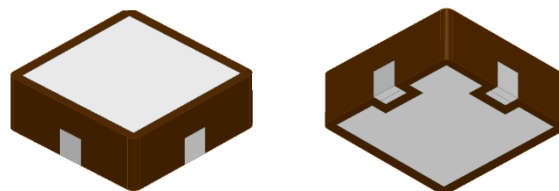




2.44 GHz RF Chip Antenna, RHCP, AEC-Q200

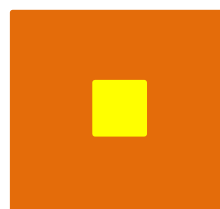
- 2.4 – 2.485 GHz Operational Frequency
- Bluetooth, WiFi, Zigbee, ANT+, Zigbee, Channel Sounding, ISM, MIMO, PDoA, AoA, LoRa, Thread
- SMD, patch, 12x12x4mm (LxWxT)
- Can be mounted in the center, corner or edge
- Dual-feed, right-hand circular polarization (RHCP)
- RoHS compliant



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 Center



Edge/Corner



General Specifications^{1 2}

Operational Frequency (MHz)	2400 - 2485
Impedance (Ω)	50
Return Loss (dB)	7.3 Min.
Peak Gain (dBi)	2.1 Typ.
Axial Ratio	3.0 Max
Radiated Efficiency (%)	55 Typ. @2.44 GHz

Maximum Ratings

Power Capacity (W)	1 Max. (CW)
Operating Temperature ($^{\circ}\text{C}$)	-40 to +105
Recommended Storage Conditions post-installation ($^{\circ}\text{C}$)	-40 to +105
Recommended Storage Conditions and Period for Unused T&R Product ³	45% - 75% RH +5 to +35 $^{\circ}\text{C}$ 18 Months Max.

¹ Typical value represents average measurement at 25 $^{\circ}\text{C}$. Min./Max. values represent measurements over specified operating temperature.

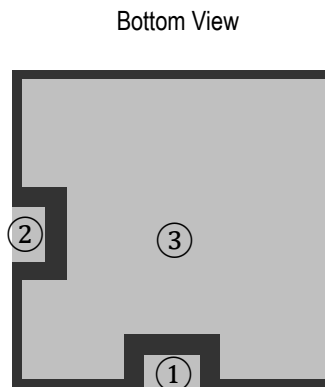
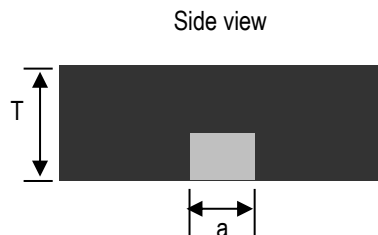
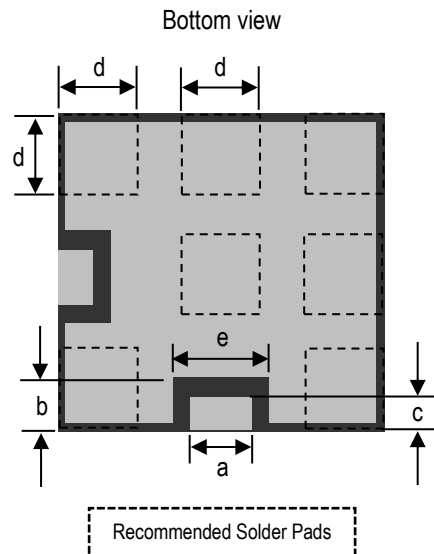
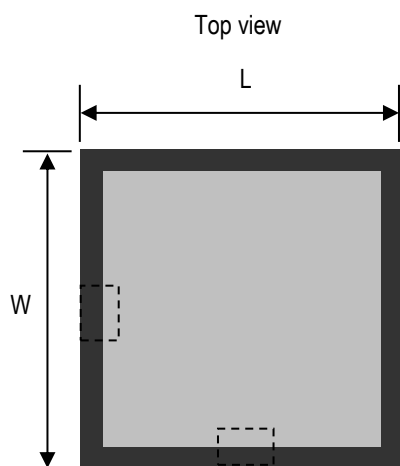
² General specifications measured on Johanson's evaluation board P/N 2440AT62B0085001CE1 (with 3dB hybrid coupler p/n: 2450CH15A0100002E).

