Description: 902-928MHz Ceramic On Ground Antenna

Series: Chip Antenna

PART NUMBER: W3211

Features:

- Frequency: 902-928MHz
- Size: 10 x 3.2 x 5 mm
- Gain: 1.35 dBi
- Type: On Ground
- SMD Compatible
- RoHS Compliant
- MSL level 3

Applications:

- ISM 915MHz radios
- Sensors
- IoT
- Transportation
- Industry automation

All dimensions are in mm / inches
Description: 902-928MHz Ceramic On Ground Antenna

PART NUMBER: W3211

### ELECTRICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>902-928MHz</td>
</tr>
<tr>
<td>Nominal Impedance</td>
<td>50 Ω</td>
</tr>
<tr>
<td>Return Loss Peak</td>
<td>-10dB</td>
</tr>
<tr>
<td>Return Loss Band edges</td>
<td>-3dB</td>
</tr>
<tr>
<td>Radiation Pattern</td>
<td>Omni</td>
</tr>
<tr>
<td>Peak Gain</td>
<td>1.35dBi</td>
</tr>
<tr>
<td>Efficiency</td>
<td>43%</td>
</tr>
<tr>
<td>Polarization</td>
<td>Linear</td>
</tr>
<tr>
<td>Power Withstanding</td>
<td>5W</td>
</tr>
</tbody>
</table>

### MECHANICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Length</td>
<td>10x3.2x5mm</td>
</tr>
<tr>
<td>Weight</td>
<td>0.73g</td>
</tr>
<tr>
<td>Antenna Color / Material</td>
<td>Ceramic</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~+85° C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40~+85° C</td>
</tr>
<tr>
<td>RoHS Compliant</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Description: 902-928MHz Ceramic On Ground Antenna

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MECHANICAL DRAWING

<table>
<thead>
<tr>
<th>No.</th>
<th>Terminal Name</th>
<th>Terminal Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Feed / GND</td>
<td>1.5 x 2.75 mm</td>
</tr>
<tr>
<td>2</td>
<td>Feed / GND</td>
<td>1.5 x 2.75 mm</td>
</tr>
</tbody>
</table>

Antenna is symmetrical. Either of terminals 1 or 2 can be Feed / GND.

Issue: 1834

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

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MECHANICAL DRAWING AND TERMINAL CONFIGURATION

Ground cleared under antenna TOP and MIDDLE layers, clearance area 10.8 mm x 8.25mm (BOTTOM layer solid ground)

Matching Component (optional shunt)

Feed contact

Ground contact

Ground Area

Ground Via Hole
Ground area should be surrounded with Ground Via Holes

Feed line 50 Ohm
Any type of 50 Ohm feed line can be used. Inner layers on feed line area need to designed to give 50 Ohm characteristics to feed line.
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**MECHANICAL DRAWING AND TERMINAL CONFIGURATION**

**Recommended Antenna Pad Dimensions on PCB Layout (top surface)**

*Ground cleared under antenna on top and inner layers, clearance area 10.8 mm x 8.25 mm*

**Ground clearance area (10.80 x 8.25 mm)**

**Bottom solid ground layer**

All metallization must be removed from top and inner layers, clearance Area (10.8 x 8.25 mm)
**Description:** 902-928MHz Ceramic On Ground Antenna

**PART NUMBER:** W3211

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### MECHANICAL DRAWING AND TERMINAL CONFIGURATION

**Recommended Antenna Pad Dimensions on PWB Layout (top surface)**

<table>
<thead>
<tr>
<th>No.</th>
<th>Terminal Name</th>
<th>Terminal Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Feed</td>
<td>1.70 x 1.45 mm</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
<td>1.70 x 1.45 mm</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
<td>1.70 x 3.20 mm</td>
</tr>
</tbody>
</table>
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MECHANICAL DRAWING AND TERMINAL CONFIGURATION

Recommended test board layout for electrical characteristic measurement, test board outline size 120 x 37mm
Description: 902-928MHz Ceramic On Ground Antenna
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CHARTS

Measured on the 120x37mm test board with matching circuit, 10pF shunt capacitor, position center location of test board edge.
Ground cleared under antenna, clearance area 10.80 mm x 8.25 mm top and middle layers.
Description: 902-928MHz Ceramic On Ground Antenna

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**CHARTS**

Measured on the 120x37mm test board with matching circuit, 10pF shunt capacitor, position center location of test board edge.

Ground cleared under antenna, clearance area 10.80 mm x 8.25 mm top and middle layers.

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**Peak Gain(dBi)**

![Graph showing peak gain vs frequency](image-url)
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Radiation Pattern
XY Plane

902MHz
Avg (dBi) = -7.00
Peak (dBi) = -2.72
Avg -3 (deg) = 110.5

915MHz
Avg (dBi) = -3.96
Peak (dBi) = 0.15
Avg -3 (deg) = 122.5

928MHz
Avg (dBi) = -5.07
Peak (dBi) = -0.86
Avg -3 (deg) = 118.5
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CHARTS

Measured on the 120x37mm test board with matching circuit, 10pF shunt capacitor, position center location of test board edge. Ground cleared under antenna, clearance area 10.80 mm x 8.25 mm top and middle layers.

Radiation Pattern
ZX Plane

902MHz
Avg(dBi) = -7.32
Peak(dBi) = -3.32
Avg -3(deg) = 103.5

915MHz
Avg (dBi) = -4.25
Peak (dBi) = 0.08
Avg -3 (deg) = 93.5

928MHz
Avg (dBi) = -5.37
Peak (dBi) = -1.47
Avg -3 (deg) = 117.5
**Description:** 902-928MHz Ceramic On Ground Antenna

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**CHARTS**

Measured on the 120x37mm test board with matching circuit, 10pF shunt capacitor, position center location of test board edge.

Ground cleared under antenna, clearance area 10.80 mm x 8.25 mm top and middle layers.

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**Radiation Pattern**

**YZ Plane**

- **902MHz**
  - Avg(dBi) = -7.32
  - Peak(dBi) = -3.32
  - Avg -3(deg) = 103.5

- **915MHz**
  - Avg(dBi) = -4.25
  - Peak(dBi) = 0.08
  - Avg -3(deg) = 93.5

- **928MHz**
  - Avg(dBi) = -5.37
  - Peak(dBi) = -1.47
  - Avg -3(deg) = 117.5
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PACKAGING

350pcs antennas per 7” reel
3pcs 7” reel per inner package box
2pcs inner box per out box
Total 2100pcs antenna per out box
Out box size: 390mmx215mmx165mm

According to MSL3 packing requirement, MBB-Moisture Barrel Bag, Desiccant, HIC-Humidity Indicator Card, MSID Label, Caution Label are required.