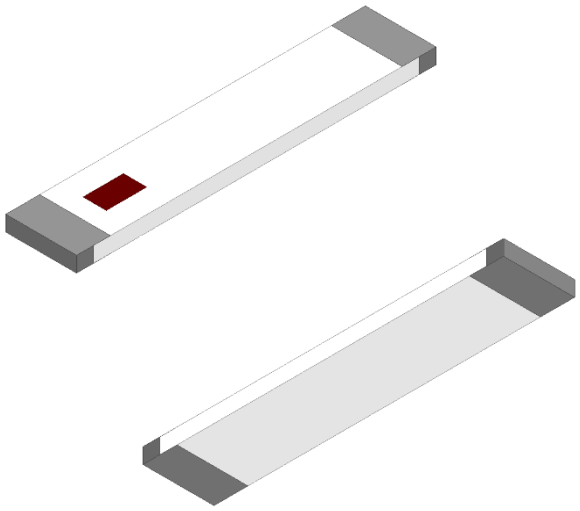
490 MHz Chip Antenna, SMD (25x5x1.2mm)

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



General Specifications[1] [2]

Passband Frequency (MHz)	**470 - 510**
Impedance (Ω)	50
Return Loss (dB)	4.4 Min.
Peak Gain (dBi)	-3.0 Typ.
Average Gain (dBi)	-6.0 Typ.

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 0490AT62A0040001CE1.

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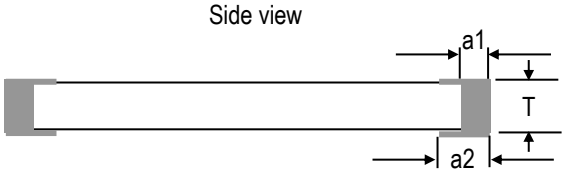
Mechanical Dimensions

	Inches			Millimeters		
L	0.984	±	0.008	25.00	±	0.20
W	0.197	±	0.008	5.00	±	0.20
T	0.047	±	0.004	1.20	±	0.10
a1	0.020	±	0.008	0.50	±	0.20
a2	0.039	±	0.008	1.00	±	0.20

Bottom view

Side view



Terminal Configuration[3]

Pin Number	Function
1	Feed
2	NC*

Top view

[3] 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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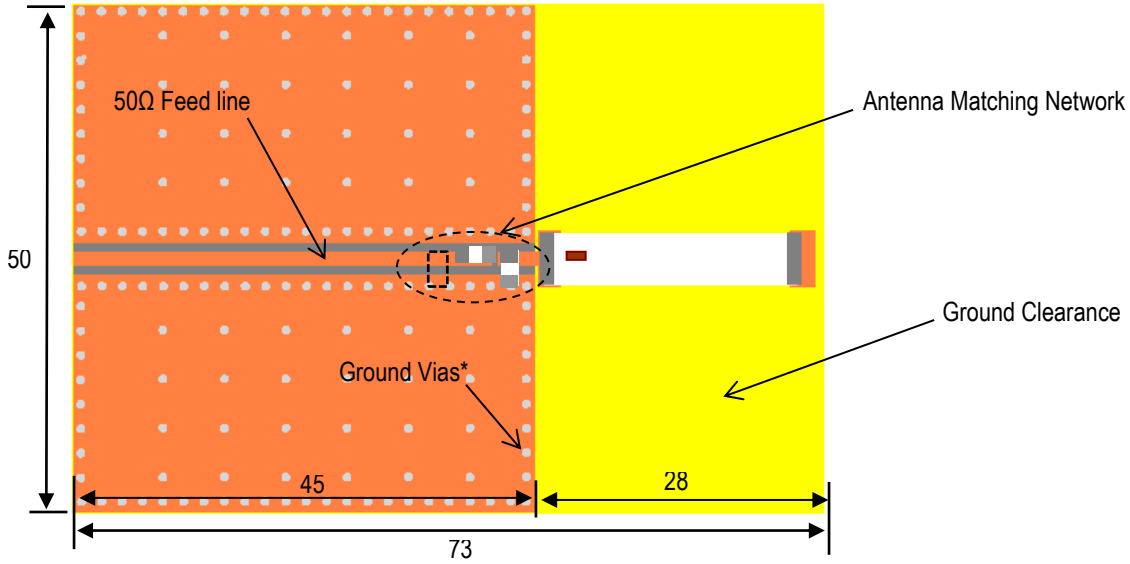
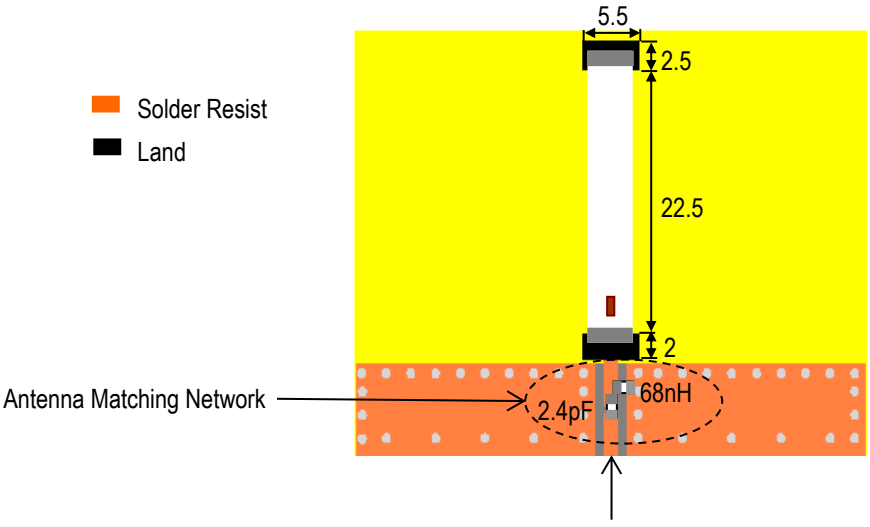
Evaluation Board and Recommended Mounting Configuration (P/N 0490AT62A0040001CE1)