³ 18 months max. in vacuum sealed bag and 1 week after opened. Please keep unused parts in vacuum sealed bags. For more info go to <https://www.johansontechnology.com/tech-notes/silver-leaded-components-soldering-profile>.



Mechanical Dimensions

	Inches			Millimeters		
L	0.472	±	0.008	12.00	±	0.20
W	0.472	±	0.008	12.00	±	0.20
T	0.157	±	0.004	4.00	±	0.10
a	0.079	±	0.008	2.00	±	0.20
b	0.079	±	0.008	2.00	±	0.20
c	0.047	±	0.008	1.20	±	0.20
d	0.118	±	0.008	3.00	±	0.20
e	0.142	±	0.008	3.60	±	0.20



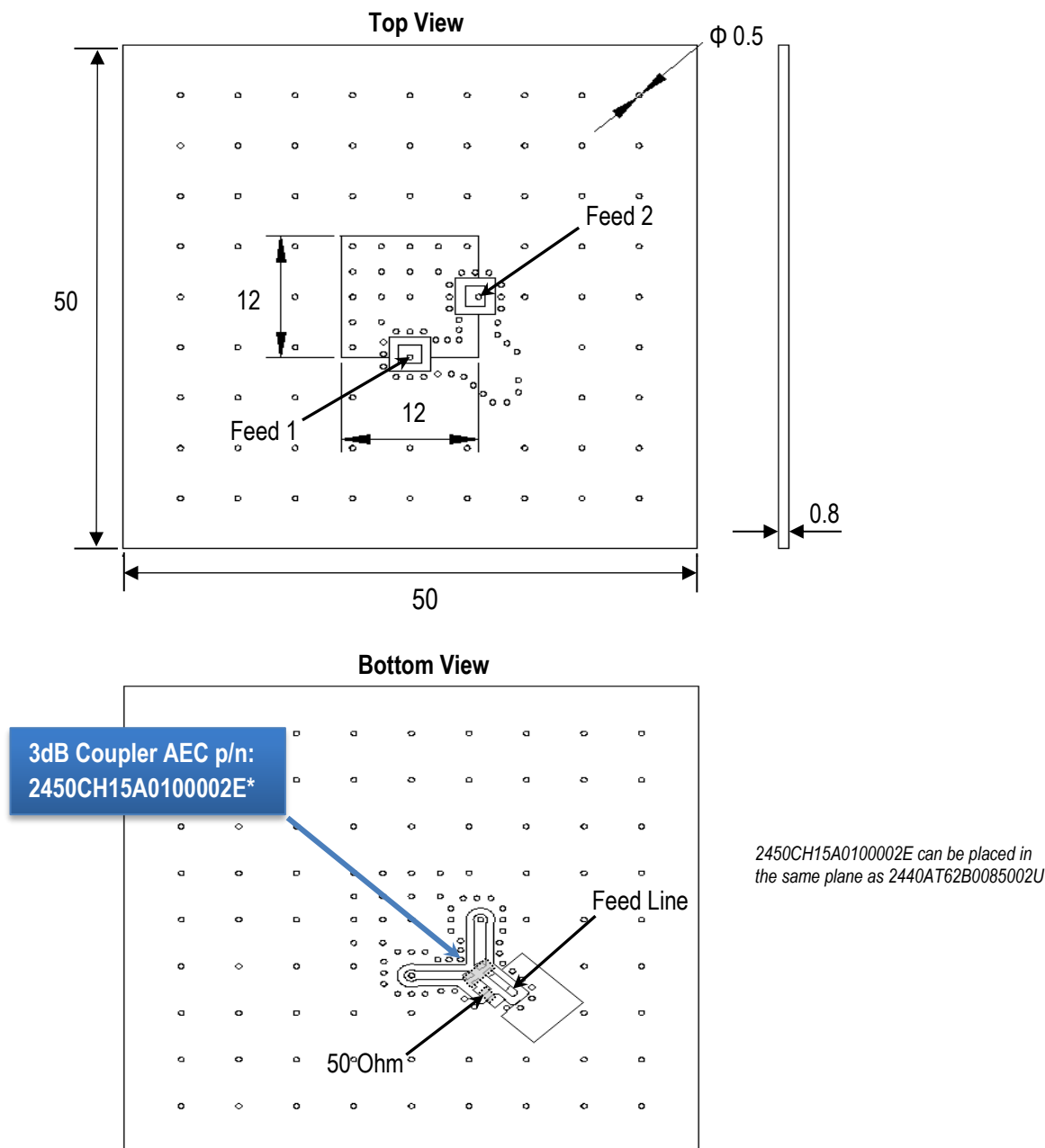
Terminal Configuration⁴

Pin Number	Function
1	Feed 1
2	Feed 2
3	GND

