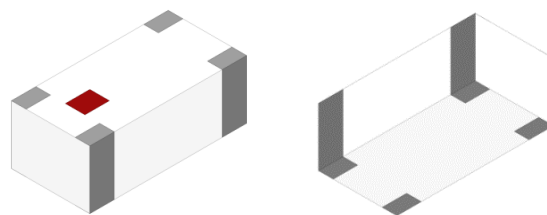




2.45 GHz RF Chip Antenna

- 2.4 – 2.5 GHz pass band
- Bluetooth, WLAN, detuning resilient
- SMD, EIA 1206
- Center-edge mount, circular PCB, or thin edge
- RoHS compliant and AEC-Q200 Qualified available

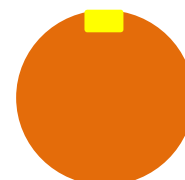
Johanson Technology, Inc. (JTI) miniature RF ceramic chip antennas are made using Low Temperature Co-fired Ceramic (LTCC) technology which has the ability to embed low and high dielectric constants inside our antenna. This enables our components to have high detuning resilience and stability over extreme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



Recommended mounting locations for this antenna

PCB Center-edge

Circular



General Specifications^{1 2}

Passband Frequency (MHz)	2400 - 2500
Impedance (Ω)	50
Return Loss (dB)	6 Min.
Peak Gain (dBi)	1.5 Typ.
Average Gain (dBi)	-1.0 Typ.
Average Radiated Efficiency (%)	72

Maximum Ratings

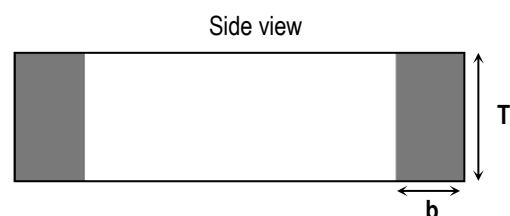
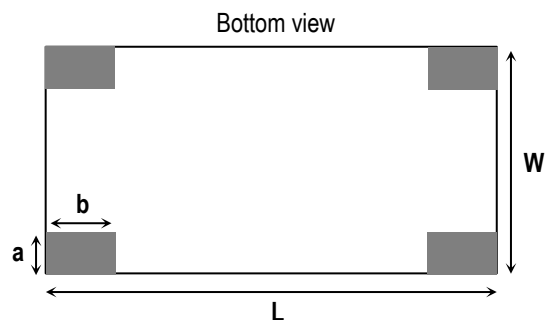
Power Capacity (W)	3 Max. (CW)
Operating Temperature ($^{\circ}\text{C}$)	-40 to +85
Recommended Storage Conditions post-installation ($^{\circ}\text{C}$)	-40 to +85
Recommended Storage Conditions and Period for Unused T&R Product	45% - 75% RH +5 to +35 $^{\circ}\text{C}$ 18 Months Max.

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 2450AT18D0100001CE1.

Mechanical Dimensions

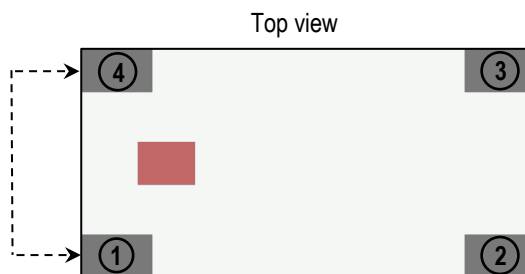
	Inches			Millimeters		
L	0.126	±	0.008	3.20	±	0.20
W	0.063	±	0.008	1.60	±	0.20
T	0.047	±	0.008	1.20	±	0.20
a	0.012	+0.004/-0.008		0.30	+0.10/-0.20	
b	0.020	±	0.008	0.50	±	0.20