All units in mm



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



JTI P/N's for Matching Network[4]
Inductor (68nH): LRC0402CJ68NGV001T
Cap (2.4pF): QSCF500Q2R4B1GV001T

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

[4] It is recommended that the designer leave available slots for a "pi" (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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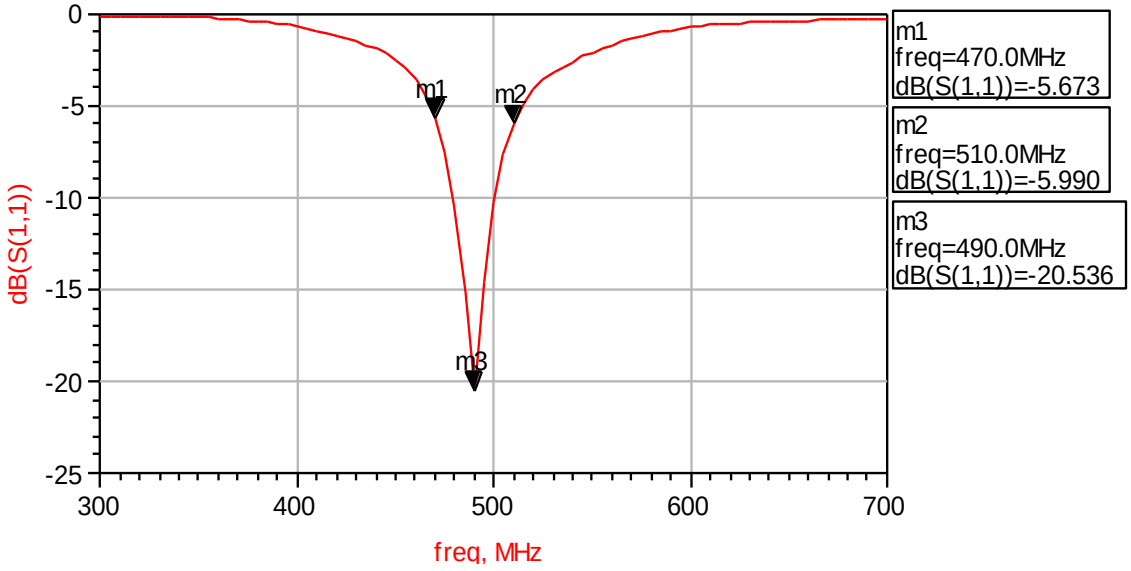
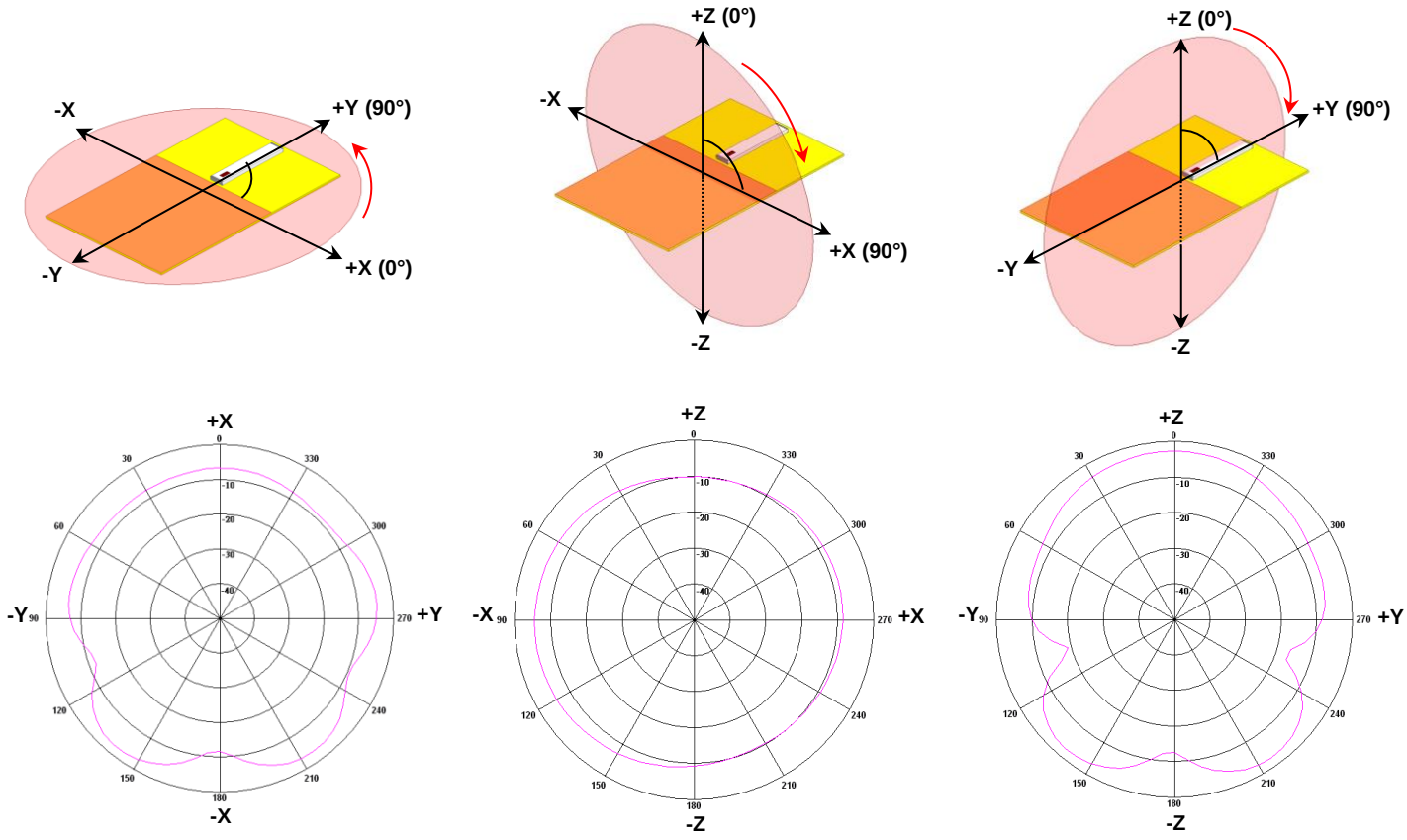
Evaluation Board Typical Return Loss Measurement (P/N 0490AT62A0040001CE1)

With matching network



Evaluation Board 2D Radiation Patterns @490MHz (P/N 0490AT62A0040001CE1)