⁴ The termination type is Silver. Go to: <https://www.johansontechnology.com/tech-notes/silver-leaded-components-soldering-profile> for Typical Soldering Profile.

Evaluation Board and Recommended Mounting Configuration (Orderable P/N 2440AT62B0085001CE1)

All units in mm



*Note: To minimize axial ratio, this patch antenna is designed with dual-feed inputs 90° apart in phase. Johanson Technology's hybrid AEC coupler 2450CH15A0100002E provides this and is the recommended solution for this purpose when chipset is single feed. Additional information can be found in the official datasheet here:

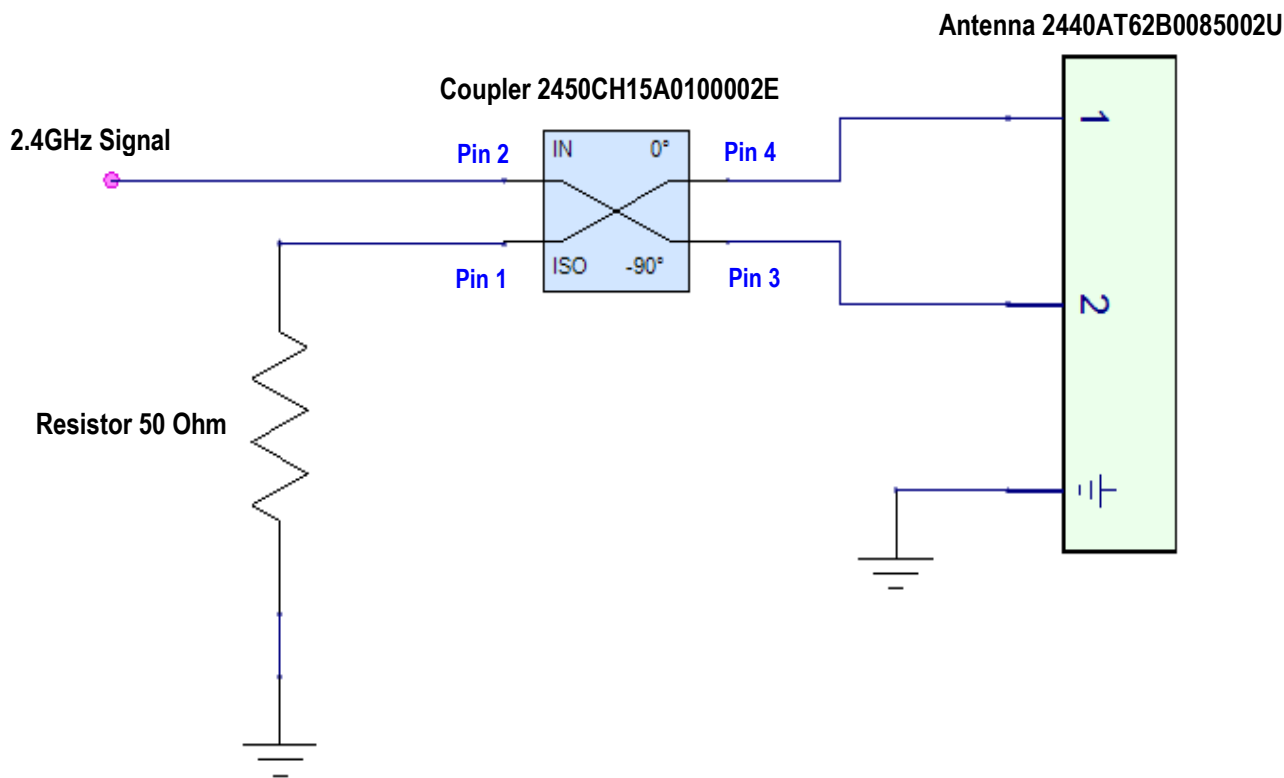
<https://www.johansontechnology.com/products/integrated-passives/couplers>.

