"High Frequency Ceramic Solutions"

GPS, Galileo, BeiDou (BDS), and Glonass (GLNSS), Quad-Band, Low Cost, Linearly Polarized, Omnidirectional Chip Antenna

Detail Specification: 9/3/2019  Page 1 of 10

Let us help tune and validate this antenna to your PCB, go to: https://www.johansontechnology.com/ipc-antenna-services

<table>
<thead>
<tr>
<th>Part Number</th>
<th>1575AT43A0040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency (MHz)</td>
<td>1561 1575 1602</td>
</tr>
<tr>
<td>Ave. Radiated Efficiency</td>
<td>50% 50% 50%</td>
</tr>
<tr>
<td>Peak Gain (dBi typ.)</td>
<td>0.5 (XZ-Total) 0.5 (XZ-Total) 1.0 (XZ-Total)</td>
</tr>
<tr>
<td>Average Gain (dBi typ.)</td>
<td>-2.0 (XZ-Total) -2.0 (XZ-Total) -2.0 (XZ-Total)</td>
</tr>
<tr>
<td>Return Loss (min.)</td>
<td>9.5 dB 9.5 dB 9.5 dB</td>
</tr>
<tr>
<td>Input Power</td>
<td>3W max. (CW)</td>
</tr>
<tr>
<td>Reel Quantity</td>
<td>1,000</td>
</tr>
<tr>
<td>Storage Period</td>
<td>18 months max.</td>
</tr>
</tbody>
</table>

Operating Temperature: -40 to +85°C
Storage Temperature: -40 to +85°C
Recommended Storage Conditions of unused product on T&R: +5 to +35°C, Humidity 45~75%RH

Part Number Explanation

<table>
<thead>
<tr>
<th>P/N Suffix</th>
<th>Packing Style</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bulk (loose)</td>
<td>S</td>
</tr>
<tr>
<td></td>
<td>Suffix = S</td>
<td>e.g., 1575AT43A0040S</td>
</tr>
<tr>
<td></td>
<td>T &amp; R</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td>Suffix = E</td>
<td>e.g., 1575AT43A0040E</td>
</tr>
<tr>
<td></td>
<td>100% Tin</td>
<td>E or S</td>
</tr>
<tr>
<td></td>
<td>Suffix = E or S</td>
<td>e.g., 1575AT43A0040(E or S)</td>
</tr>
</tbody>
</table>

Mechanical Dimensions

<table>
<thead>
<tr>
<th></th>
<th>In</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>0.276 ± 0.008</td>
<td>7.00 ± 0.20</td>
</tr>
<tr>
<td>W</td>
<td>0.079 ± 0.008</td>
<td>2.00 ± 0.20</td>
</tr>
<tr>
<td>T</td>
<td>0.031 ± 0.004/-0.008</td>
<td>0.80 ± 0.1/-0.2</td>
</tr>
<tr>
<td>a</td>
<td>0.020 ± 0.012</td>
<td>0.50 ± 0.30</td>
</tr>
</tbody>
</table>

Terminal Configuration

| No. | Function      | | |
|-----|---------------|
| 1   | Feeding Point | |
| 2   | NC (must still be soldered on pad) | |

Orderable EVB for evaluation, it comes with a female SMA connector. Go to: http://www.johansontechnology.com/request-a-sample and ask for p/n 1575AT43A0040-EB1SMA

Need help laying out the antenna, want us to review your antenna design (free!), require the Gerber files for this EVB, or would like us to validate the new tuning values of your PCB (fee may apply) go to: https://www.johansontechnology.com/ask-a-question

*Line width should be designed to match 50ohm characteristic impedance, depending on your PCB material and thickness (distance to GND). CPWG (co-planar waveguide) trace type strongly suggested.

