XS4 Mini ANSI

E1721

C20M

Antennas

Version	Date	Changes	Author
1.0	23/05/2022	First version	M.U.

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1 C20M

XS4 Mini ANSI E1721		C20M MIFARE (1) + Bluetooth LE (2)
Antennas	Number of antennas	2
	Manufacturer	1- SALTO Systems, S.L. 2- N/A
	Model number	1- C20M 2- N/A
	Type	1- Integral, PCB 2- Integral, Chip
	Gain	1- N/A 2- 1.5 dBi
	Frequency of Operation	1- 13.553 - 13.567 MHz 2- 2400 - 2483.5 MHz
Channels	Number of channels	1- N/A 2- 40
	Spacing	1- N/A 2- 2 MHz
	Bandwith	1- N/A 2- 2 MHz
Type of Modulation		1- ASK 100%, OOK (subcarrier fc/16) 2- GFSK
Declared Nominal Output Power (Max.)		1- 23 dBm 2- 6 dBm
ITU Emission Designator		1- K1D 2- F1D
Equipment Configuration for frequency Stability: Data Rate		1- 106 Kbit/s, 26.48 Kbit/s 2- 1 Mbit/s
Equipment Configuration for Field Strenght Measurement: Data Rate		1- 106 Kbit/s, 26.48 Kbit/s 2- 1 Mbit/s

RFID Antenna

The RFID antenna was designed by Salto Systems, S.L. at Arkotz 9, Pol. Lanbarren 20180 Oiartzun (Gipuzkoa), Spain. The antenna model is C20M and it is located on the antenna circuit, 221376B1. The dimensions of the circuit and the antenna are shown in the following images.

