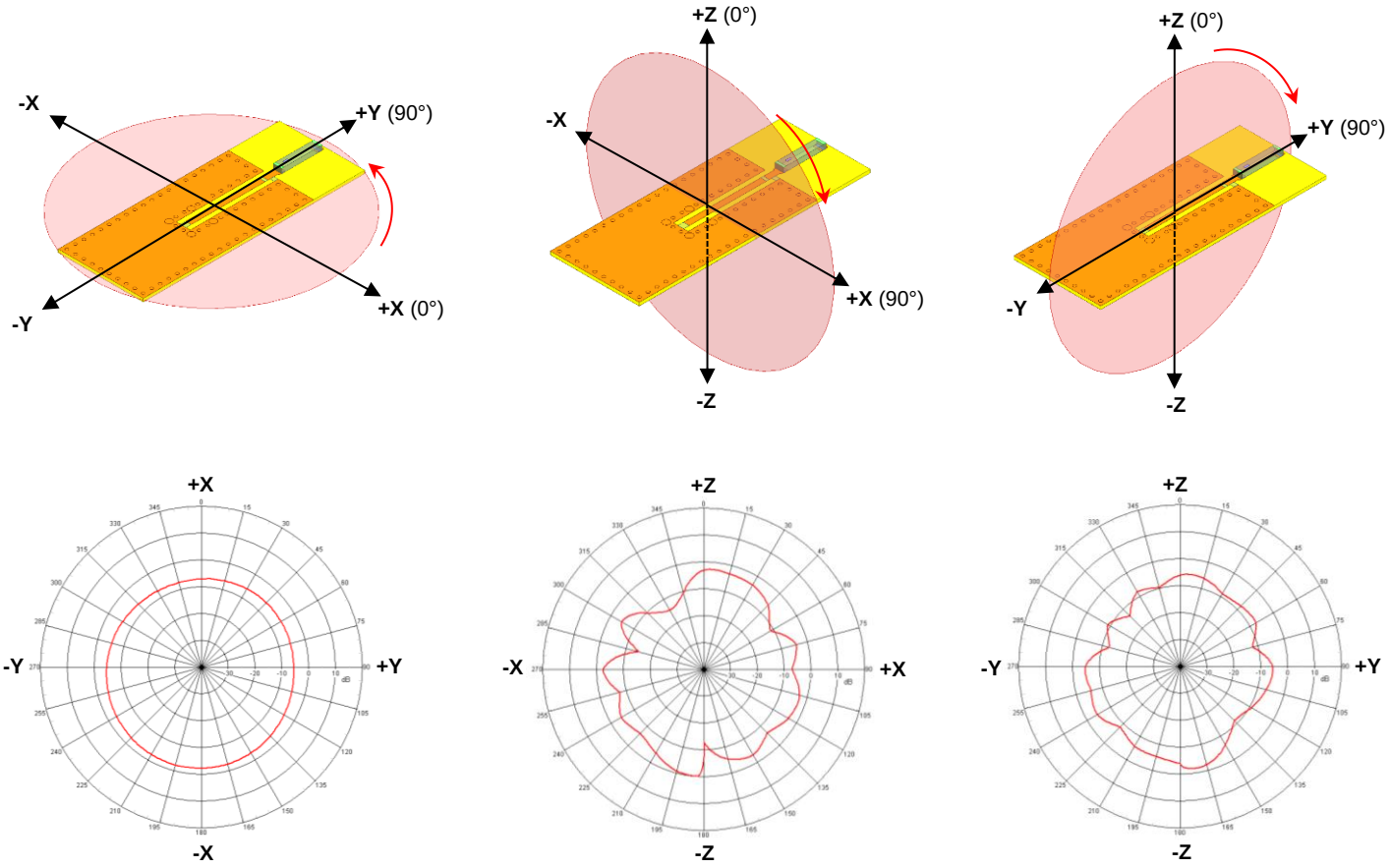
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Evaluation Board Typical Return Loss Measurement (P/N 0915AT43A0026001CE2)



Evaluation Board Typical 2D Radiation Patterns @915MHz (P/N 0915AT43A0026001CE2)



