

"High Frequency Ceramic Solutions"

1.575 & 1.602 GHz GPS/GLONASS SMD Chip Antenna

P/N 1575AT54A0010

Detail Specification: 2/12/2013

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General Specifications

Part Number	1575AT54A0010	Reel Quantity	500 pcs
Frequency (MHz)*	1575 - 1605 Mhz	Operating Temperature	-40 to +85°C
Peak Gain (YZ-total)	1.3 dBi typ.	Recommended Storage Conditions	+5 ~ +35 °C, Humidity 45~75%RH
Average Gain (YZ-total)	-0.7 dBi typ.	Storage Period	18 months max.
Return Loss	9.5 dB min.	Power Capacity	2W max. (CW)
Impedance	50 Ω		

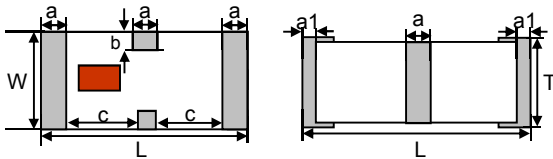
*Plus 5MHz of guard band on each side

Part Number Explanation

P/N Suffix	Packing Style	Bulk	Suffix = S	eg. 1575AT54A0010S
		T & R	Suffix = E	eg. 1575AT54A0010E
		100% Tin	Suffix = E or S	eg. 1575AT54A0010(E or S)
	Termination style	Tin / Lead	Please Consult Factory	

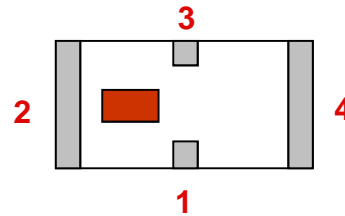
Mechanical Dimensions

	In	mm
L	0.591 ± 0.008	15.00 ± 0.20
W	0.157 ± 0.008	4.00 ± 0.20
T	0.126 ± 0.008	3.20 ± 0.20
a	0.039 ± 0.008	1.00 ± 0.20
a1	0.020 ± 0.008	0.50 ± 0.20
b	0.020 ± 0.008	0.50 ± 0.20
c	0.236 ± 0.008	6.00 ± 0.20



Terminal Configuration

No.	Function
1	Feeding Point
2	GND
3	NC
4	GND



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GPS-only Mounting Considerations

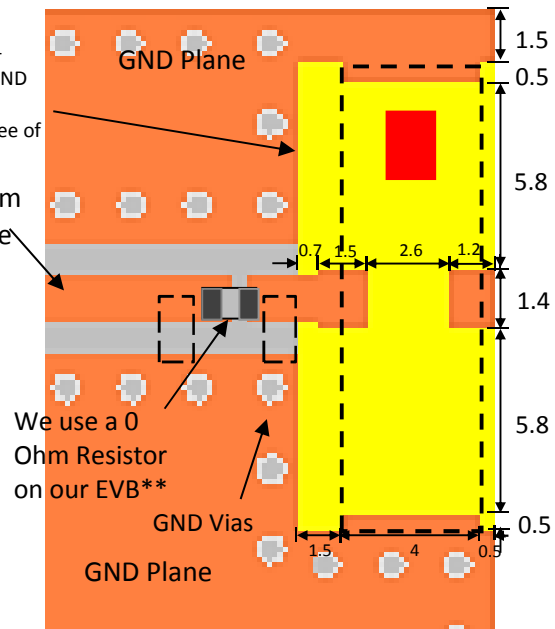
Without Matching Circuits (Unit in mm)

* Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

Yellow area- complete GND and layer clearance free of

*50 ohm feedline

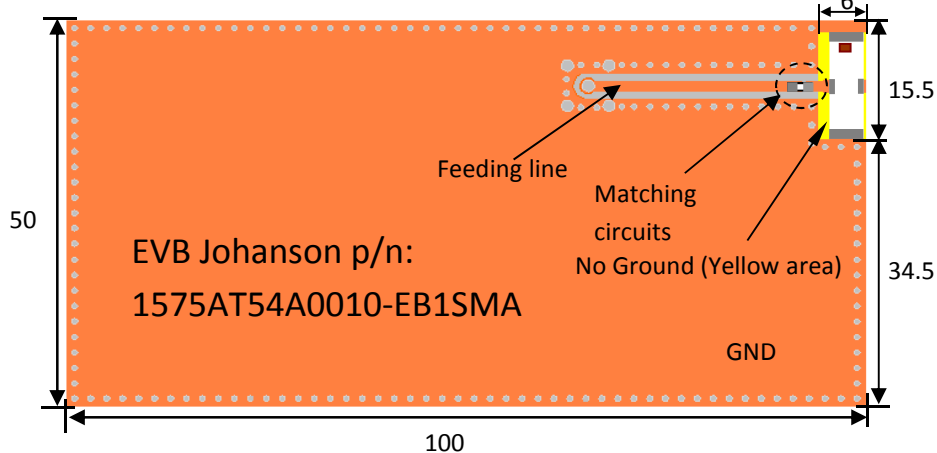
****Note 2:** It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network. The antenna matching network values above are used when antenna is mounted on Johanson's evaluation board. The matching values on clinet's PCB will be different. Go to: <http://johansontechnology.com/tuning> and see how to obtain the new values. If you need



<http://www.johansontechnology.com/en/ask-a-technical-question.html>

All units in mm

Johanson SMA test board-top view: Overall GND plane can be smaller, this is just for reference



All units in mm

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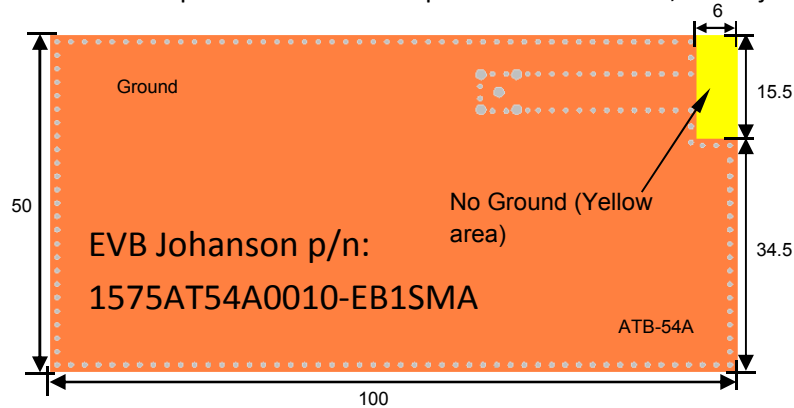
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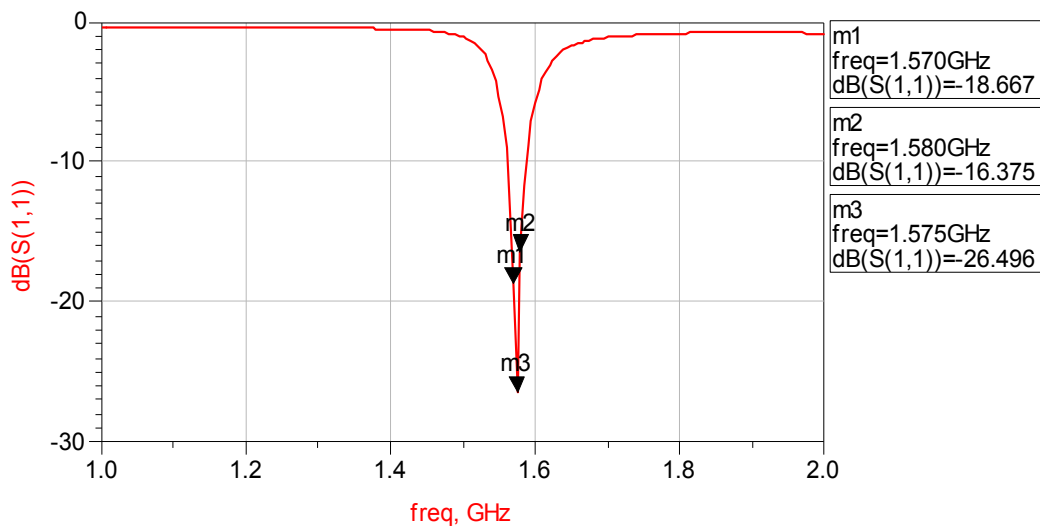
GPS-only Mounting Considerations

