Dual band (2.4 GHz & 5.5 GHz) WiFi/Bluetooth Chip Antenna

ACAG0301-24505500-T

FEATURES

- Dual band chip antenna
- Gain of 2.23dBi | 4.05dBi
- Made using LTCC (low temperature co-fired ceramic) technology
- Small form factor 3.2 x 1.6 x 1.2mm
- Omni-directional

APPLICATIONS

- IoT and wearable
- Wifi
- Bluetooth
- ISM applications

ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>2400 MHz~2500 MHz</td>
</tr>
<tr>
<td></td>
<td>5150 MHz~5850 MHz</td>
</tr>
<tr>
<td>Frequency After Matching</td>
<td>2450 MHz</td>
</tr>
<tr>
<td></td>
<td>5500 MHz</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>100 MHz (typ.)</td>
</tr>
<tr>
<td></td>
<td>800 MHz (typ.)</td>
</tr>
<tr>
<td>Return Loss</td>
<td>-7 dB (max.)</td>
</tr>
<tr>
<td></td>
<td>-7 dB (max.)</td>
</tr>
<tr>
<td>Gain</td>
<td>2.23 dBi</td>
</tr>
<tr>
<td></td>
<td>4.05 dBi</td>
</tr>
<tr>
<td>Impedance</td>
<td>50 Ω</td>
</tr>
<tr>
<td>Azimuth</td>
<td>Omni-directional</td>
</tr>
<tr>
<td>Operating Temperature range</td>
<td>-40°C ~+ 85°C</td>
</tr>
</tbody>
</table>

MECHANICAL DIMENSIONS (mm)

<table>
<thead>
<tr>
<th>Antenna Dimension</th>
<th>Layout Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50 Ω Feeding Line</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>L</th>
<th>W</th>
<th>T</th>
<th>a</th>
<th>b</th>
<th>c</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.250.2</td>
<td>1.850.2</td>
<td>1.250.1</td>
<td>0.520.1</td>
<td>0.720.1</td>
<td>1.020.1</td>
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</tbody>
</table>
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EVALUATION BOARD AND MATCHING CIRCUITS

ANTENNA RESPONSE – SMITH CHART AND RETURN LOSS S11
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RADIATION PATTERNS

Coordinates

2.4 GHz X-Z Plane

2.4 GHz Y-Z Plane

2.4 GHz X-Y Plane

5 GHz X-Z Plane

3.2 x 1.6 x 1.2mm
RoHS/RoHS II Compliant
MSL = 1

Pb

REVISED: 06.21.2018

5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

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RADIATION PATTERNS

5 GHz Y-Z Plane

5 GHz X-Y Plane

3D RADIATION PATTERNS

2450 MHz

5500 MHz

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>2400</th>
<th>2450</th>
<th>2500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. Gain (dBi)</td>
<td>-4.75</td>
<td>-1.61</td>
<td>-1.36</td>
</tr>
<tr>
<td>Peak Gain (dBi)</td>
<td>1.95</td>
<td>2.23</td>
<td>2.07</td>
</tr>
<tr>
<td>Efficiency (%)</td>
<td>42</td>
<td>66.5</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>5150</th>
<th>5500</th>
<th>5850</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. Gain (dBi)</td>
<td>-4.75</td>
<td>-1.61</td>
<td>-1.36</td>
</tr>
<tr>
<td>Peak Gain (dBi)</td>
<td>3.87</td>
<td>4.05</td>
<td>3.92</td>
</tr>
<tr>
<td>Efficiency (%)</td>
<td>70</td>
<td>76.8</td>
<td>64</td>
</tr>
</tbody>
</table>
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REFLOW SOLDERING STANDARD CONDITION

![Graph showing reflow soldering temperature profile]

- **Temp (°C)**
  - 250 ± 10 °C
  - 220 °C
  - 180 °C

- **Time (s)**
  - 60–120 sec
  - 30–40 sec
  - 5 sec (Peak 265 °C)

PACKAGING

- **Reel (3000 pcs/Reel)**
- **Size of the carton**: 330 x 210 x 210 mm

- **Storage Temperature Range**: <30 degree C, **Humidity**: <60%RH
- **MSL**: 1
- Oxidizable, 12 months in a vacuum sealed bag.
- Once opened, please repack the unused items within 168 hours by re-seal package treatment.

Dimensions: mm

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CAUTIONS

1. Static voltage
   Static voltage between signal & ground may cause deterioration & destruction of the component. Please avoid static voltage.

2. Ultrasonic cleaning
   Ultrasonic vibration may cause deterioration & destruction of the component. Please avoid ultrasonic cleaning.

3. Soldering
   Only leads of the component may be soldered. Please avoid soldering to any other part of the component, such as on the patterns as this will change the performance of the antenna.