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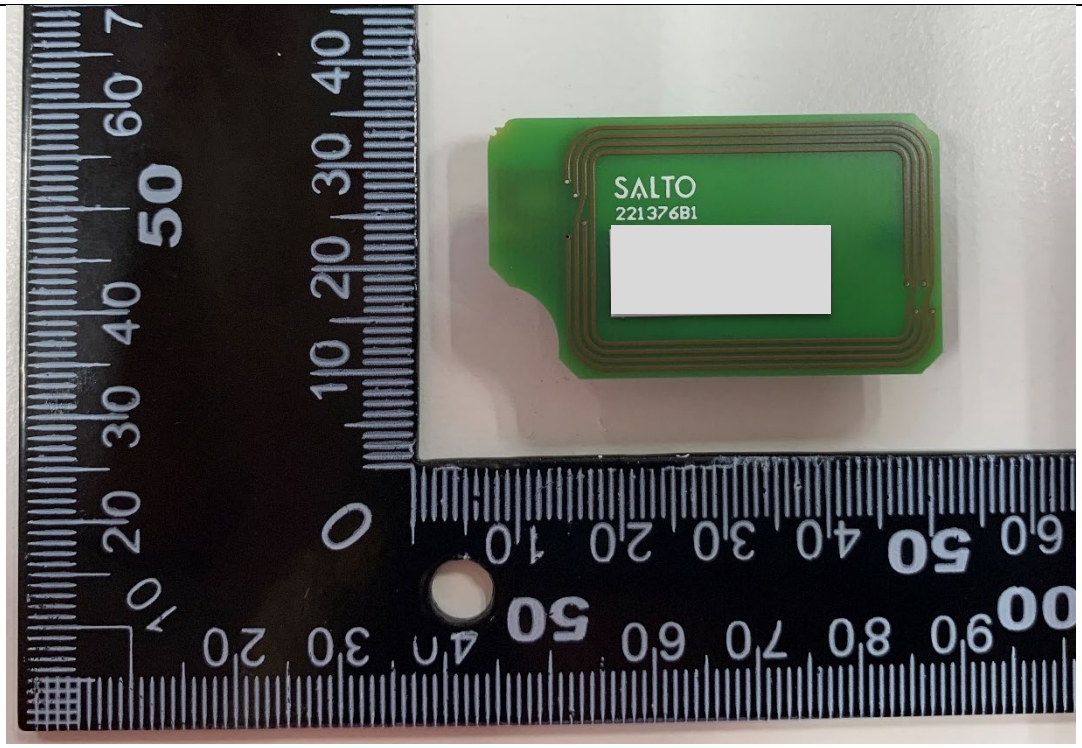
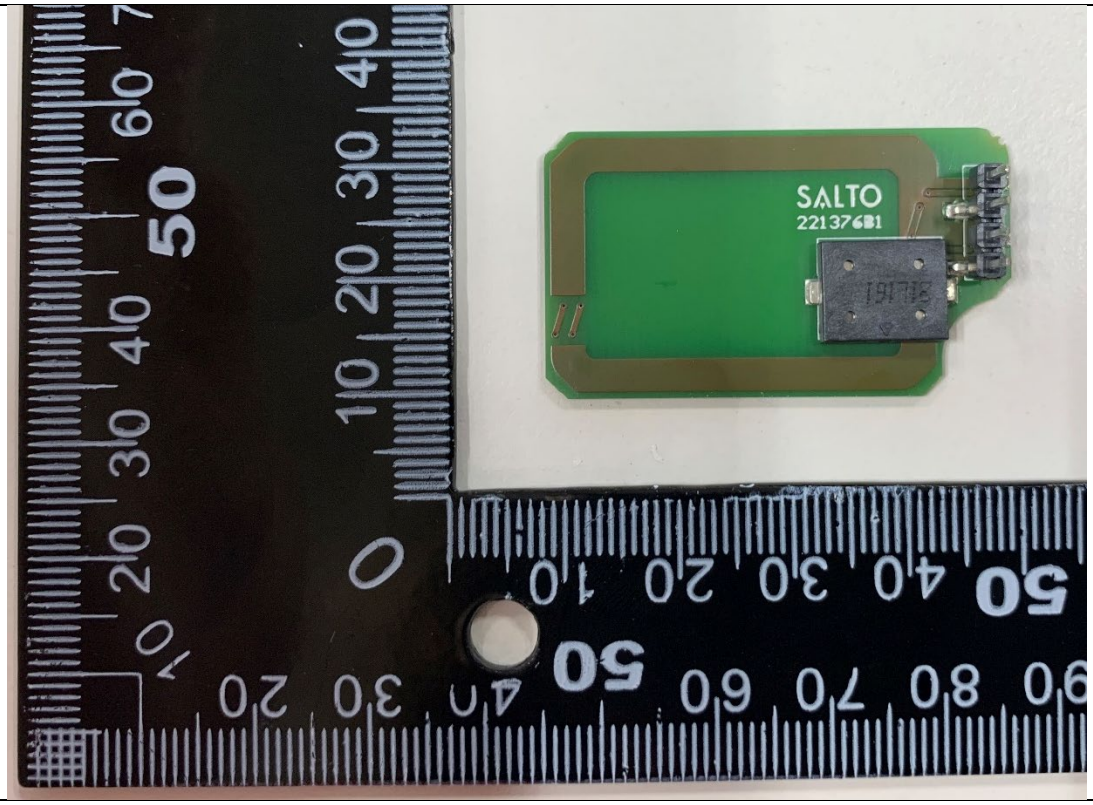


