High Frequency Ceramic Solutions

868 MHz Antenna for small form factor applications AEC-Q200 Qualified
P/N 0868AT43A0020E-AEC
Detail Specification: 6/12/2017
Page 1 of 5

General Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>0868AT43A0020E-AEC</th>
<th>Input Power</th>
<th>3W max. (CW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>858 - 878 Mhz</td>
<td>Impedance</td>
<td>50 Ω</td>
</tr>
<tr>
<td>Peak Gain</td>
<td>-1.0 dBi typ. (XZ-total)</td>
<td>Operating Temperature</td>
<td>-40 to +105°C</td>
</tr>
<tr>
<td>Average Gain</td>
<td>-4.0 dBi typ. (XZ-total)</td>
<td>Reel Quantity</td>
<td>1,000</td>
</tr>
<tr>
<td>Return Loss</td>
<td>9.5 dB min.</td>
<td>MSL</td>
<td>1</td>
</tr>
</tbody>
</table>

Part Number Explanation

<table>
<thead>
<tr>
<th>P/N Suffix</th>
<th>Packing Style</th>
<th>Suffix = S</th>
<th>eg. 0868AT43A0020S-AEC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T &amp; R</td>
<td>Suffix = E</td>
<td>eg. 0868AT43A0020E-AEC</td>
</tr>
<tr>
<td></td>
<td>100% Tin</td>
<td>Suffix = None</td>
<td>eg. 0868AT43A0020 (E or S)-AEC</td>
</tr>
</tbody>
</table>

Mechanical Dimensions

<table>
<thead>
<tr>
<th></th>
<th>In</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>0.276 ± 0.008</td>
<td>7.00 ± 0.20</td>
</tr>
<tr>
<td>W</td>
<td>0.079 ± 0.008</td>
<td>2.00 ± 0.20</td>
</tr>
<tr>
<td>T</td>
<td>0.031 ± 0.004/-0.008</td>
<td>0.80 ± 0.1/-0.2</td>
</tr>
<tr>
<td>a</td>
<td>0.020 ± 0.012</td>
<td>0.50 ± 0.30</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>

Mounting Considerations I

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

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

With Matching Circuit

JTI P/Na for Matching Circuit: **
Cap (0.3pF): 500R07S0R3BV4T
Cap (3.9pF): 500R07S3R9BV4T
Inductor (18nH): L-07C18NJV6T

** Matching circuits, please read important note on Page 2

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Mounting Considerations I

Test Board used orderable p/n: 0868AT43A0020-EB1SMA (comes with SMA connector)

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: www.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 (with matching)

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Mounting Considerations II

We have conducted internal studies to show that the following corner placements provide antenna efficiency results with minimal detrimental effects.

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

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Typical Radiation Performance @ 25°C using 0868AT43A0020-EB1SMA

XY-V/XY-H

XZ-V/XZ-H

YZ-V/YZ-H

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**More SMD Chip Antennas at:**

[www.johansontechnology.com/antennas](http://www.johansontechnology.com/antennas)

**Packaging information**


**Soldering Information**

[www.johansontechnology.com/typical-soldering-profile](http://www.johansontechnology.com/typical-soldering-profile)

**Antenna layout and tuning techniques (How to obtain the new antenna matching values)**

[www.johansontechnology.com/tuning](http://www.johansontechnology.com/tuning)

**Antenna layout review, tuning, and characterization services**

[www.johansontechnology.com/ipc-antenna-services](http://www.johansontechnology.com/ipc-antenna-services)

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**MSL Info**

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