<https://www.johansontechnology.com/products/integrated-passives/couplers/2450CF15A0100002E>

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



Schematic Diagram



S-Parameter Port# Designation to 2450CH15A0100002E component Pin#

Port1 (of s-parameter) connects to pin2 (of 2450CH15A0100002E)

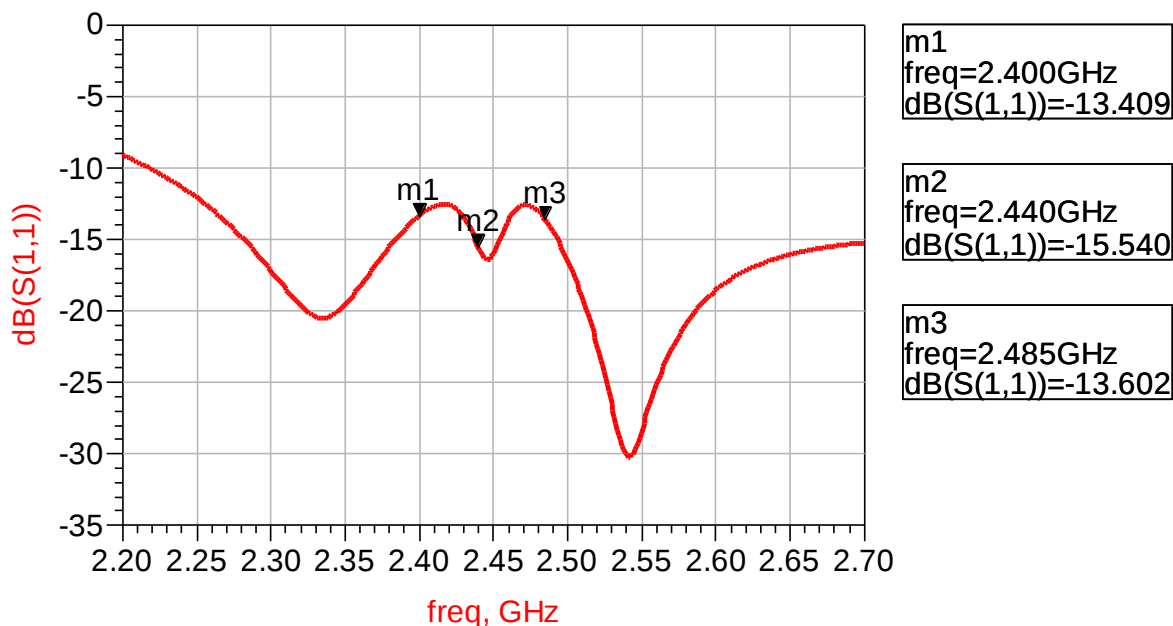
Port2 (of s-parameter) connects to pin1 (of 2450CH15A0100002E)

Port3 (of s-parameter) connects to pin4 (of 2450CH15A0100002E)