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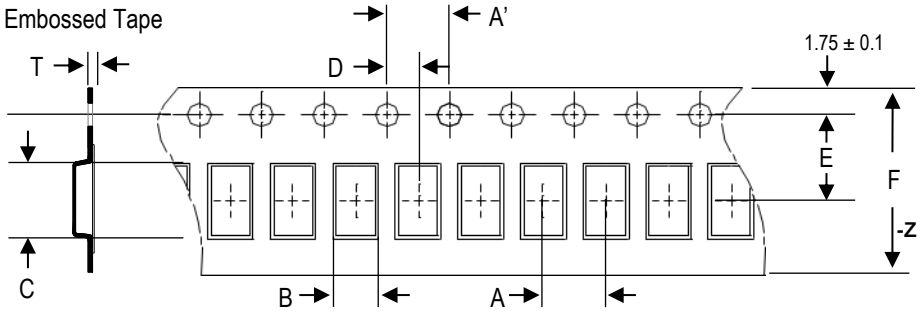
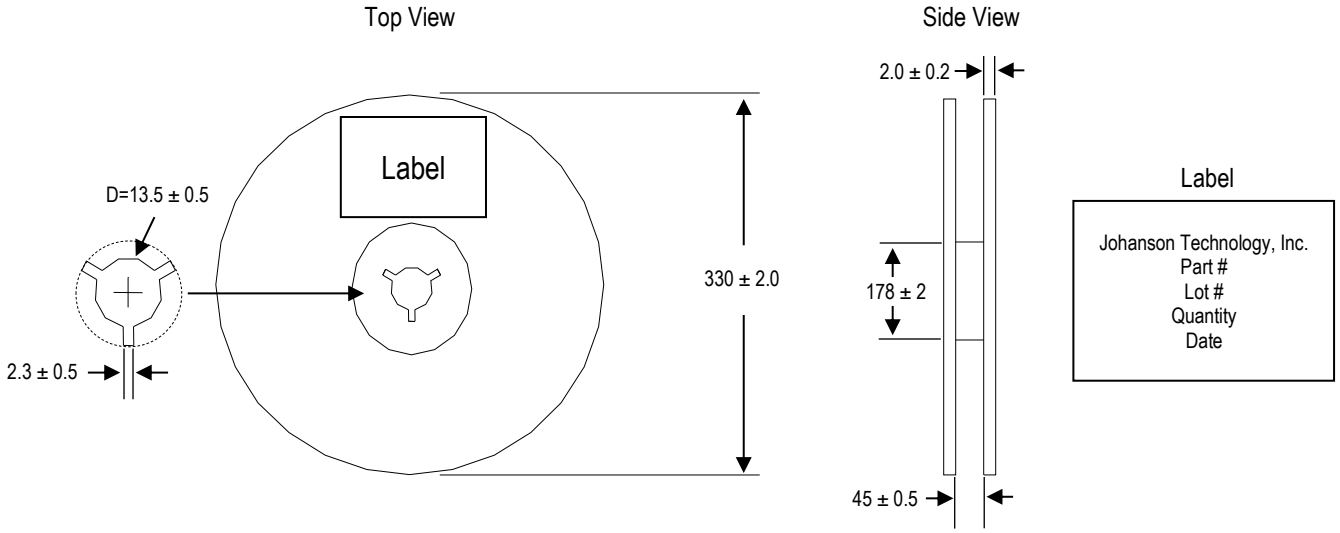
Tape and Reel Specification (Units in mm)

Tape Dimensions

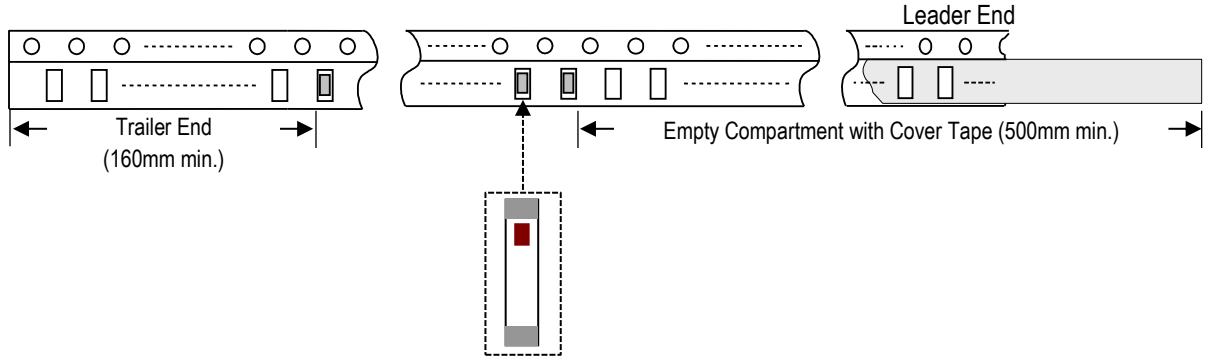


A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
12.0±0.1	4.0±0.1	5.35±0.1	25.4±0.1	2.0±0.1	20.2±0.1	44.0±0.3	1.4±0.1	500pcs	Plastic (Embossed)

Reel Dimensions



Leader and Trailer Dimensions



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Orderable Part Number

Packaging Style	Part Number	Termination
Bulk (loose pcs.)	0490AT62A0040001B	Nickel Tin
T & R (13" Reel Embossed Tape)	0490AT62A0040001U (Qty: 500 pcs/reel)	
Evaluation Board with 1 SMA Connector	0490AT62A0040001CE1	

Important Links

0490AT62A0040001U 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

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