1.585GHz Global Navigation (GPS, GLONASS, Beidou, Galileo) SMD Chip Antenna

P/N 1582AT54A0045

Detail Specification: 5/26/2020

Page 1 of 5

### General Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>1582AT54A0045</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency (MHz)</td>
<td>1560 - 1605</td>
</tr>
<tr>
<td>Peak Gain (YZ-total)</td>
<td>1.5 dBi typ.</td>
</tr>
<tr>
<td>Average Gain (YZ-total)</td>
<td>-0.5 dBi typ.</td>
</tr>
<tr>
<td>Return Loss</td>
<td>9.5 dB min.</td>
</tr>
<tr>
<td>Impedance</td>
<td>50 Ω</td>
</tr>
<tr>
<td>Power Capacity</td>
<td>3W max. (CW)</td>
</tr>
<tr>
<td>Reel Quantity</td>
<td>500 pcs</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40 to +85°C</td>
</tr>
</tbody>
</table>

### Measured Efficiencies

<table>
<thead>
<tr>
<th>MHz</th>
<th>1565</th>
<th>1575</th>
<th>1585</th>
<th>1595</th>
<th>1602</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>77</td>
<td>80</td>
<td>86</td>
<td>86</td>
<td>82</td>
</tr>
</tbody>
</table>

### Recommended Storage Conditions of uninstalled product still on T&R

Humidity 45~75%RH
18 months max.

### Part Number Explanation

- **Packaging Style**
  - Bulk: Suffix = S
  - T & R: Suffix = E
- **Termination style**
  - 100% Tin: Suffix = E or S
- **Evaluation Board**
  - Termination style: 1582AT54A0045-EB1SMA

### Mechanical Dimensions

<table>
<thead>
<tr>
<th></th>
<th>ln</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>0.591</td>
<td>15.00 ± 0.20</td>
</tr>
<tr>
<td>W</td>
<td>0.157</td>
<td>4.00 ± 0.20</td>
</tr>
<tr>
<td>T</td>
<td>0.126</td>
<td>3.20 ± 0.20</td>
</tr>
<tr>
<td>a</td>
<td>0.039</td>
<td>1.00 ± 0.20</td>
</tr>
<tr>
<td>a1</td>
<td>0.020</td>
<td>0.50 ± 0.20</td>
</tr>
<tr>
<td>b</td>
<td>0.020</td>
<td>0.50 ± 0.20</td>
</tr>
<tr>
<td>c</td>
<td>0.236</td>
<td>6.00 ± 0.20</td>
</tr>
</tbody>
</table>

### Terminal Configuration

<table>
<thead>
<tr>
<th>No.</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Feeding Point</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
</tr>
<tr>
<td>3</td>
<td>NC</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
</tbody>
</table>

Johanson Technology, Inc. reserves the right to make design changes without notice.

All sales are subject to Johanson Technology, Inc. terms and conditions.

http://www.johansontechnology.com

4001 Calle Tecate • Camarillo, CA 93012 • TEL 805.389.1166 FAX 805.389.1821

Ver. 1.1 2020 Johanson Technology, Inc. All Rights Reserved
**High Frequency Ceramic Solutions**

1.585GHz Global Navigation (GPS, GLONASS, Beidou, Galileo) SMD Chip Antenna  
P/N 1582AT54A0045

Detail Specification: 5/26/2020

**GPS-only Mounting Considerations**

* Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness. Grounded CPWG will provide best results!

**Note:** 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. Go to: [https://www.johansontechnology.com/tuning](https://www.johansontechnology.com/tuning) and see how to obtain the new values.

Want the layout file of this? Send us a message at: [https://www.johansontechnology.com/ask-a-question](https://www.johansontechnology.com/ask-a-question)
High Frequency Ceramic Solutions

1.585GHz Global Navigation (GPS, GLONASS, Beidou, Galileo) SMD Chip Antenna

Detail Specification: 5/26/2020

Mounting Considerations

<table>
<thead>
<tr>
<th>Top</th>
<th>Bottom</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Ground</td>
<td>No Ground</td>
</tr>
<tr>
<td>Feed</td>
<td>Feed</td>
</tr>
<tr>
<td>Matching</td>
<td>Matching</td>
</tr>
</tbody>
</table>

EVB Johanson p/n: 1582AT54A0045-EB1SMA

Order this pre-tuned EVB by clicking: https://www.johansontechnology.com/request-a-sample

Typical Electrical Characteristics (T=25°C)

Evaluation Board Return Loss

- m1: freq=1.560GHz, dB(S(1,1))=-17.775
- m2: freq=1.585GHz, dB(S(1,1))=-25.280
- m3: freq=1.605GHz, dB(S(1,1))=-15.068

Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.
High Frequency Ceramic Solutions

1.585GHz Global Navigation (GPS, GLONASS, Beidou, Galileo) SMD Chip Antenna
P/N 1582AT54A0045
Detail Specification: 5/26/2020

Evaluation Board Typical Electrical Characteristics (T=25°C)

Typical Radiation Patterns

XY-plane @ 1585MHz
Total
(Horizontal+Vertical polarization)

XZ-plane @ 1585MHz
Total
(Horizontal+Vertical polarization)

YZ-plane @ 1585MHz
Total
(Horizontal+Vertical polarization)

Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.
### High Frequency Ceramic Solutions

1.585GHz Global Navigation (GPS, GLONASS, Beidou, Galileo) SMD Chip Antenna P/N 1582AT54A0045

1.585GHz Global Navigation 5/26/2020

#### Antenna layout review, tuning, and characterization services
https://www.johansontechnology.com/ipc-antenna-services

#### More SMD Chip Antennas at:
https://www.johansontechnology.com/antennas

#### Soldering Information
https://www.johansontechnology.com/ipcsoldering-profile

#### Antenna layout and tuning techniques (How to obtain the new antenna matching values)
https://www.johansontechnology.com/tuning

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

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

#### MSL Info
https://www.johansontechnology.com/msl-rating

#### P/N Explanation and Breakdown
https://www.johansontechnology.com/ipc-pn-explained

---

Johanson Technology, Inc. reserves the right to make design changes without notice.
All sales are subject to Johanson Technology, Inc. terms and conditions.

http://www.johansontechnology.com

4001 Calle Tecate • Camarillo, CA 93012 • TEL 805.389.1166 FAX 805.389.1821

Ver. 1.1 2020 Johanson Technology, Inc. All Rights Reserved