Terminal Configuration³

Pin Number	Function	
1	Feed	GND
2	GND	GND
3	GND	GND
4	GND	Feed

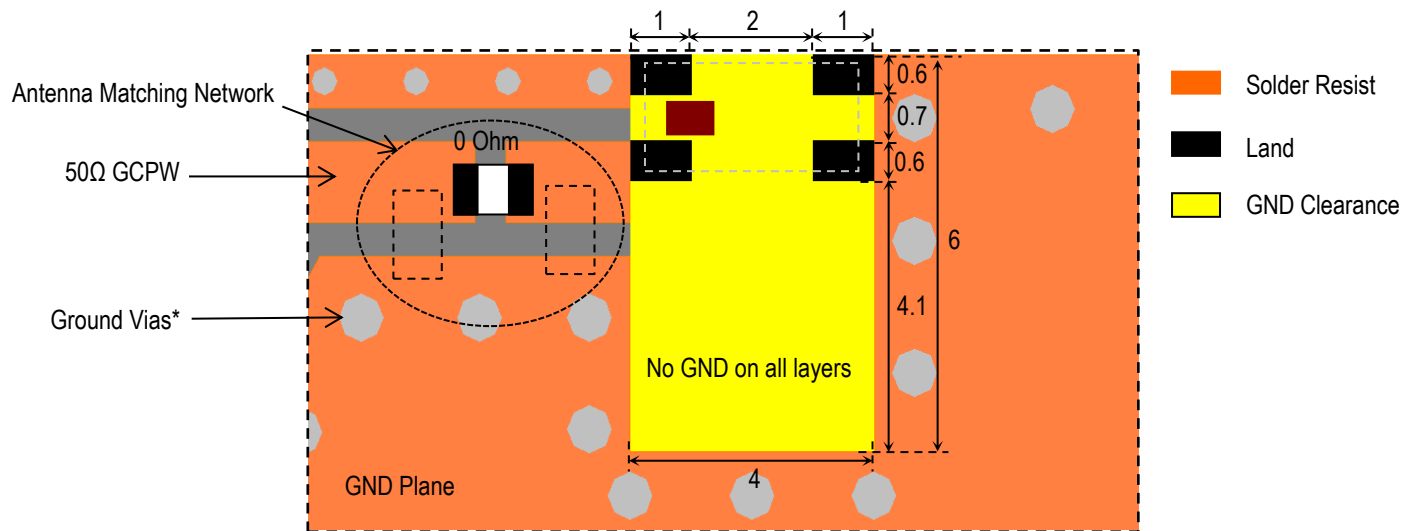
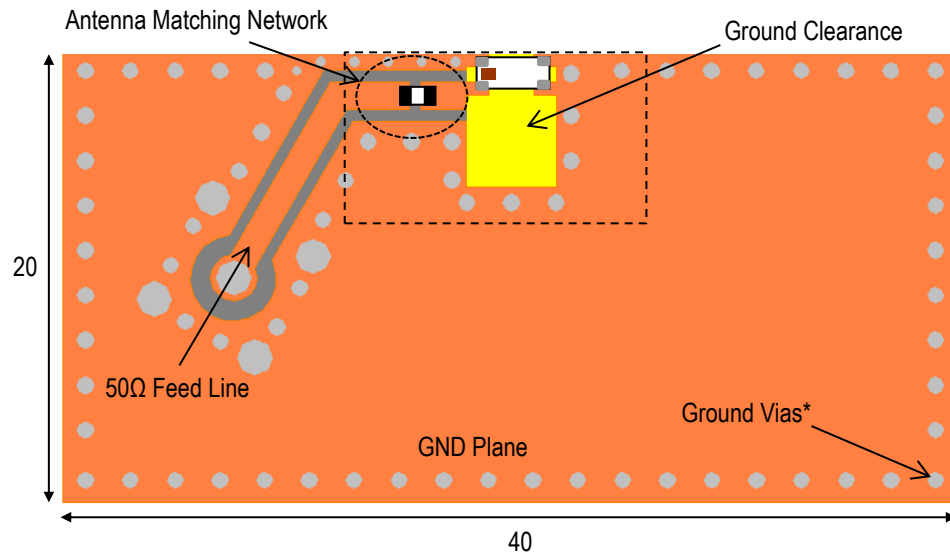
(Can be swapped)



³ The termination type is Nickel Tin. Go to: <https://www.johansontechnology.com/ipcsoldering-profile> for Typical Soldering Profile.