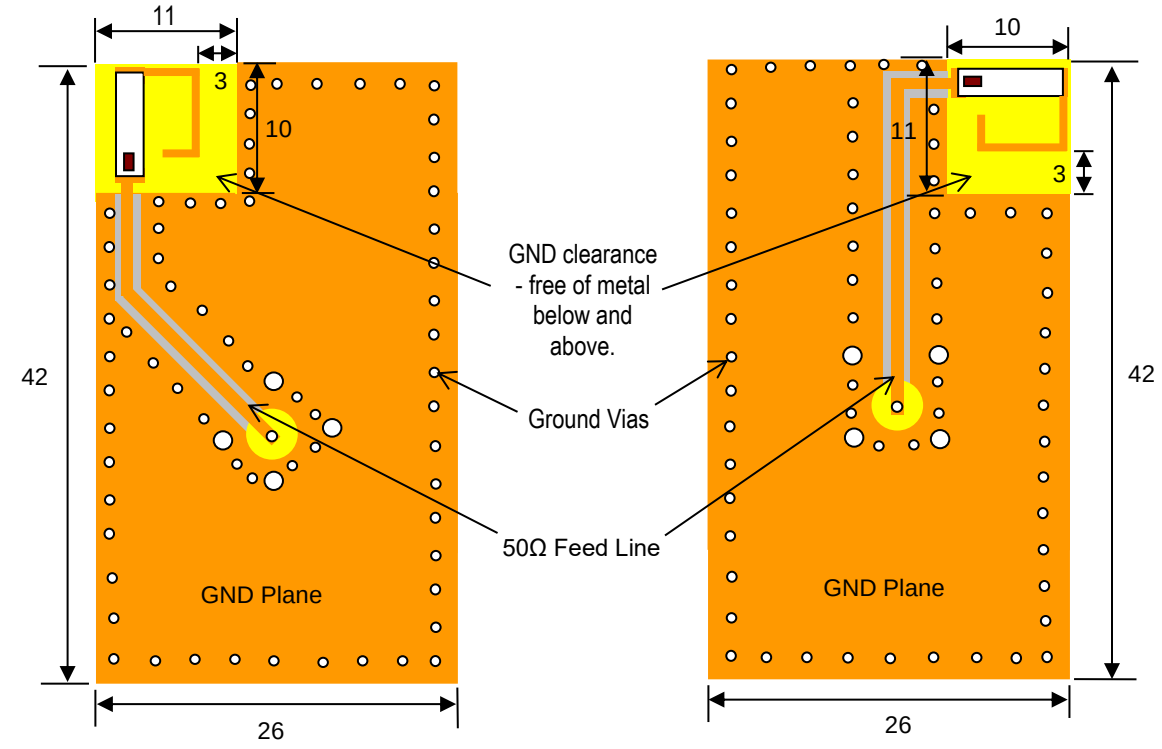
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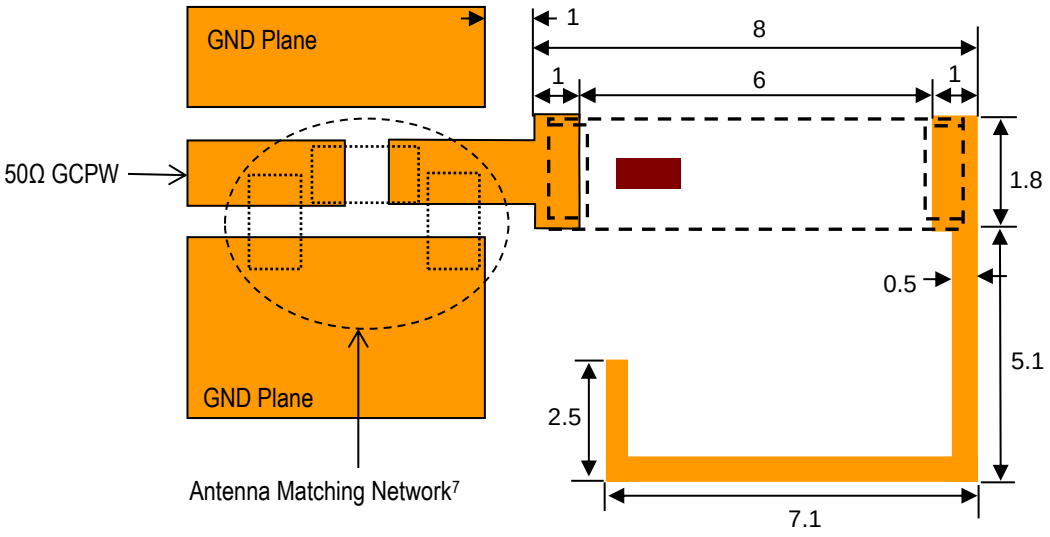
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Recommended Mounting Configuration 3 (Evaluation Board Unavailable)

We have conducted internal studies to show that the following corner placements provide antenna efficiency results with minimal detrimental effects.

All units in mm





If you have any questions on this layout,
contact our application engineers at https://www.johansontechnology.com/ask-a-question

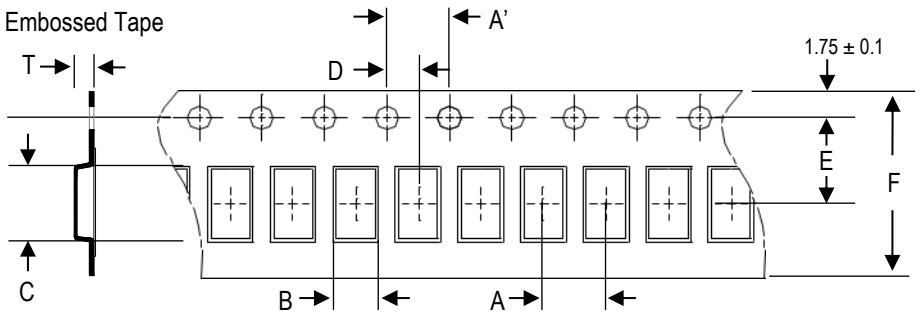
[7] It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network. The optimal matching values will vary depending on the layout, thickness, material, etc. Go to: https://www.johansontechnology.com/tuning for more information.

