

IQ3 Mini

P2336

IQ3M0B1

Antennas

Version	Date	Changes	Author
1.0	21/02/2023	First edition	M.U.

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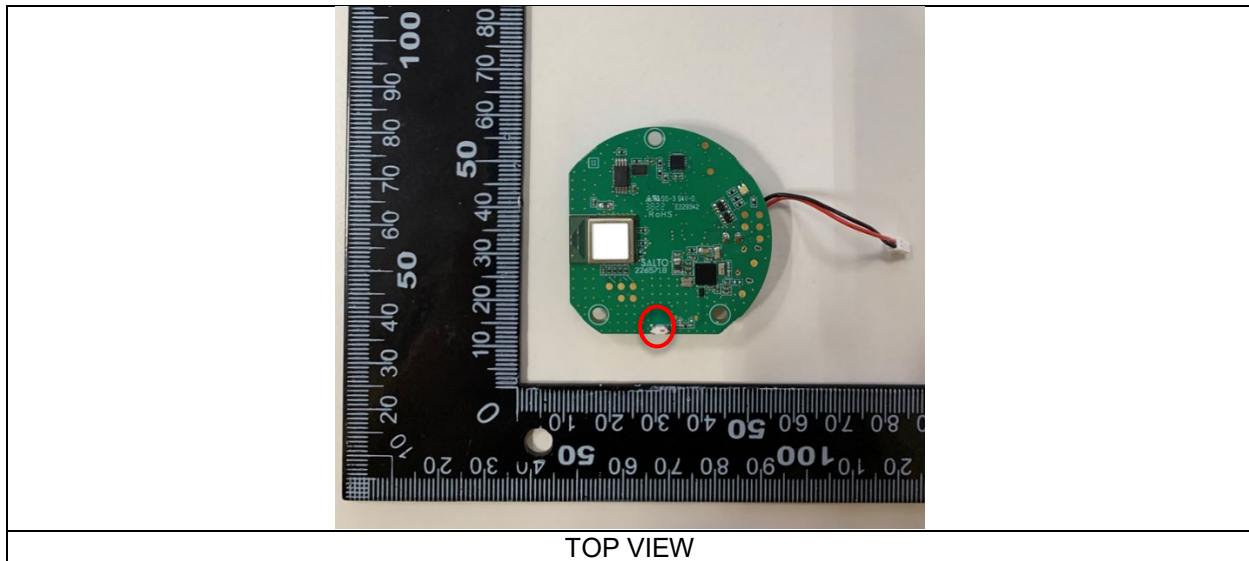
Annex II 12

1 IQ3M0B1

IQ3 Mini P2336		IQ3M0B1
		BLE (1) + Wi-Fi (2)
Antennas	Number of antennas	2
	Manufacturer	1- N/A 2- N/A
	Model number	1- N/A 2- N/A
	Type	1- Integral, Chip 2- Integral, Chip
	Gain	1- 1.5 dBi 2- 3.0 dBi
	Frequency of Operation	1- 2400 - 2483.5 MHz 2- 2400 - 2483.5 MHz
Channels	Number of channels	1- 40 2- IEEE 802.11b/g/n standard
	Spacing	1- 2 MHz 2- IEEE 802.11b/g/n standard
	Bandwidth	1- 2 MHz 2- IEEE 802.11b/g/n standard
Type of Modulation		1- GFSK 2- IEEE 802.11b/g/n standard
Declared Nominal Output Power (Max.)		1- 6 dBm 2- 15 dBm
ITU Emission Designator		1- F1D 2- IEEE 802.11b/g/n standard
Equipment Configuration for frequency Stability: Data Rate		1- 1 Mbit/s 2- IEEE 802.11b/g/n standard
Equipment Configuration for Field Strenght Measurement: Data Rate		1- 1 Mbit/s 2- IEEE 802.11b/g/n standard