Evaluation Board and Recommended Mounting Configuration (P/N 2450AT18D0100001CE1)

All units in mm



JTI P/N's for Matching Network⁴

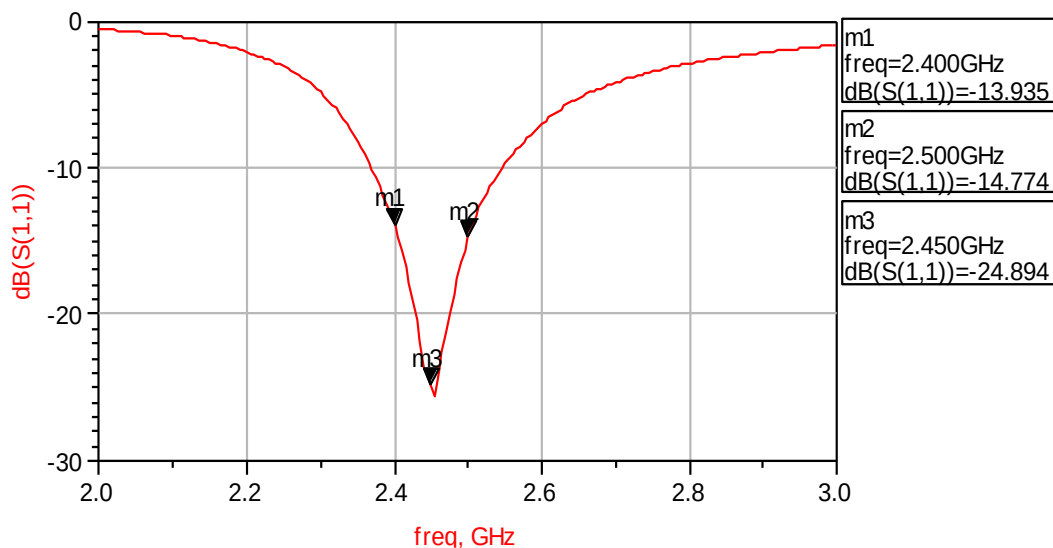
N/A

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

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

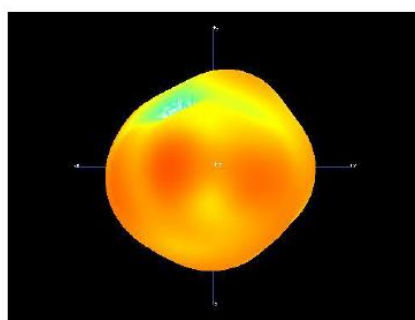
⁴ It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network. The antenna matching network values above are used when antenna is mounted on Johanson's evaluation board. The matching values on client's PCB will be different, depending on the layout, thickness, material, etc. Go to: <https://www.johansontechnology.com/tuning> and see how to obtain the new values.

Evaluation Board Typical Return Loss Measurement (P/N 2450AT18D0100001CE1)

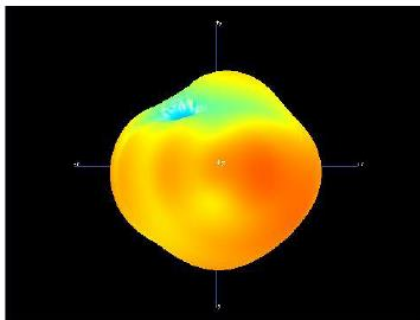


Evaluation Board Typical 3D Radiation Patterns @2.4~2483.5GHz (P/N 2450AT18D0100001CE1)

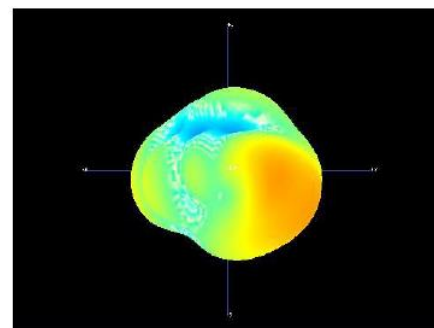
	Efficiency	Peak Gain	Directivity
2400MHz	49.21 %	1.15 dBi	5.32 dBi
2440MHz	60.45 %	1.50 dBi	5.21 dBi
2500MHz	51.53 %	1.48 dBi	5.29 dBi