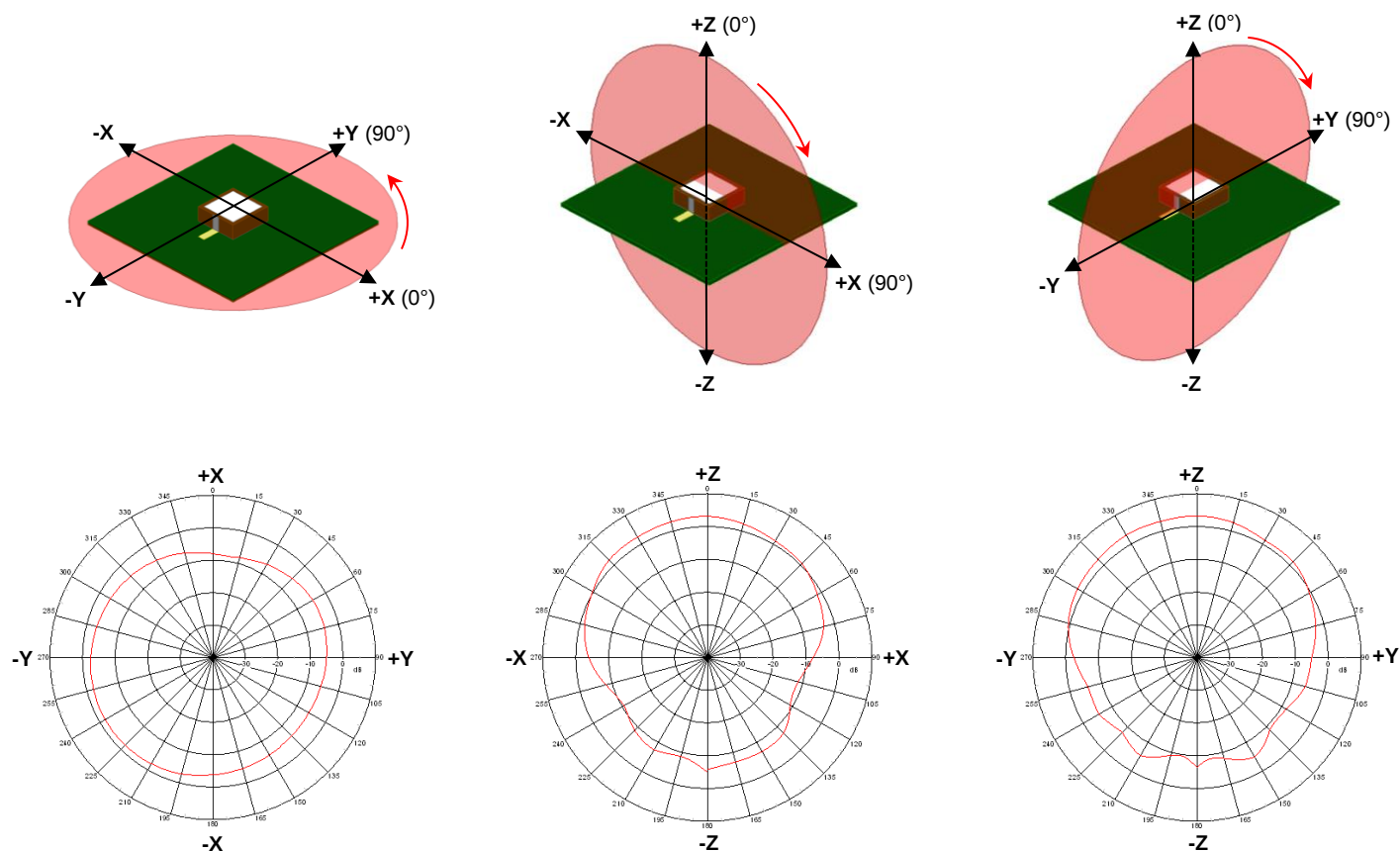
Port4 (of s-parameter) connects to pin3 (of 2450CH15A0100002E)

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

Evaluation Board Typical Return Loss Measurement (Orderable P/N 2440AT62B0085001CE1)



Evaluation Board Typical 2D Radiation Patterns @2440 MHz (P/N 2440AT62B0085001CE1)