Bluetooth LE Antenna

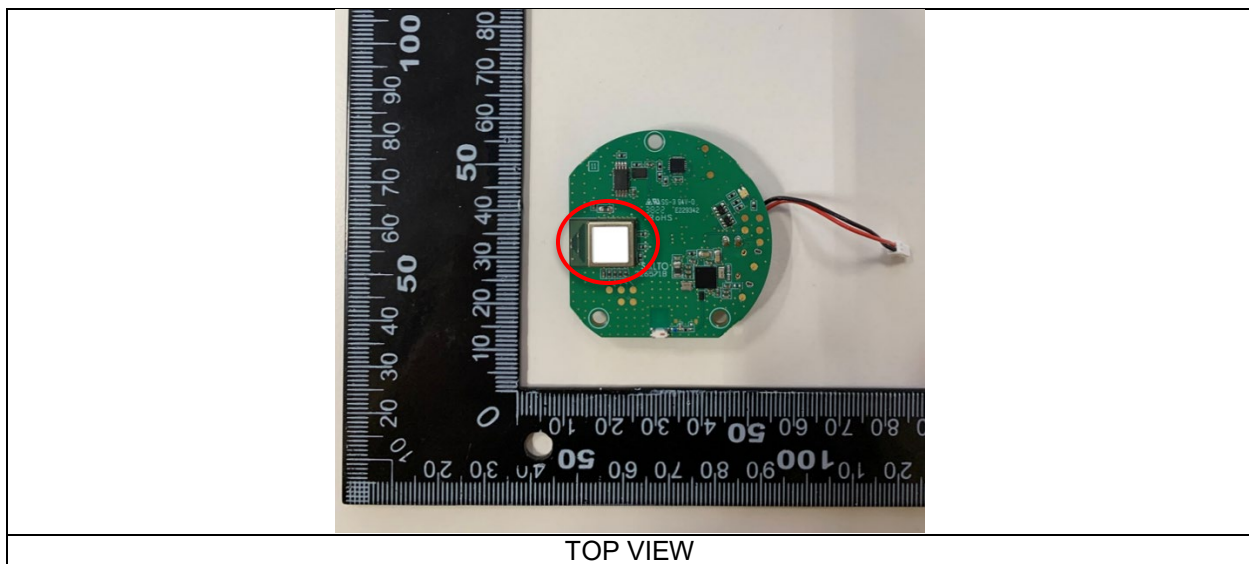
The Bluetooth LE antenna is the 2450AT18D0100 model from Johanson Technology. The antenna is located on the top side of the control circuit, 226571. The following image shows the location of the antenna on the control circuit.



The remaining technical information of the antenna is described in the datasheet attached in Annex I.

Wi-Fi Antenna

The antenna used for Wi-Fi is a built-in antenna integrated in the NINA-W156-03B certified module from u-blox. The module is located on the top of the 226571 circuit. The following image shows the location and dimensions of the module.



The remaining technical information of the antenna is described in the datasheet attached in Annex II.

Annex I

High Frequency Ceramic Solutions

AEC-Q200 Qualification Available

**2.45 GHz SMD Antenna, EIA 1206, Detuning resilient,
Edge Mount Design**
**New Global P/N 2450AT18D0100001
Legacy P/N 2450AT18D0100**

Detail Specification: 8/24/2022

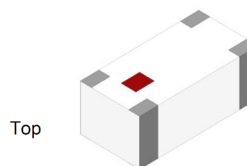
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Let us help you with the antenna design, optimization, and tuning!

<https://www.johansontechnology.com/ask-a-question>

General Specifications

New Global Part Number	2450AT18D0100001
Frequency (GHz)	2.4 - 2.5
Peak Gain (dBi)	1.5 typ. (XZ-total)
Average Gain (dBi)	-1.0 typ. (XZ-total)
Radiated Efficiency ¹	72%
Return Loss (dB)	10 min.
Impedance (Ω)	50
Input Power (W)	3 max. (CW)
Operating Temperature	-40 to +125°C
Recommended Storage Conditions and Period for unused Product on T&R	+5 to +35°C Humidity 45 - 75% RH 18 months max.
Reel Quantity (pcs./reel)	3,000



Top



Bottom

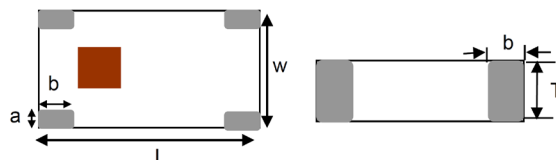
¹Efficiency measured on Johanson's evaluation board PN 2450AT18D0100001CE1

Part Number Explanation (See last page for more info on new and legacy part numbers)