Johanson SMA test board-top view: Overall GND plane can be smaller, this is just for reference



Typical Electrical Characteristics (T=25°C)

Return Loss / Without Matching Circuits



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GPS + GLONASS Mounting Considerations

Without Matching Circuits (Unit in mm)

* Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

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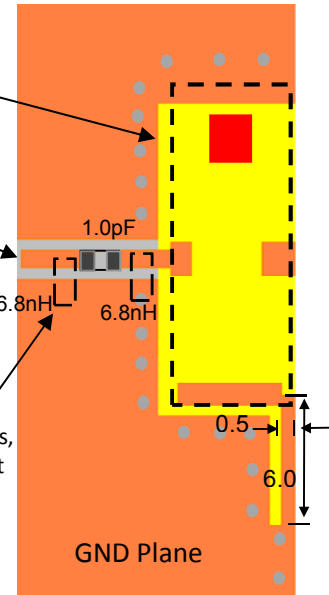
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Yellow area-
complete GND
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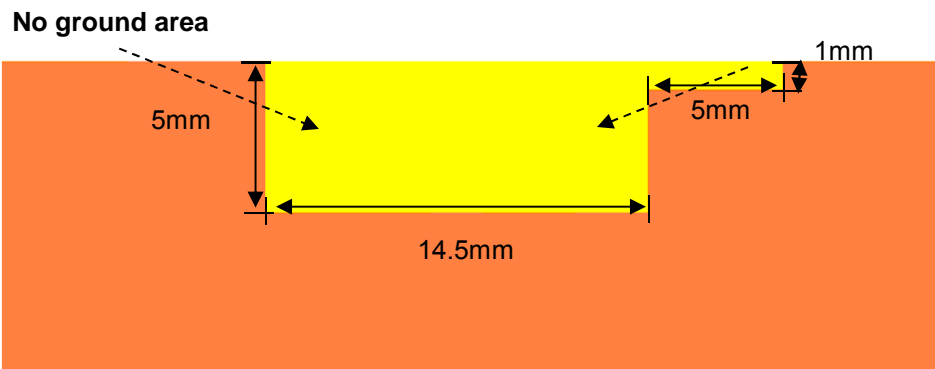
1.0pF
6.8nH 6.8nH

We use a 6.8nH
shunt, 1pF series,
and 6.8nH shunt



All units in mm

Bottom view:



All units in mm

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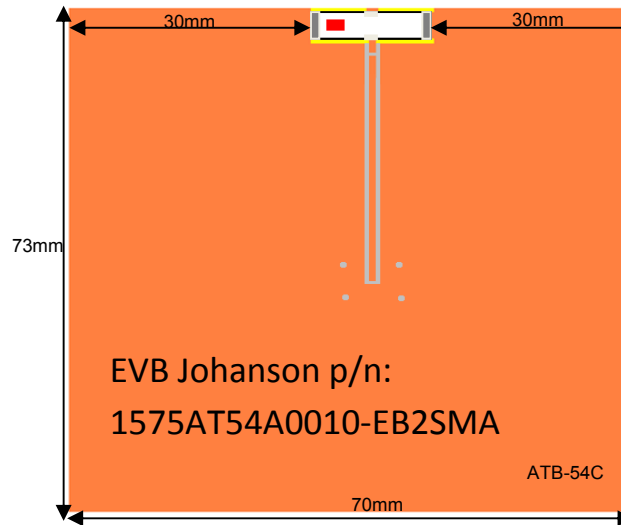
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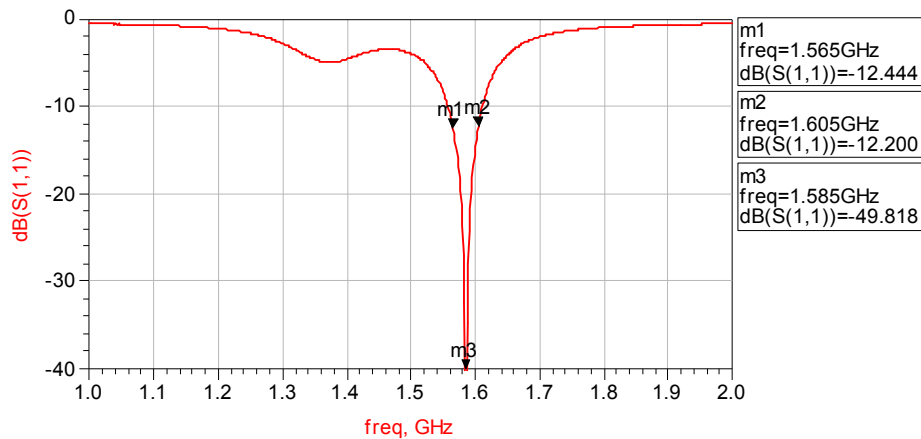
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Johanson SMA test board-top view: Overall GND plane can be smaller, this is just for reference