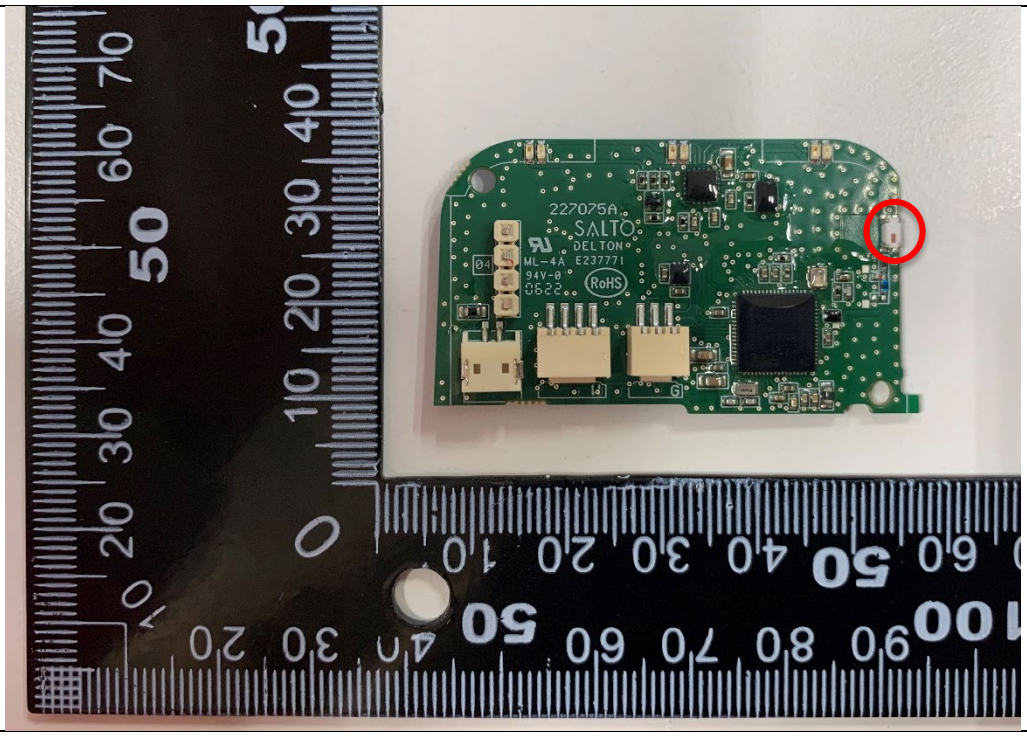
TOP VIEW



BOTTOM VIEW

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, 207075A. The following image shows the location of the antenna on the control circuit.



TOP VIEW

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

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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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*	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

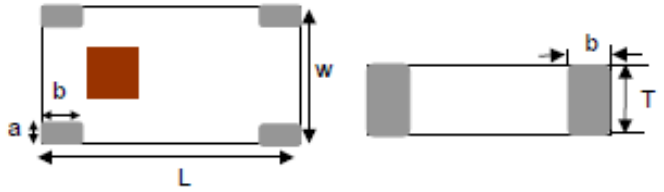
*Efficiency measured on Johanson's evaluation board PN 2450AT18D0100001CE1