P/N Suffix	Packing Style	Bulk (loose pcs.)	Suffix = B	e.g. 2450AT18D0100001B
		T & R	Suffix = E	e.g. 2450AT18D0100001E
		100% Tin	Suffix = None	e.g. 2450AT18D0100001(B or S)
	Evaluation Board	2450AT18D0100001CE1		

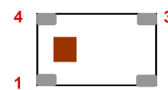
Mechanical Dimensions

	In	mm
L	0.126 ± 0.008	3.20 ± 0.2
W	0.063 ± 0.008	1.60 ± 0.2
T	0.047 ± 0.004	1.20 ± 0.1
a	0.012 +0.004 / -0.008	0.30 +0.1 / -0.2
b	0.020 ± 0.008	0.50 ± 0.2



Terminal Configuration

No.	Function 1	Function 2
1	FEED	GND
2	GND	GND
3	GND	GND
4	GND	FEED



Function 1: Antenna fed from left

Function 2: Antenna fed from right

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Edge Mount Design

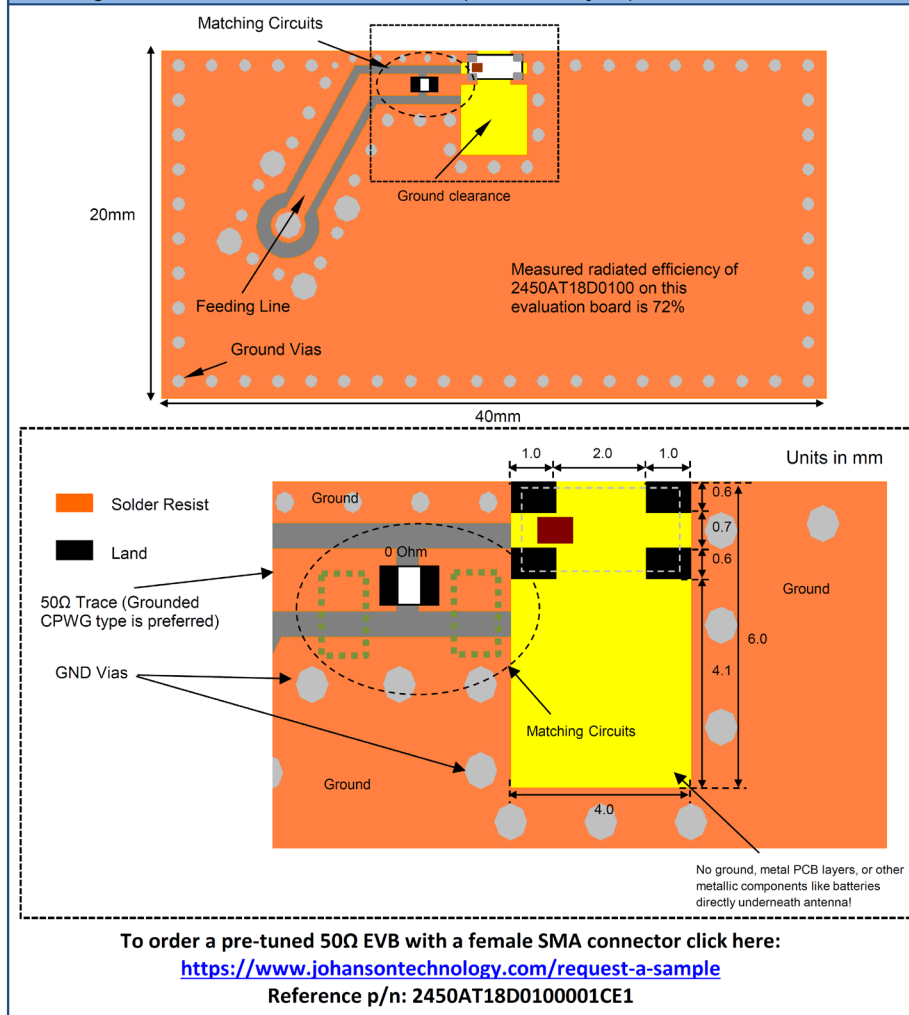
New Global P/N 2450AT18D0100001

Legacy P/N 2450AT18D0100

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Mounting Considerations 1: Evaluation Board (Standard Layout)