Typical Electrical Characteristics (T=25°C)

Return Loss / Without Matching Circuits



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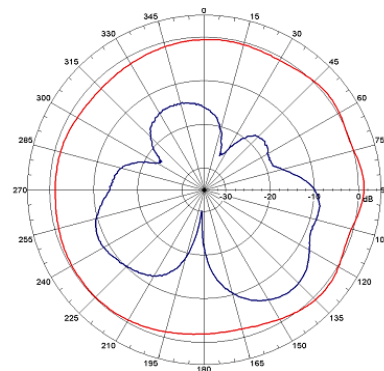
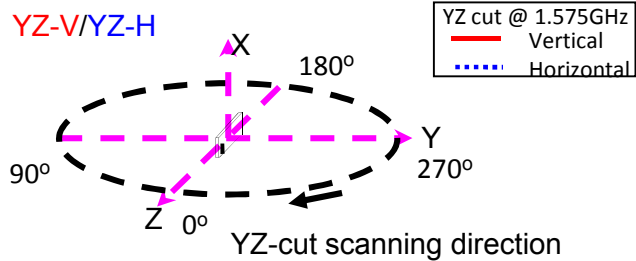
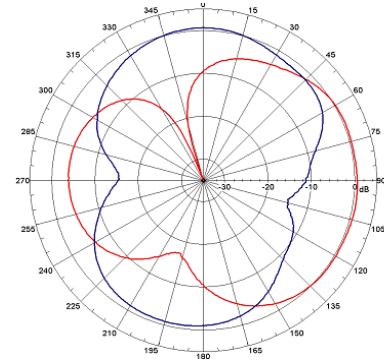
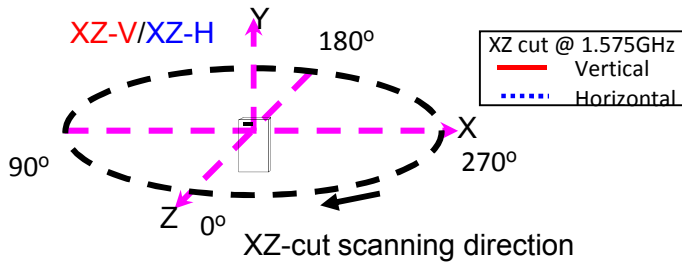
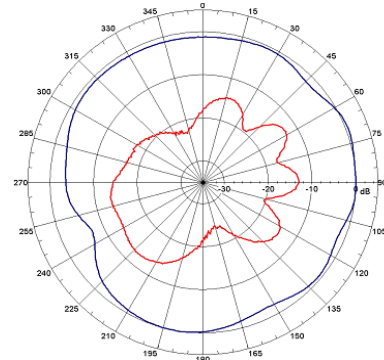
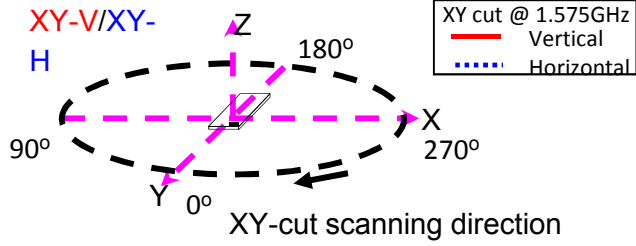
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GPS Typical Electrical Characteristics (T=25°C)

