High Frequency Ceramic Solutions

433 MHz ISM Antenna SMD (25x5mmx1.2)  P/N 0433AT62A0020
Detail Specification:  2/12/2020  Page 1 of 10

General Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Number</td>
<td>0433AT62A0020</td>
</tr>
<tr>
<td>Frequency (MHz)*</td>
<td>423 - 443</td>
</tr>
<tr>
<td>Peak Gain (XZ-total)</td>
<td>-4.0 dBi typ.</td>
</tr>
<tr>
<td>Average Gain (XZ-total)</td>
<td>-4.0 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>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Capacity (W)</td>
<td>3 max. (CW)</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40 to +85°C</td>
</tr>
<tr>
<td>Recommended Storage Conditions for unused T&amp;R product</td>
<td>+5 ~ +35 °C Humidity 45~75%RH 18 mos. max</td>
</tr>
<tr>
<td>Reel Quantity</td>
<td>500 pcs.</td>
</tr>
</tbody>
</table>

* See page 8 for tuned antenna performance at 403MHz
* See page 9 for tuned antenna performance at 460MHz

Part Number Explanation

<table>
<thead>
<tr>
<th>P/N Suffix</th>
<th>Packing Style</th>
<th>Suffix = S</th>
<th>Suffix = E</th>
<th>Suffix = None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk</td>
<td>T &amp; R</td>
<td>0433AT62A0020S</td>
<td>0433AT62A0020E</td>
<td>0433AT62A0020(E or S)</td>
</tr>
<tr>
<td>100% Tin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mechanical Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>In</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>0.984 ± 0.008</td>
<td>25.00 ± 0.20</td>
</tr>
<tr>
<td>W</td>
<td>0.197 ± 0.008</td>
<td>5.00 ± 0.20</td>
</tr>
<tr>
<td>T</td>
<td>0.047 ± 0.004</td>
<td>1.20 ± 0.10</td>
</tr>
<tr>
<td>a</td>
<td>0.020 ± 0.008</td>
<td>0.50 ± 0.20</td>
</tr>
<tr>
<td>a2</td>
<td>0.039 ± 0.008</td>
<td>1.00 ± 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>NC</td>
</tr>
</tbody>
</table>

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4001 Calle Tecate • Camarillo, CA 93012 • TEL 805.389.1166 FAX 805.389.1821
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**Mounting Consideration - 1 (Evaluation board p/n: 0433AT62A0020-EB1SMA)**

Mount these devices with the red mark facing up.

**Note 2**: We recommend that the designer leave available slots for a "pi" (or shunt-series-shunt) matching network. The antenna matching values in this datasheet only apply to Johanson's evaluation board. If you need help and would like us to do the tuning and characterization, go to: https://www.johansontechnology.com/tuning and see how to obtain the new values. If you need further help, such as needing the layout file of the above, contact our RF Applications Eng. Team at: https://www.johansontechnology.com/ask-a-question

Orderable EVB Johanson p/n: 0433AT62A0020-EB1SMA to request a sample, go to: https://www.johansontechnology.com/request-a-sample
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Electrical Characteristics: Mounting Consideration - 1 (0433AT62A0020-EB1SMA)

Return Loss on EVB1 (pages 1&2) with matching network.

Return Loss without matching network (0Ω resistor in series on EVB).

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Typical Radiation Performance @ 25°C Mounting Consideration - 1 (0433AT62A0020-EB1SMA)
**General Specifications: Mounting Consideration - 2 (Larger PCB)**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>0433AT62A0020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency (MHz)</td>
<td>423 - 443</td>
</tr>
<tr>
<td>Peak Gain (XZ-total)</td>
<td>-6.8 dBi typ. (Mounting 2)</td>
</tr>
<tr>
<td>Average Gain (XZ-total)</td>
<td>-7.2 dBi typ. (Mounting 2)</td>
</tr>
<tr>
<td>Return Loss</td>
<td>5 dB min. (Mounting 2)</td>
</tr>
<tr>
<td>Impedance</td>
<td>50 Ω</td>
</tr>
</tbody>
</table>

**Terminal Configuration**

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

Mount these devices with the red mark facing
- Orange: Solder Resist
- Black: Land

We recommend that the designer leave available slots for a "pi" (or shunt-series-shunt) matching network. The antenna matching values in this datasheet only apply to Johanson's evaluation board.

If you need further help and would like us to do the tuning and characterization, go to:

[https://www.johansontechnology.com/ipc-antenna-services](https://www.johansontechnology.com/ipc-antenna-services)
### High Frequency Ceramic Solutions

**433 MHz ISM Antenna SMD (25x5mmx1.2)**

P/N 0433AT62A0020

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#### Mounting Consideration - 2 (Evaluation board p/n: 0433AT62A0020-EB4SMA)

Orderable EVB Johanson p/n: 0433AT62A0020-EB4SMA

To request an evaluation board, go to: [https://www.johansontechnology.com/request-a-sample](https://www.johansontechnology.com/request-a-sample)

#### Electrical Characteristics: Mounting - 2 (0433AT62A0020-EB4SMA)

- m125
  - freq = 423.0 MHz
  - dB(S(1,1)) = -5.422
- m124
  - freq = 433.0 MHz
  - dB(S(1,1)) = -22.240
- m127
  - freq = 443.0 MHz
  - dB(S(1,1)) = -5.265

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433 MHz ISM Antenna SMD (25x5mmx1.2)  P/N 0433AT62A0020
Detail Specification:  2/12/2020

Typical Radiation Performance @ 25°C Mounting Consideration - 2 (0433AT62A0020-EB4SMA)

YZ-plane

XZ-plane

XY-plane

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433 MHz ISM Antenna SMD (25x5mmx1.2) P/N 0433AT62A0020
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Tuning 0433AT62A0020 to 403MHz

Orderable EVB Johanson p/n: 0433AT62A0020-EB5SMA

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Tuning 0433AT62A0020 to 460MHz

Orderable EVB Johanson p/n: 0433AT62A0460-EB1SMA

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433 MHz ISM Antenna SMD (25x5mmx1.2)  P/N 0433AT62A0020

Detail Specification:  2/12/2020

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
http://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

For all sample requests go to
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