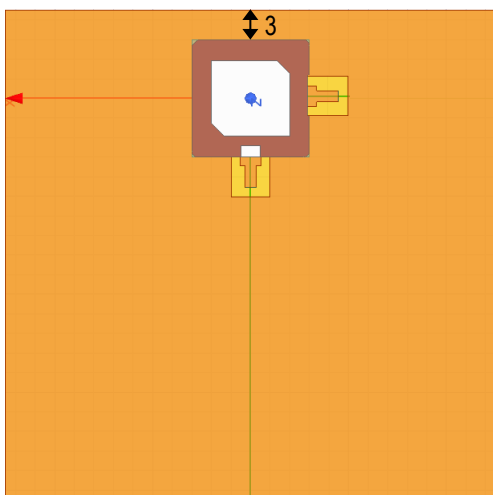
Recommended Alternative Mounting Configurations

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

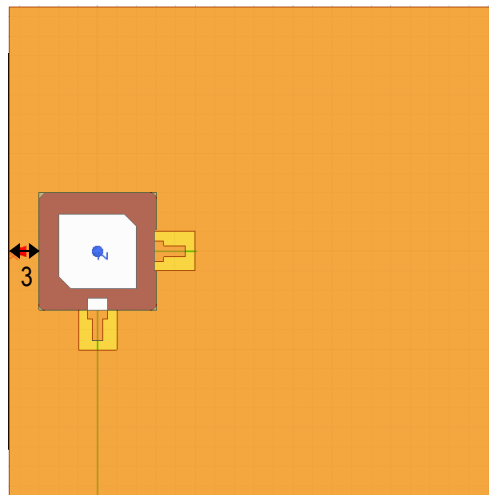
We recommend that the antenna be mounted >3mm from any PCB edge.