2400MHz



2440MHz

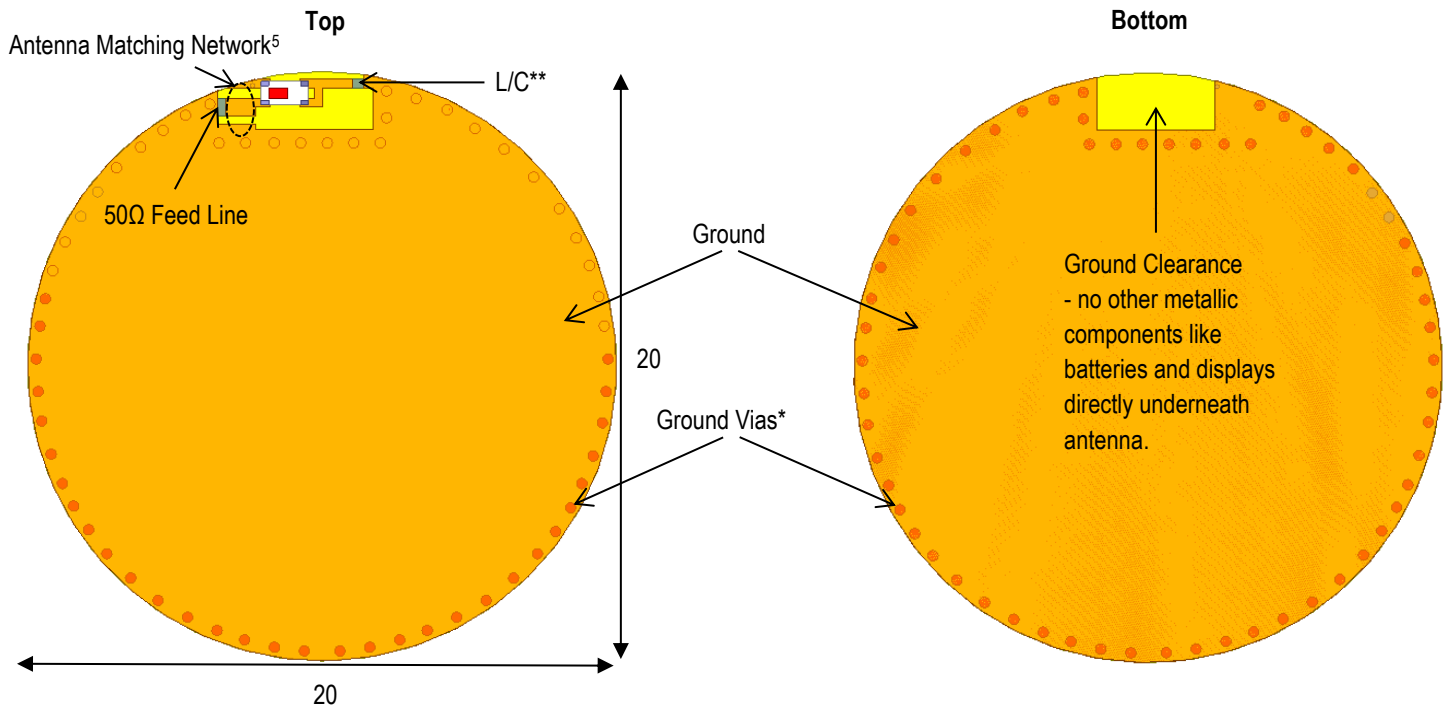


2480MHz

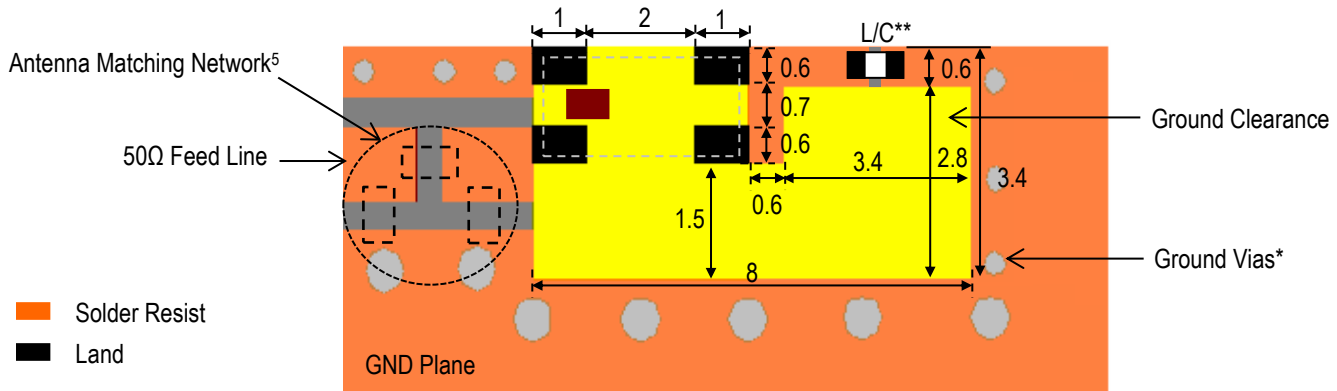
Other Mounting Configurations – for reference purpose only (no evaluation boards available)

Circular PCB

All units in mm



Small Clearance or "Thin edge" Applications



*Note1: Ground Vias are highly recommended to have better antenna efficiency.

