2.45 GHz High Gain SMD Chip Antenna

Detail Specification: 11/7/2016

Would you like a quote? Click here: www.johansontechnology.com/request-a-quote (please provide annual usage)

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"High Frequency Ceramic Solutions"

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Typical Electrical Specs for "Vertical Orientation" (T=25°C)

<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>2400 - 2500 Mhz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Gain</td>
<td>2.2 dBi typ. (XZ-V)</td>
</tr>
<tr>
<td>Return Loss</td>
<td>9.5 dB min.</td>
</tr>
<tr>
<td>Average Gain</td>
<td>1.0 dBi typ. (XZ-V)</td>
</tr>
</tbody>
</table>

Typical Electrical Characteristics for Mounting Considerations 1 "Vertical Orientation" (T=25°C)

Test Board
Orderable Evaluation board:

p/n: 2450AT45A100-EB1SMA

Let us help you tune/optimize the antenna!
Click on the link below

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 minted on Johanson's evaluation board. The matching values on client's PCB will be different, go to: http://johansontechnology.com/tuning and see how to obtain the new values. If you need further help, contact our RF Applications Eng Team at: www.johansontechnology.com/ask-a-question

Return Loss

a) Without a Matching Circuit

a) With a Matching Circuit
Typical Radiation Patterns for "Vertical Orientation" (@25C)

XY-V/XY-H

XZ-V/XZ-H

YZ-V/YZ-H

XZ-cut scanning direction

YZ-cut scanning direction

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2.45 GHz High Gain SMD Chip Antenna
P/N 2450AT45A100

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Typical Electrical Specs for Mounting Considerations 2 - "Horizontal Orientation Type A" (T=25°C)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>2400 - 2500 Mhz</td>
</tr>
<tr>
<td>Peak Gain</td>
<td>1.5 dBi typ. (XZ-V)</td>
</tr>
<tr>
<td>Return Loss</td>
<td>9.5 dB min.</td>
</tr>
<tr>
<td>Average Gain</td>
<td>0.0 dBi typ. (XZ-V)</td>
</tr>
</tbody>
</table>

Mounting Considerations 2 - "Horizontal Orientation Type A"

Mount these devices with brown mark facing up. Units: mm

*Line width should be designed to provide 50Ω impedance matching characteristics. Units in mm

```
<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GND</td>
<td>6.8</td>
</tr>
<tr>
<td>1.5pF</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>1.8</td>
</tr>
<tr>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>1.8</td>
<td></td>
</tr>
</tbody>
</table>
```

EVB p/n:
2450AT45A100-EB2SMA

"C" Dimension will depend on the width of the trace required for it to have a 50ohm characteristic impedance (i.e. coplanar waveguide theory)

Let us help you tune/optimize the antenna! Click on the link below

www.johansontechnology.com/ask-a-question
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: http://johansontechnology.com/tuning and see how to obtain the new values. If you need further help, contact our RF Applications Eng Team at: http://www.johansontechnology.com/ask-a-question
Typical Radiation Patterns for Mounting Considerations 2 - "Horizontal Orientation Type A" (@25C)

XY-L/XY-H

XZ-L/XZ-H

YZ-L/YZ-H

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P/N 2450AT45A100

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Typical Electrical Specs for Mounting Considerations 3 - "Horizontal Orientation Type B" (T=25°C)

<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>Peak Gain</th>
<th>Average Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>2400 - 2500 Mhz</td>
<td>1.3 dBi typ. (XZ-V)</td>
<td>0.6 dBi typ. (XZ-V)</td>
</tr>
</tbody>
</table>

Return Loss 9.5 dB min.

Mounting Considerations 3 - "Horizontal Orientation Type B"

Mount these devices with brown mark facing up. Units: mm

* Line width should be designed to provide 50Ω impedance matching characteristics.

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 monted 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 further help, contact our RF Applications Eng Team at: http://www.johansontechnology.com/ask-a-question

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Typical Electrical Characteristics Mounting Considerations 3 - "Horizontal Orientation Type B" (T=25°C)

Test Board
EVB p/n:
2450AT45A100-EB3SMA

This 50Ω Feedline can be as short as needed, this length is just for reference to our EVB

Want the layout file of this? Send us a message at:
www.johansontechnology.com/ask-a-question

Let us help you design this antenna to your PCB and/or optimize your layout for best radiated performance. Send us a message by clicking on the link

It is recommended that the designer leave available slots for a "pi" (or shunt-series-shunt) network

Return Loss

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Typical Radiation Patterns for Mounting Considerations 3 - "Horizontal Orientation Type B" (@25C)

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

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

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

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

Soldering Information
www.johansontechnology.com/ipcsoldering-profile

RoHS Compliance
www.johansontechnology.com/rohs-compliance

Recommended Storage Conditions and Shelf Life of unused product still on T&R or Bulk

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Relative Humidity</th>
<th>Shelf Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>+5°C to +35°C</td>
<td>45 to 75%</td>
<td>18 months max.</td>
</tr>
</tbody>
</table>