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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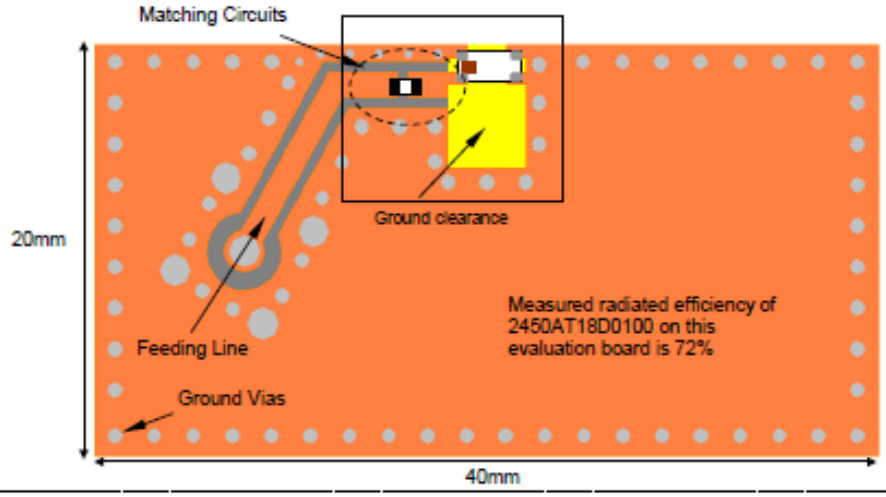
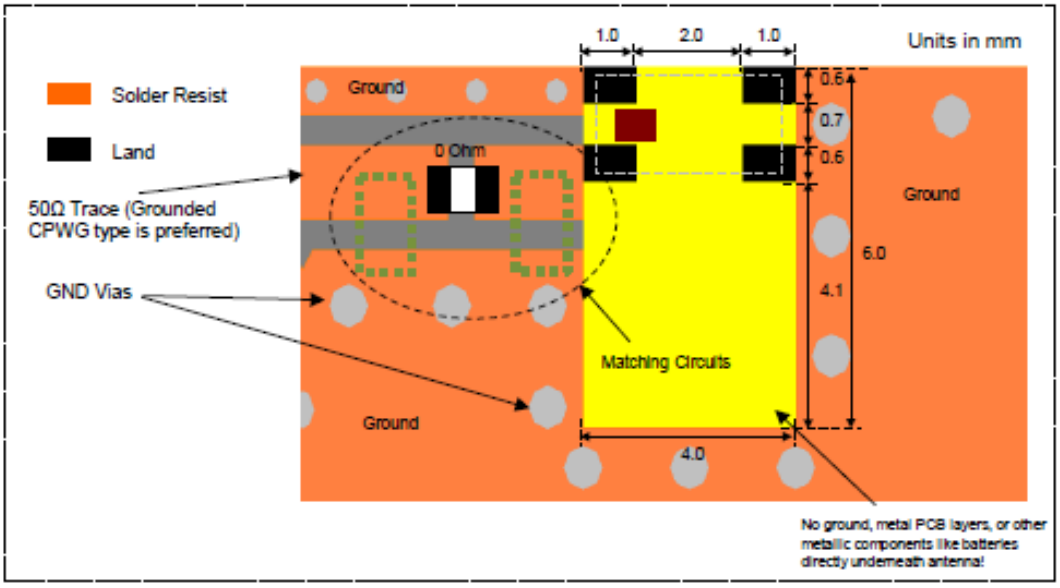
High Frequency Ceramic Solutions

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	Page 2 of 7

Mounting Considerations 1: Evaluation Board (Standard Layout)





To order a pre-tuned 50Ω EVB with a female SMA connector click here:
https://www.johansontechnology.com/request-a-sample
Reference p/n: 2450AT18D0100001CE1

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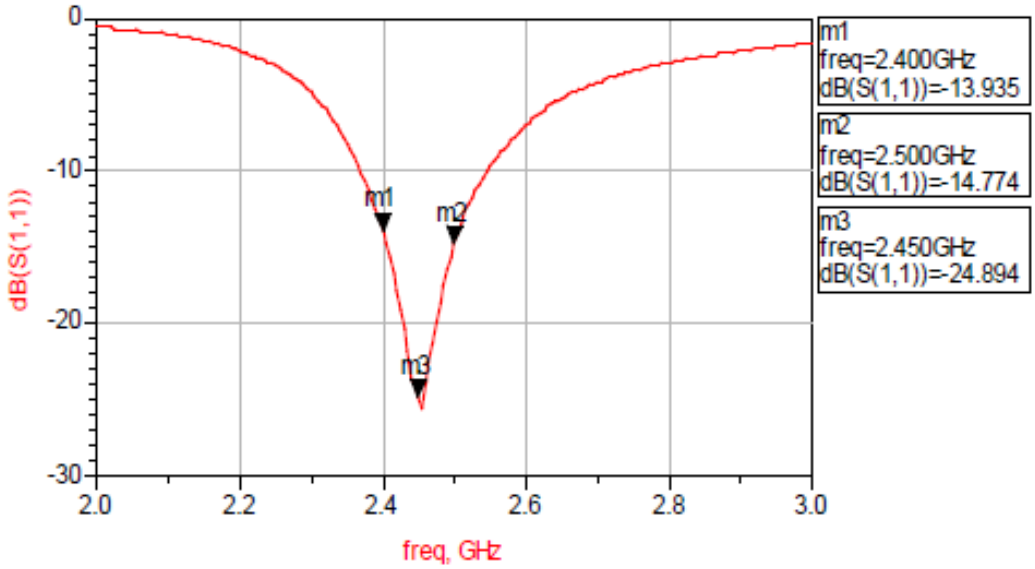
New Global P/N 2450AT18D0100001
Legacy P/N 2450AT18D0100