All units in mm

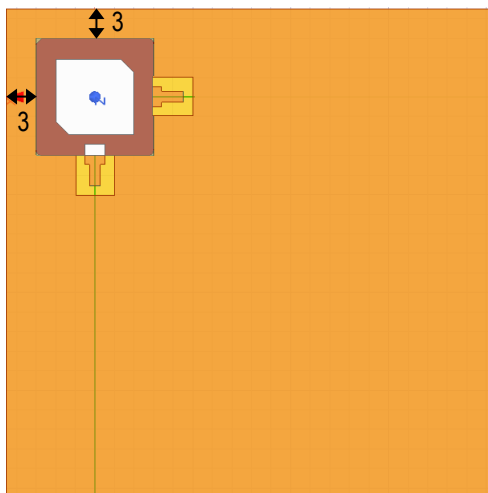
Top Edge



Side Edge



Corner

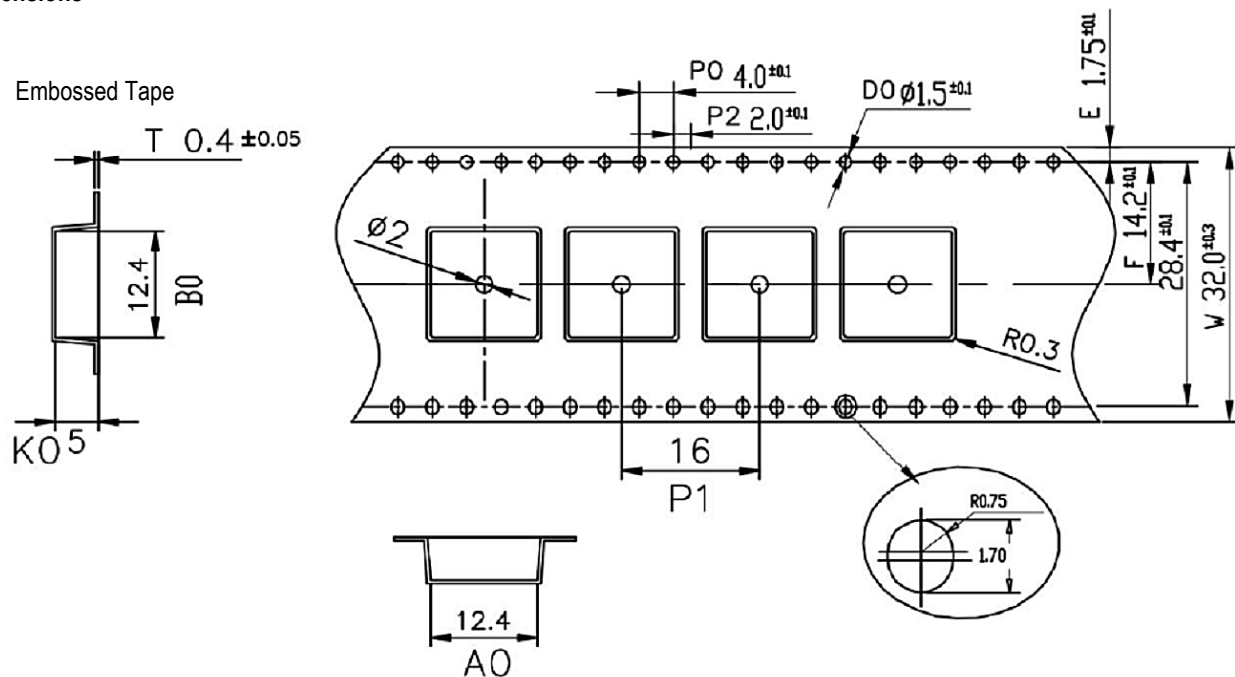


(These three specific Evaluation Boards above are Unavailable in physical form, only digital)

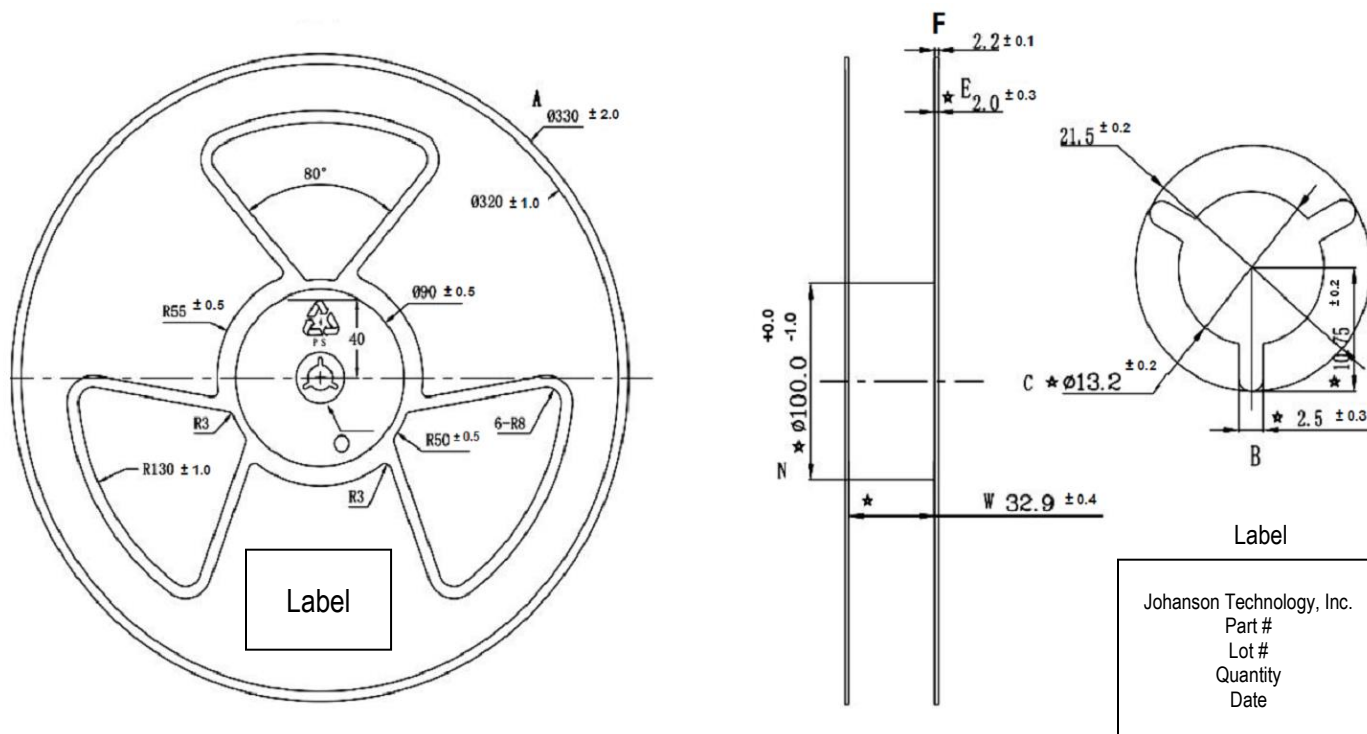
If you have any questions on this layout,
contact our application engineers at <https://www.johansontechnology.com/ask-a-question>