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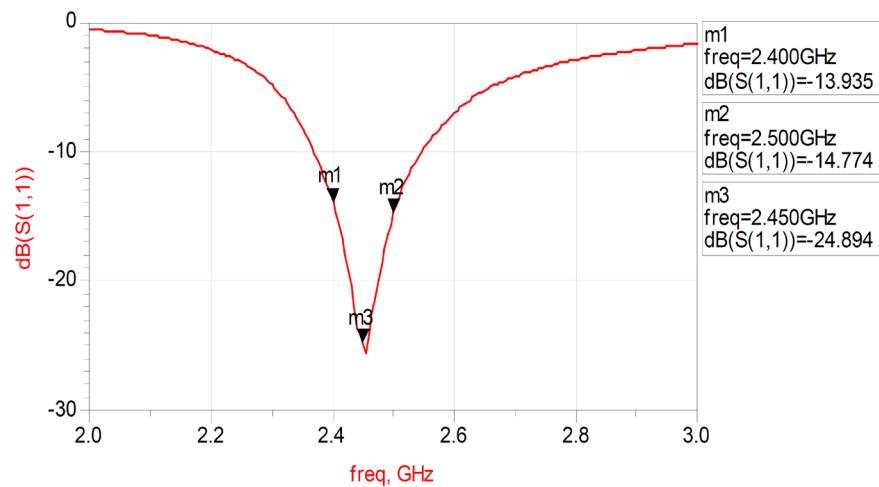
Legacy P/N 2450AT18D0100

Detail Specification: 8/24/2022

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Mounting Considerations 1: Electrical Performance @25°C

Measured Return Loss



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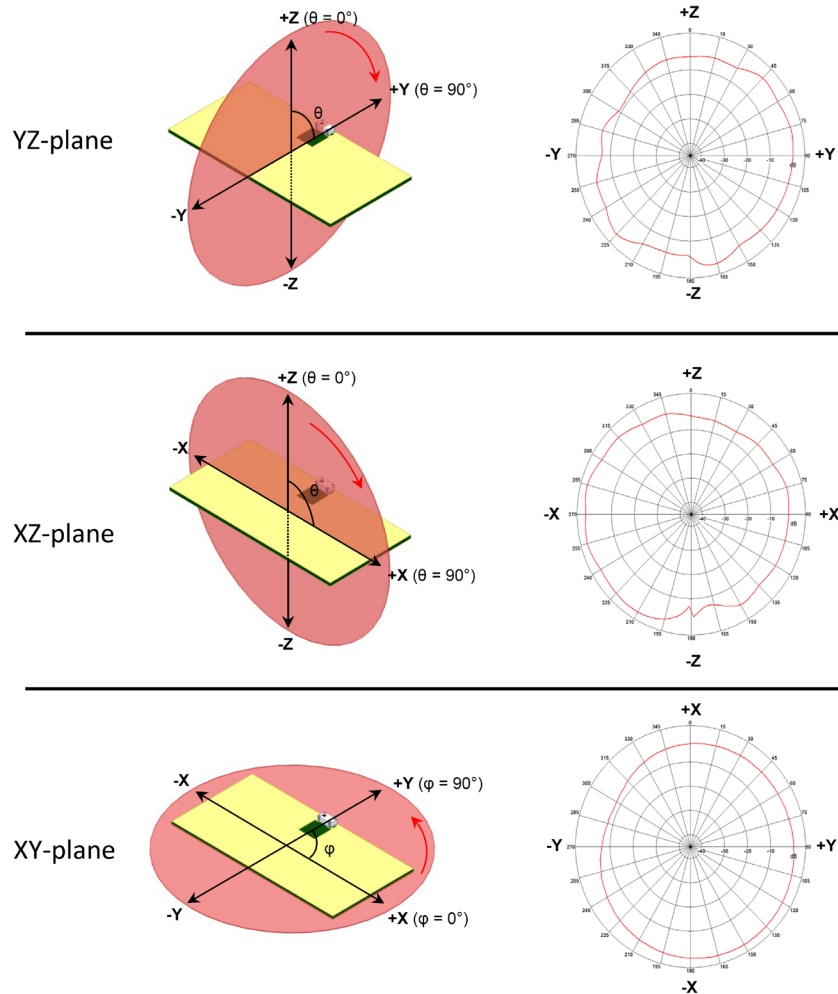
New Global P/N 2450AT18D0100001

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Mounting Considerations 1: Typical 2D radiation patterns @ 2.44GHz



