Description: Bluetooth, WiFi Antenna

Series: The Blue Dot

PART NUMBER: W3092

Features:

- Chip Antenna
- Frequency:
  2400MHz～2483MHz
- Low profile
  2.0mm(Length) x 1.2mm(Width) x 0.55mm(Thickness)

Applications:

- WLAN
- 802.11b/g
- Bluetooth
- Zigbee, ISM 2.4GHz

All dimensions are in mm / inches
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## ELECTRICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>2400-2483 MHz</td>
</tr>
<tr>
<td>Nominal Impedance</td>
<td>50 Ω</td>
</tr>
<tr>
<td>VSWR</td>
<td>3 max</td>
</tr>
<tr>
<td>Gain (Typ.)</td>
<td>0.89 dBi</td>
</tr>
<tr>
<td>Efficiency (Typ.)</td>
<td>50 %</td>
</tr>
<tr>
<td>Polarization</td>
<td>Linear</td>
</tr>
</tbody>
</table>
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### MECHANICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>0.005 g</td>
</tr>
<tr>
<td>Size</td>
<td>2.0x1.2x0.55 mm</td>
</tr>
</tbody>
</table>

### ENVIRONMENTAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>-40/+105 °C</td>
</tr>
<tr>
<td>High temperature resistance</td>
<td>150 °C, 1000 hours</td>
</tr>
<tr>
<td>Low temperature resistance</td>
<td>-40 °C, 1000 hours</td>
</tr>
<tr>
<td>Humidity</td>
<td>85%R.H. 85±5 °C, 1000 cycles</td>
</tr>
<tr>
<td>Soldering heat resistance</td>
<td>260 °C 10s</td>
</tr>
<tr>
<td>Thermal shock</td>
<td>-40/+105 °C</td>
</tr>
</tbody>
</table>

**Storage condition**

At warehouse: 0-30 °C, <60%R.H., should be used <1 year

On board: -40 ~85 °C, <85%R.H
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MECHANICAL DRAWING

Pad for SMT process
Description: Bluetooth, WiFi Antenna

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OTHER SPECIFICATIONS

Recommended PCB layout (Unit: mm)
PCB size (L X W X T): 110 X 55 X 1mm
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OTHER SPECIFICATIONS

PCB top side layout
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### OTHER SPECIFICATIONS

**PCB bottom side layout**

![PCB bottom side layout diagram]

*Clearance 8mm × 2.7mm*: All metallization should be removed from all PCB layers.

**Recommended matching circuit**

![Recommended matching circuit diagram]
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### OTHER SPECIFICATIONS

#### Recommended reflow soldering

![Temperature of termination graph](attachment:image)

<table>
<thead>
<tr>
<th></th>
<th>1st rising temperature</th>
<th>The normal to Preheating temperature</th>
<th>30s to 60s</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Preheating</td>
<td>140°C to 160°C</td>
<td>60s to 120s</td>
</tr>
<tr>
<td>C</td>
<td>2nd rising temperature</td>
<td>Preheating to 200°C</td>
<td>20s to 40s</td>
</tr>
<tr>
<td>D</td>
<td>Main healing</td>
<td>if 220°C</td>
<td>50s to 60s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>if 230°C</td>
<td>40s to 50s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>if 240°C</td>
<td>30s to 40s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>if 250°C</td>
<td>20s to 40s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>if 260°C</td>
<td>20s to 40s</td>
</tr>
<tr>
<td>E</td>
<td>Regular cooling</td>
<td>200°C to 100°C</td>
<td>1°C/s ~ 4°C/s</td>
</tr>
</tbody>
</table>

*reference: J-STD-020C

(1) **Soldering gun procedure**

Note the follows, in case of using solder gun for replacement.

(a) The tip temperature must be less than 350°C for the period within 3 seconds by using soldering gun under 30 W.

(b) The soldering gun tip shall not touch this product directly.

(2) **Soldering volume**

Note that excess of soldering volume will easily get crack the body of this product.
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CHARTS

VSWR
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CHARTS

Efficiency

Efficiency vs Frequency measured with demo board

- Frequency, MHz
- Efficiency, %

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**CHARTS**

**Peak Gain**

Peak Gain vs Frequency measured with demo board

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**Issue:** 1639

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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CHARTS

Radiation pattern

XY Plane

2400MHz
Avg (dBi) = -4.07
Peak (dBi) = -2.05
Avg -3 (deg) = 285

2450MHz
Avg (dBi) = -3.89
Peak (dBi) = -1.39
Avg -3 (deg) = 265

2480MHz
Avg (dBi) = -3.32
Peak (dBi) = -1.32
Avg -3 (deg) = 265

Avg (dBi) = 
Peak (dBi) = 
Avg -3 (deg) =
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Radiation pattern

ZX Plane

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Avg (dBi)</th>
<th>Peak (dBi)</th>
<th>Avg -3 (deg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2400MHz</td>
<td>-4.38</td>
<td>1.16</td>
<td>110</td>
</tr>
<tr>
<td>2450MHz</td>
<td>-4.99</td>
<td>-0.27</td>
<td>165</td>
</tr>
<tr>
<td>2480MHz</td>
<td>-4.66</td>
<td>0.27</td>
<td>140</td>
</tr>
</tbody>
</table>
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CHARTS

Radiation pattern

YZ Plane

YZ Plane Chart

2400MHz
Avg (dBi) = -5.51
Peak (dBi) = 1.17
Avg -3 (deg) = 55

2450MHz
Avg (dBi) = -5.79
Peak (dBi) = 1.17
Avg -3 (deg) = 40

2480MHz
Avg (dBi) = -5.37
Peak (dBi) = 0.76
Avg -3 (deg) = 60

Issue: 1639

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PACKAGING

Taping Package and Label Marking: (unit: mm)

(1) Quantity/Reel: 5000pcs/Reel
(2) Carrier tape dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>L</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACA2012</td>
<td>8.00±0.30</td>
<td>3.50±0.05</td>
<td>1.75±0.10</td>
<td>2.00±0.05</td>
<td>4.00±0.10</td>
<td>1.50±0.10</td>
<td>2.30±0.10</td>
<td>1.55±0.10</td>
</tr>
</tbody>
</table>

(3) Taping reel dimensions

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