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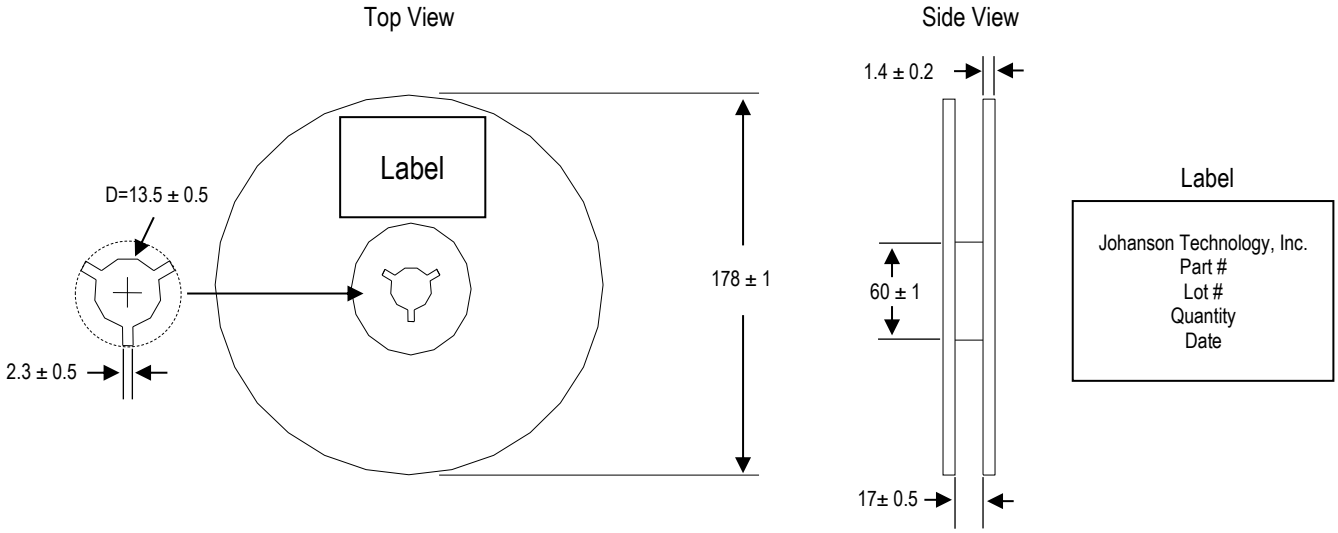
Tape and Reel Specification (Units in mm)

Tape Dimensions

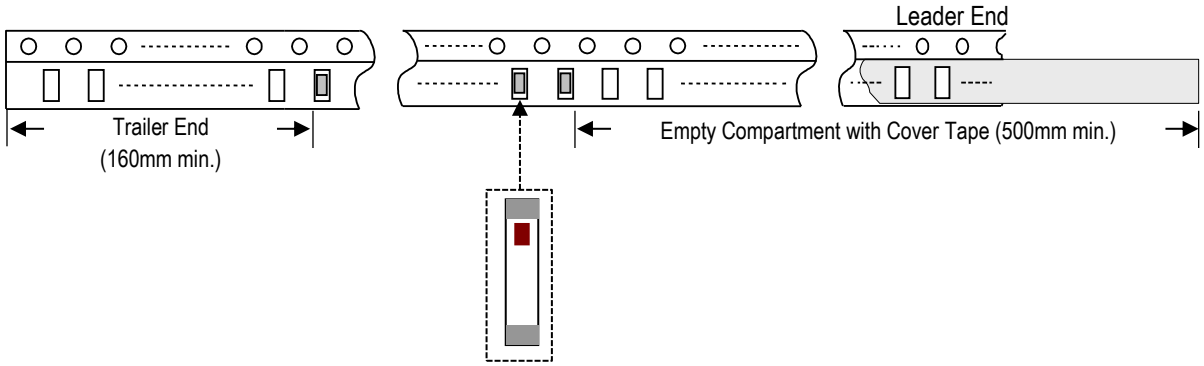


A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
4.0±0.1	4.0±0.1	2.4±0.1	7.3±0.1	2.0±0.05	5.5±0.1	12.0±0.1	1.45±0.1	1,000pcs.	Plastic (Embossed)

Reel Dimensions



Leader and Trailer Dimensions



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Orderable Part Number

Packaging Style	Part Number	Termination
Bulk (loose pcs.)	0915AT43A0026001B	Nickel Tin
T & R (7" Reel Embossed Tape)	0915AT43A0026001E (Qty: 1,000 pcs./reel)	
Evaluation Board with 1 SMA Connector	0915AT43A0026001CE1 (Page 3)	
	0915AT43A0026001CE2 (Page 5)	

Important Links

0915AT43A0026001E Product Page

More Chip Antennas

Antenna Tuning, Optimization, and Validation Services

Soldering Information

MSL Information

Packaging Information

Recommended Storage Condition and Max Shelf Life

RoHS Compliance

Contact our application engineers for a PCB layout review

Johanson Technology, Inc. reserves the right to make design changes without notice.
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