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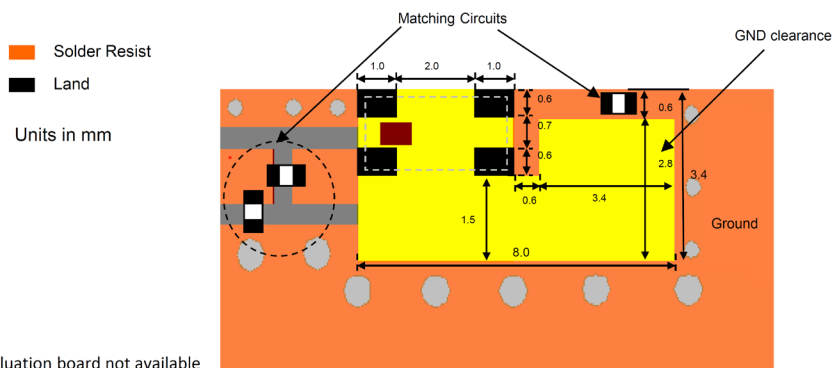
Legacy P/N 2450AT18D0100

Detail Specification: 8/24/2022

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Mounting Considerations 2: Small Clearance or "Thin edge" Applications*

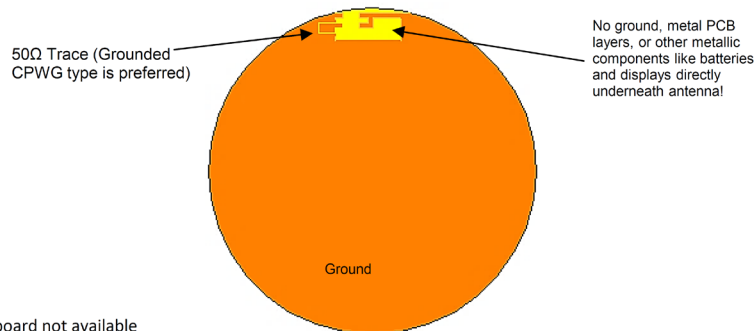
Frequency (GHz)	Peak Gain (dBi)	Average Gain (dBi)	Radiated Efficiency (%)
2.45	0.3 (XZ-plane)	-3.6 (XZ-plane)	66



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Mounting Considerations 3: "Thin edge" application on circular PCB



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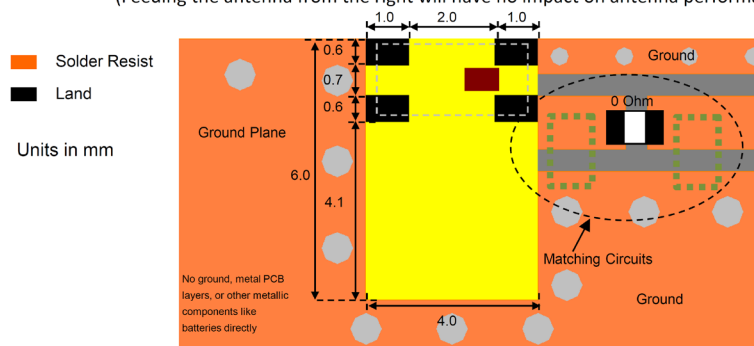
Legacy P/N 2450AT18D0100

Detail Specification: 8/24/2022

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Mounting Considerations 4: Fed from Right Side*

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



*Evaluation board not available

Would you like the layout file of the above? Have antenna tuning issues?
Please contact us if you have any questions regarding the implementation of this antenna in your PCB's layout. We'll be happy to guide you to maximize the antenna's performance.

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Antenna tuning, optimization, and validation services:

<https://www.johansontechnology.com/ipc-antenna-services>

For more antennas and to download measured S-parameters, go to:

<https://www.johansontechnology.com/antennas>

Soldering Information

<https://www.johansontechnology.com/ipcsoldering-profile>

MSL Info

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Packaging Information

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Recommended Storage Condition and Max Shelf Life

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Johanson's New Global Part Number Schema

Johanson has instituted a new Global Part Numbering (GPN) system. **Only the part number is changing.** The parts are produced with the exact same materials, manufacturing processes, manufacturing controls, dimensions, physical attributes and testing as the parts supplied with the legacy part numbers.

A database for part number crosses can be accessed at:

<https://www.johansontechnology.com/pn-search>

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