Typical Radiation Patterns



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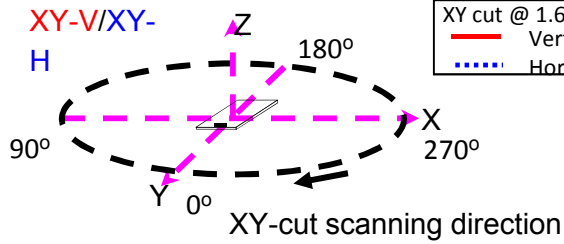
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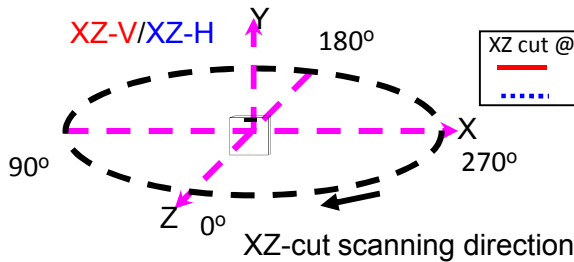
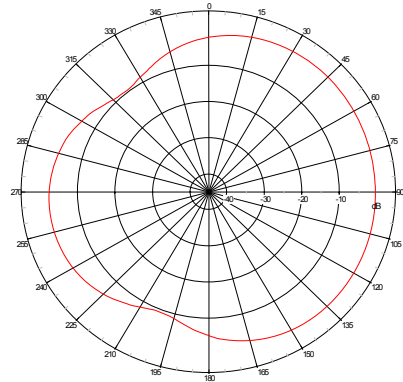
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GPS Typical Electrical Characteristics (T=25°C)

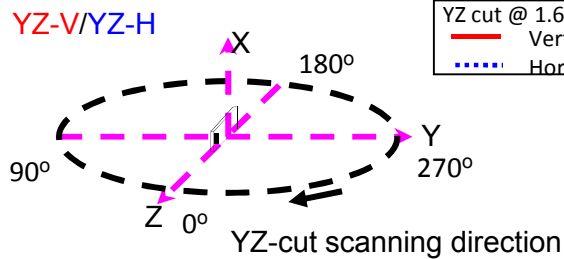
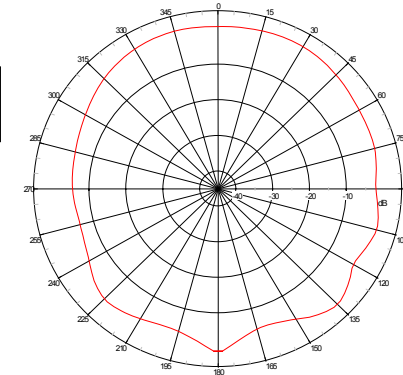
Typical Radiation Patterns



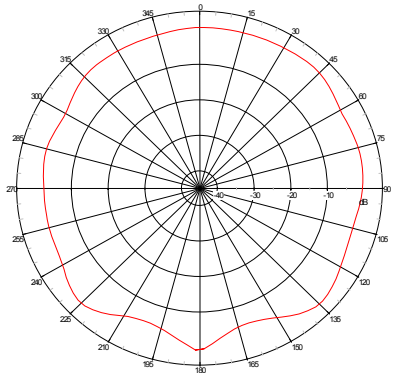
XY cut @ 1.602GHz
— Vertical
..... Horizontal



XZ cut @ 1.602GHz
— Vertical
..... Horizontal



YZ cut @ 1.602GHz
— Vertical
..... Horizontal



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