High Frequency Ceramic Solutions

LTE Multi-Band Ceramic Antenna, SMD. Ideal for Cellular, IoT, CAT M1, and NB (Narrow Band) Applications

P/N: 0830AT54A2200

Detail Specification: 12/17/2019

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General Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>0830AT54A2200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Frequencies</td>
<td></td>
</tr>
<tr>
<td>Tuning Version 1</td>
<td>Tuning Version 2</td>
</tr>
<tr>
<td>Frequency (MHz)</td>
<td>700 - 800</td>
</tr>
<tr>
<td></td>
<td>1700 - 2100</td>
</tr>
<tr>
<td>Antenna-Switch Solution*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>700 - 960, GPS/GLONASS, 1710 - 2200, 2400 - 2480</td>
</tr>
<tr>
<td>Return Loss (dB)</td>
<td>3.5 min.</td>
</tr>
<tr>
<td>Peak Gain measured on EB1/2</td>
<td>2.0 typ. (dBi)</td>
</tr>
<tr>
<td>Average Gain measured on EB1/2</td>
<td>-1.6 typ. (dBi)</td>
</tr>
<tr>
<td>Power Capacity (W)</td>
<td>3 max. (CW)</td>
</tr>
<tr>
<td>Quantity/Reel</td>
<td>500</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +85°C (may be expanded, ask us how)</td>
</tr>
<tr>
<td>Storage Conditions for unused product on T&amp;R and max shelf period</td>
<td>+5 to +35 °C, Humidity 45 - 75%RH, 18 mos. max</td>
</tr>
</tbody>
</table>

*All frequencies can be achieved in a combined antenna and switch solution. More information can be found in our Application Note 80.

Part Number Explanation

<table>
<thead>
<tr>
<th>P/N Suffix</th>
<th>Packing Style</th>
<th>E.g.</th>
<th>P/N Suffix</th>
<th>Packing Style</th>
<th>E.g.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bulk</td>
<td>0830AT54A2200S</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T &amp; R</td>
<td>0830AT54A2200E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100% Tin</td>
<td>0830AT54A2200(E or S)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation Boards</td>
<td>Tuning Version 1: 0830AT54A2200-EB1SMA (large)</td>
<td>Tuning Version 2: 0830AT54A2200-EB2SMA (large)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tuning Version 1: 0830AT54A2200-EB3SMA (small)</td>
<td>Tuning Version 2: 0830AT54A2200-EB4SMA (small)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mechanical Dimensions

<table>
<thead>
<tr>
<th>In</th>
<th>mm</th>
<th>Side View</th>
<th>Top View</th>
<th>Bottom View</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>0.591 ± 0.008</td>
<td>15.00 ± 0.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>0.157 ± 0.008</td>
<td>4.00 ± 0.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>0.059 ± 0.008</td>
<td>1.50 ± 0.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>0.039 ± 0.012</td>
<td>1.00 ± 0.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Terminal Configuration

<table>
<thead>
<tr>
<th>No.</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FEED</td>
</tr>
<tr>
<td>2</td>
<td>NC</td>
</tr>
</tbody>
</table>

Pin 2 must be soldered onto the PCB for mechanical stability.

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https://www.johansontechnology.com

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It is recommended that the designer leave available slots for the topology of the network to the right. These particular antenna matching values are used when antenna is mounted on Johanson's evaluation board. The matching values on client’s PCB will be different, just leave them empty until final assembly, then tune.

These are the layout recommendations for both tuning versions 1 and 2.

Orderable p/ns
Tuning Version 1: 0830AT54A2200-EB3SMA (small)
Tuning Version 2: 0830AT54A2200-EB4SMA (small)

EB3SMA and EB4SMA are evaluation boards which overall size is reduced to demonstrate that this antenna can operate at reduced form factors. Go to page for the larger form factor sizes/examples

Would you like the layout file or us to review your layout?
Contact us by clicking on the link below:

https://www.johansontechnology.com/ask-a-question

Order this pre-tuned EVB for Evaluation!
Click on: https://www.johansontechnology.com/request-a-sample
And mention which tuning version you need:
Tuning Version 1: 0830AT54A2200-EB3SMA
Tuning Version 2: 0830AT54A2200-EB4SMA

This section should be clear of all metal layers (antenna clearance)
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**Mounting Style, Standard: Tuning versions 1 and 2**

<table>
<thead>
<tr>
<th>Units in mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
</tr>
<tr>
<td>120</td>
</tr>
<tr>
<td>10</td>
</tr>
</tbody>
</table>

Order this pre-tuned EVB for Evaluation!
Click on: [https://www.johansontechnology.com/request-a-sample](https://www.johansontechnology.com/request-a-sample)

Mention which tuning version you need:
- Tuning Version 1: 0830AT54A2200-EB1SMA
- Tuning Version 2: 0830AT54A2200-EB2SMA

Units in mm
It is recommended that the designer leave available slots for the topology of the network to the right. These particular antenna matching values are used when antenna is mounted on Johanson's evaluation board. The matching values on client's PCB will be different, just leave them empty until final assembly, then tune.

These are the layout recommendations for both tuning versions 1 and 2

Matching Circuit

This section should be clear of all metal layers (antenna clearance)

60 (may be shorter, this is just for reference)

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Typical Electrical Characteristics (T=25°C) Tuning Version 1

Tuning Version 1: Evaluation Board p/n: 0830AT54A2200-EB1SMA

To order a pre-tuned 50Ω EVB with a female SMA connector for "Tuning Version 1" click here: https://www.johansontechnology.com/request-a-sample

Reference p/n: 0830AT54A2200-EB1SMA
Tuning Version 1: Radiation pattern and gain for P/N 0830AT54A2200-EB1SMA (Low Band)

Typical 2D radiation patterns @ 750MHz

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Tuning Version 1: Radiation pattern and gain for P/N 0830AT54A2200-EB1SMA (High Band)

Typical 2D radiation patterns @ 1900MHz

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Typical Electrical Characteristics (T=25°C) Tuning Version 2

Tuning Version 2: Evaluation Board p/n: 0830AT54A2200-EB2SMA

To order a pre-tuned 50Ω EVB with a female SMA connector for "Tuning Version 2" click here: [https://www.johansontechnology.com/request-a-sample](https://www.johansontechnology.com/request-a-sample)

Reference p/n: 0830AT54A2200-EB2SMA

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Typical 2D radiation patterns @ 900MHz

Typical 2D radiation patterns @ 900MHz

Typical 2D radiation patterns @ 900MHz

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Tuning Version 2: Radiation pattern and gain for P/N 0830AT54A2200-EB2SMA (High Band)

Typical 2D radiation patterns @ 2200MHz

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Antenna switch application note

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/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

Hexawave HWS556 Switch

Would you like us to review your layout for free? Need an embedded antenna recommendation for your application? Contact us at:
https://www.johansontechnology.com/ask-a-question

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