Detail Specification: 8/24/2022

Mounting Considerations 1: Electrical Performance @25°C

Measured Return Loss



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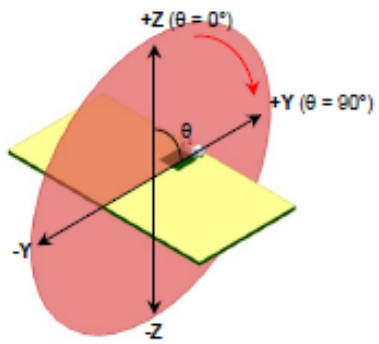
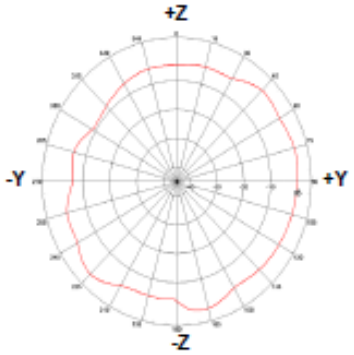
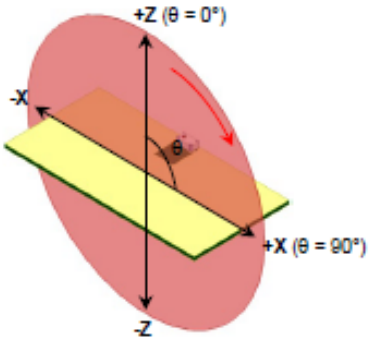
Mounting Considerations 1: Typical 2D radiation patterns @ 2.44GHz

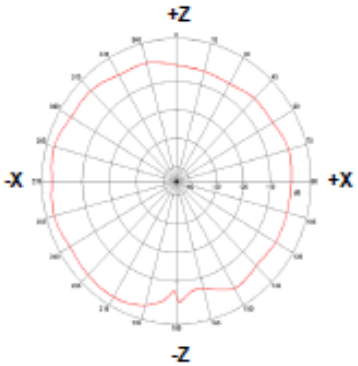
YZ-plane



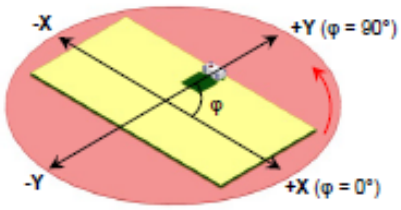


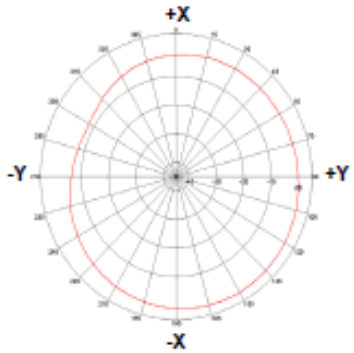
XZ-plane





XY-plane





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Detail Specification: 8/24/2022	Page 5 of 7