Go to the next page for more layout details/guidelines and
Mounting Considerations, End Mount, GPS/Galileo/BDS/GLNSS 1.559/1.561/1.575/1.602GHz

Note: Matching circuits and component values will be different on the client’s design, depending on PCB layout, geometry, encasement, etc. It is recommended that the designer leave available slots for a “pi” (or shunt-series-shunt) network. The antenna matching network values you see here are used when antenna is mounted on Johanson’s evaluation board.

Need help laying out the antenna, want us to review your antenna design (free!), require the Gerber files for this EVB, or would like us to measure your board, come up with the matching values, and validate on our anechoic chamber (fee may apply) go to: http://www.johansontechnology.com/ask-a-question

*Line width should be designed to match 50ohm characteristic impedance, depending on your PCB material and thickness (distance to GND)

Mounting Considerations, Corner Mount, GPS 1.575GHz Only (smaller total area)

For GPS/Galileo/BDS/GLNSS 1.559/1.561/1.575/1.602GHz corner mount layout, go to page: 5
Quad-Band GPS, Galileo (GNSS), BeiDou (BDS), and Glonass (GLNSS), Low Cost, P/N 1575AT43A0040
Linearily Polarized, Omnidirectional Chip Antenna

Let us help tune and validate this antenna to your PCB, go to: https://www.johansontechnology.com/ipc-antenna-services

EVB 1, End Mount, GPS/Galileo/BDS/GLNSS 1.559/1.561/1.575/1.602GHz

This board has a female SMA connector on the opposite side

Would you like the layout files? Send us a message at: http://www.johansontechnology.com/ask-a-question/

Order it here: http://www.johansontechnology.com/request-a-sample

Return Loss and Impedance

Johanson Technology, Inc. reserves the right to make design changes without notice. Please confirm the specifications and delivery conditions when placing your order. All sales are subject to Johanson Technology, Inc. terms and conditions.
Quad-Band GPS, Galileo (GNSS), Beidou (BDS), and Glonass (GLNSS), Low Cost, Linearly Polarized, Omnidirectional Chip Antenna

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Typical Radiation Patterns on EVB 1, End Mount

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Linearly Polarized, Omnidirectional Chip Antenna

Mounting Considerations, Corner Mount, GPS/Galileo/BDS/GLNSS 1.559/1.561/1.575/1.602GHz

Orderable EVB p/n: 1575AT43A0040-EB2SMA

It is required that the designer leave available slots for a "pi" (or shunt-series-shunt) network. We can help you get those final tuning values by contacting us at the link below:
https://www.johansontechnology.com/ipc-antenna-services

Matching circuit and component values will be different, depending on PCB layout.
Line width should be designed to match 50ohm characteristic impedance, depending on PCB material and thickness. CPWG (co-panar waveguide) type trace strongly recommended.

Test Board

EVB p/n: 1575AT43A0040-EB2SMA
Order it here:
https://www.johansontechnology.com/ask-a-question

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Electrical Characteristics (T=25°C)

<table>
<thead>
<tr>
<th></th>
<th>freq</th>
<th>dB(S(1,1))</th>
</tr>
</thead>
<tbody>
<tr>
<td>m98</td>
<td>1.561GHz</td>
<td>-12.181</td>
</tr>
<tr>
<td>m99</td>
<td>1.575GHz</td>
<td>-17.667</td>
</tr>
<tr>
<td>m100</td>
<td>1.602GHz</td>
<td>-18.790</td>
</tr>
</tbody>
</table>

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Typical Radiation Patterns on EVB 2, Corner Mount

- Radiation Patterns @ 1.561GHz

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P/N 1575AT43A0040

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**Typical Radiation Patterns on EVB 2, Corner Mount**

- **Radiation Patterns @ 1.575GHz**
  - XY-Plane
  - YZ-Plane
  - XZ-Plane

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Detail Specification: 9/3/2019

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Typical Radiation Patterns on EVB 2, Corner Mount

- Radiation Patterns @ 1.602GHz

- XY-Plane

- YZ-Plane

- XZ-Plane

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

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

For layout review contact our Applications Team at:
https://www.johansontechnology.com/ask-a-question

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