Tape and Reel Specification (Units in mm)

Tape Dimensions

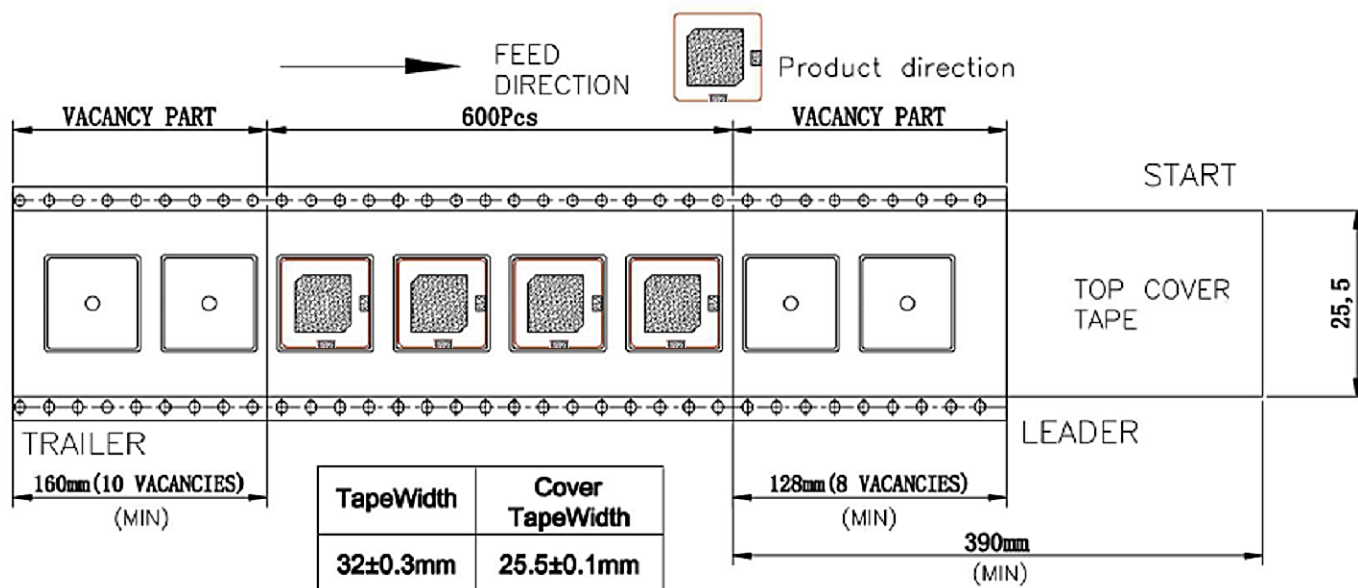


Reel Dimensions





Leader and Trailer Dimensions



Orderable Part Number

Packaging Style	Part Number	Termination
Bulk (loose pcs.)	2440AT62B0085002B	Silver
T & R (13" Reel Embossed Tape)	2440AT62B0085002U (Qty: 600 pcs./reel)	
Evaluation Board (includes Ant+ Coupler) with 1 SMA Connector	2440AT62B0085001CE1	

Important Links

[2440AT62B0085002U Product Page](#)

[2450CH15A0100002E Hybrid Coupler Product Page](#)

[More RF 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.

All sales are subject to Johanson Technology, Inc. terms and conditions.