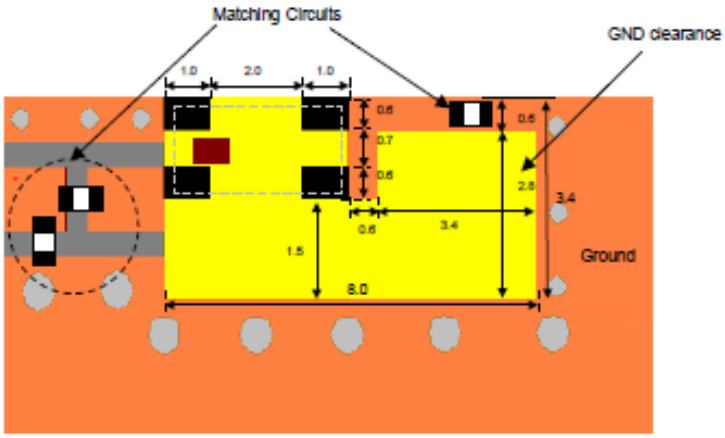
Mounting Considerations 2: Small Clearance or "Thin edge" Applications*

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

Solder Resist

Land

Units in mm



*Evaluation board not available

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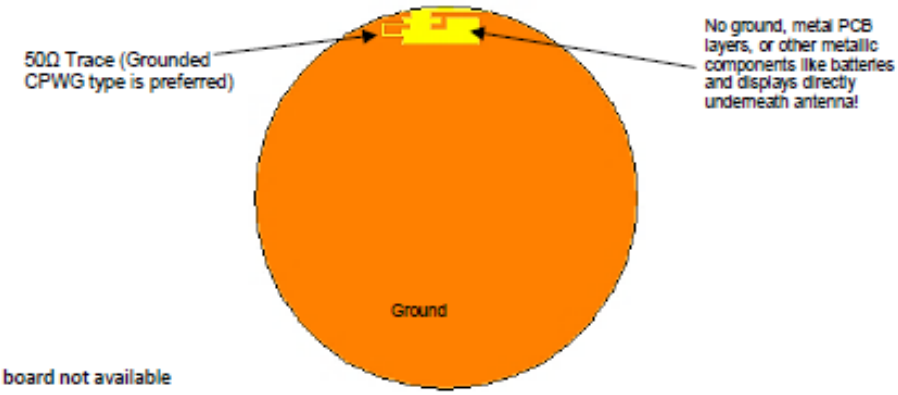
Mounting Considerations 3: "Thind edge" application on circular PCB



*Evaluation board not available

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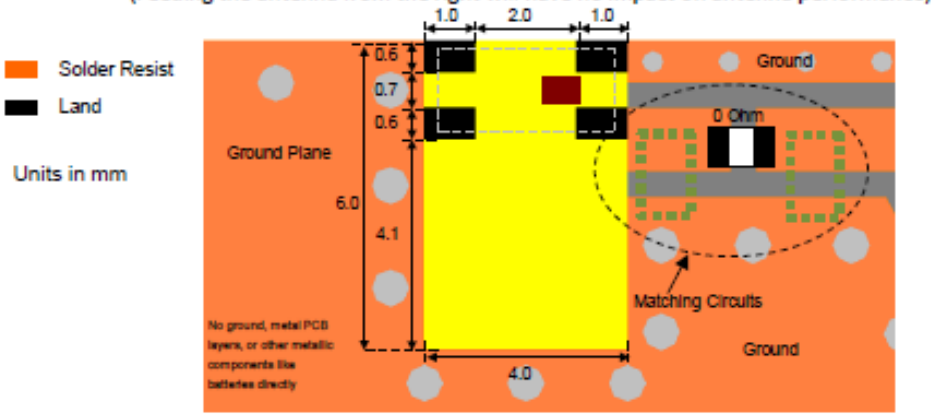
Mounting Considerations 4: Fed from Right Side*

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



*Evaluation board not available

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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

https://www.johansontechnology.com/msl-rating

Packaging Information

https://www.johansontechnology.com/tape-reel-packaging

For layout review contact our applications team at:

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https://www.johansontechnology.com/rohs-compliance

Recommended Storage Condition and Max Shelf Life

https://www.johansontechnology.com/recommended-storage-conditions

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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