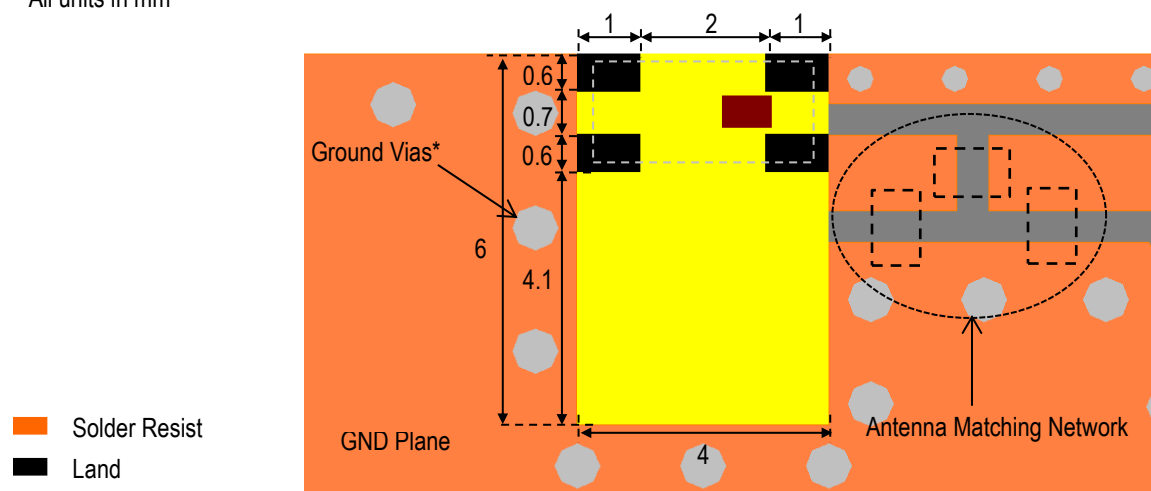
**Note2: L/C component is added to adjust the initial frequency for antenna tuning.

If you have any questions regarding the implementation of this antenna in your PCB's layout, please 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 matching values on client's PCB will be different, depending on the layout, thickness, material, etc. Go to: <https://www.johansontechnology.com/tuning> and see how to obtain the new values.

Fed from Right Side (Feeding the antenna from the right will have no impact on antenna performance)

All units in mm



JTI P/N's for Matching Network⁶

N/A

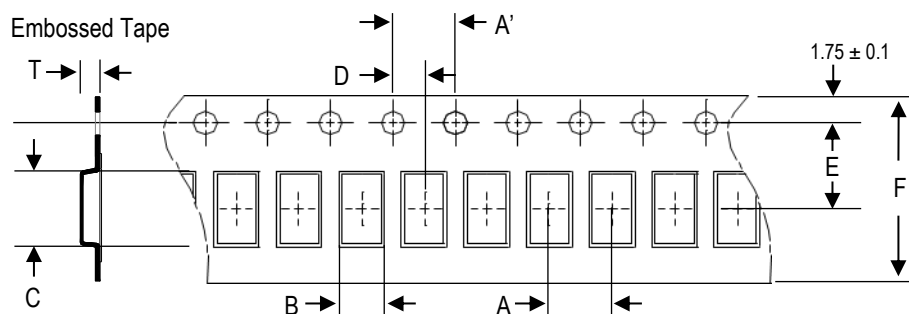
Note: Ground Vias are highly recommended to have better antenna efficiency.

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⁶ It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network. The matching values on client's PCB will be different, depending on the layout, thickness, material, etc. Go to: <https://www.johansontechnology.com/tuning> and see how to obtain the new values.

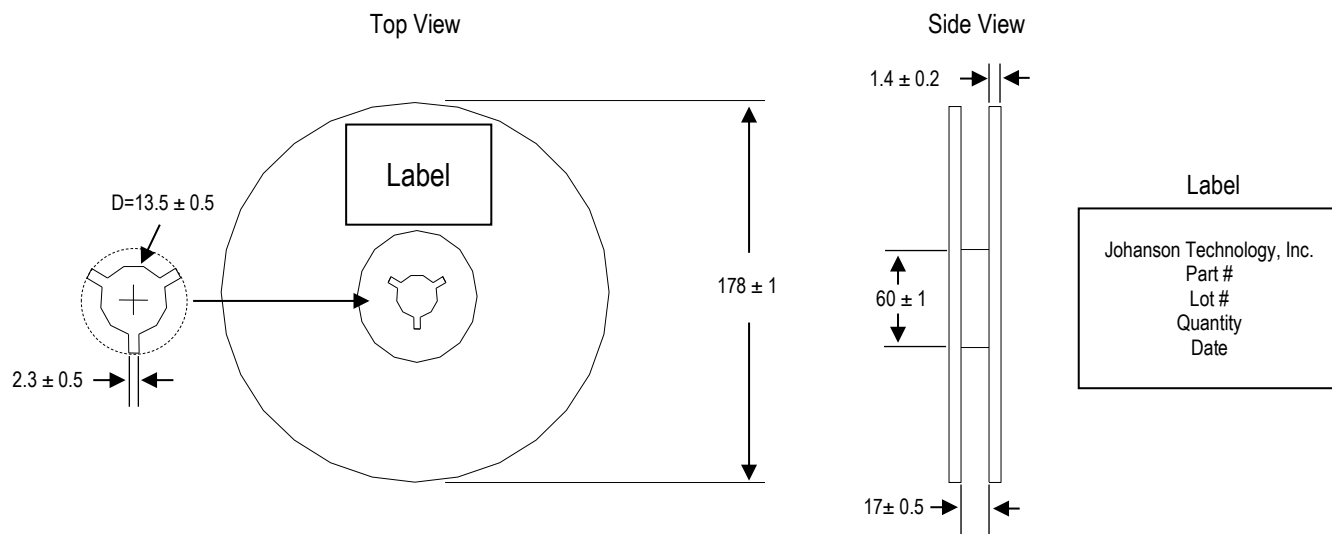
Tape and Reel Specification (Units in mm)

Tape Dimensions

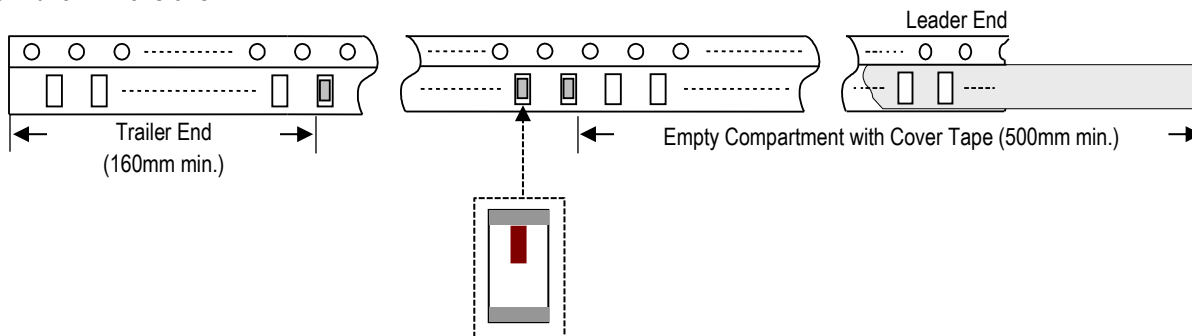


A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
4.0±0.1	4.0±0.05	1.88±0.1	3.5±0.1	2.0±0.05	3.5±0.05	8.0±0.1	1.27±0.1	3,000pcs.	Plastic (Embossed)

Reel Dimensions



Leader and Trailer Dimensions



Orderable Part Number

Packaging Style	Part Number	Termination
Bulk (loose pcs.)	2450AT18D0100001B	Nickel Tin
T & R (7" Reel Embossed Tape)	2450AT18D0100001E (Qty: 3,000 pcs./reel)	
Evaluation Board with 1 SMA Connector	2450AT18D0100001CE1	

Important Links

[2450AT18D0100001E 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.