

GNSS Chip Antenna

For L5/B2a/E5a

KH-10231-C103

10.2x3.1x4 mm

Applications

1. Satellite communication
2. Navigation and position
3. For L5, B2a, E5a

Features

1. Compact size
2. Omni-directional radiation
3. Tape & reel automatic mounting
4. RoHS compliance (Pb-Free)



Description

The is designed for GNSS Antenna. We provide comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs.

Electrical Specification

Table 1. Electrical Specification

| Item | Min. | Type | Max. | Unit |
|-------------------|------|--------|------|----------|
| Frequency Range | 1164 | | 1189 | MHz |
| VSWR | 1.1 | | 3 | |
| Efficiency | 30 | | 46 | % |
| Peak Gain | | 0.2 | | dBi |
| Polarization | | Linear | | |
| Nominal Impedance | | 50 | | Ω |

• Ta: +25±5°C

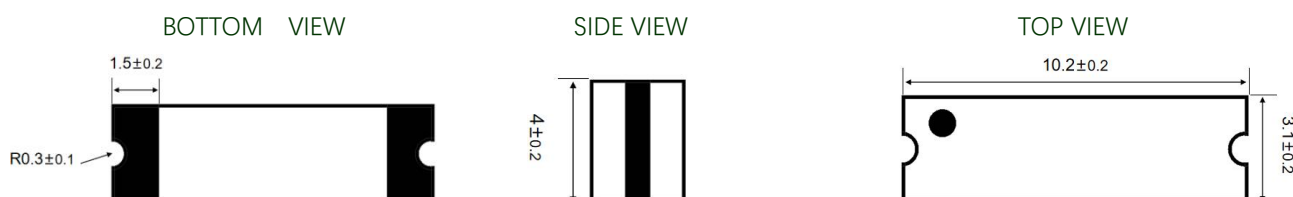
Mechanical Specifications

Table 2. Mechanical Specification

| Item | Min. | Type | Max. | Unit |
|-----------------------|------|------------|------|------|
| Antenna Size | | 10.2*3.1*4 | | Mm |
| Storage Temperature | -40 | | +85 | °C |
| Operating temperature | -40 | | +85 | °C |

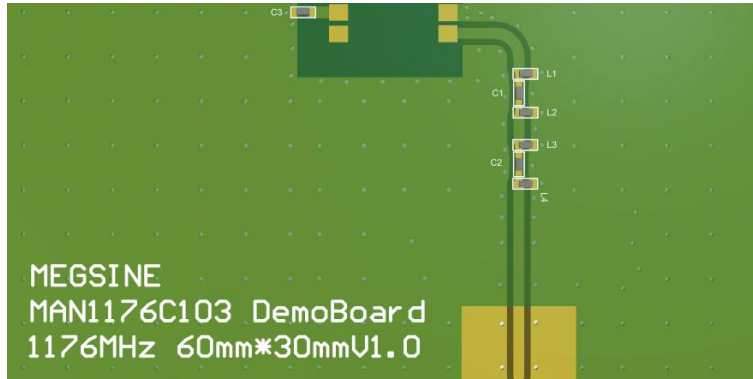
Outline Drawing

Figure 1. MAN1176C103 View (Unit: mm)



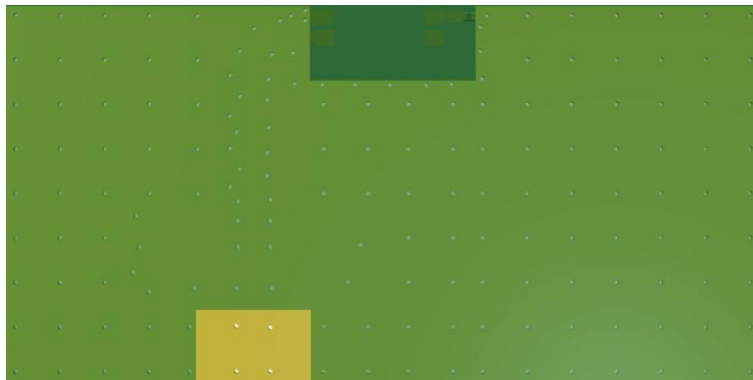
Recommend PCB Layout

Figure 2. PCB Layout (Unit: mm) TOP VIEW



Size 60*30mm

Figure 3. PCB Layout (Unit: mm) BOTTOM VIEW



Size 60*30mm

Figure 4. PCB Antenna Layout (Unit: mm)

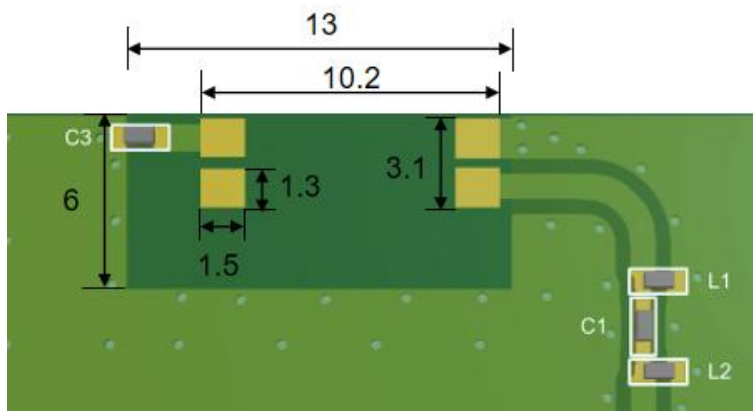


Figure 5. Matching Circuit (Unit: mm)

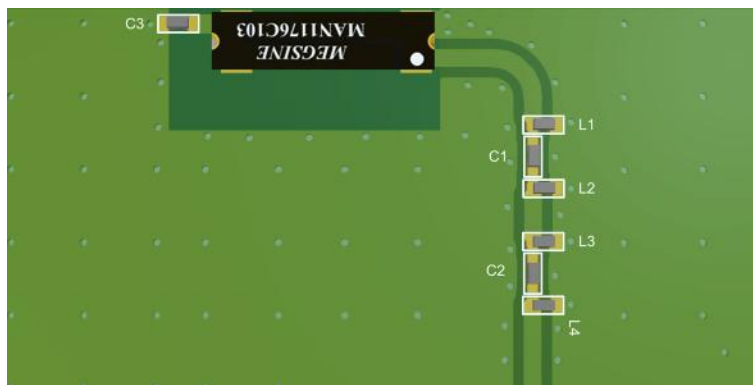


Table 3. Matching

| Location | Description | Vendor |
|----------|-------------|--------|
| C1 | 5pf | MURATA |
| C2 | 0Ω | MURATA |
| C3 | 6.2pf | MURATA |
| L1 | 6pf | MURATA |
| L2 | N/C | N/C |
| L3 | N/C | N/C |
| L4 | N/C | N/C |

Typical Performance

Figure 6. VSWR

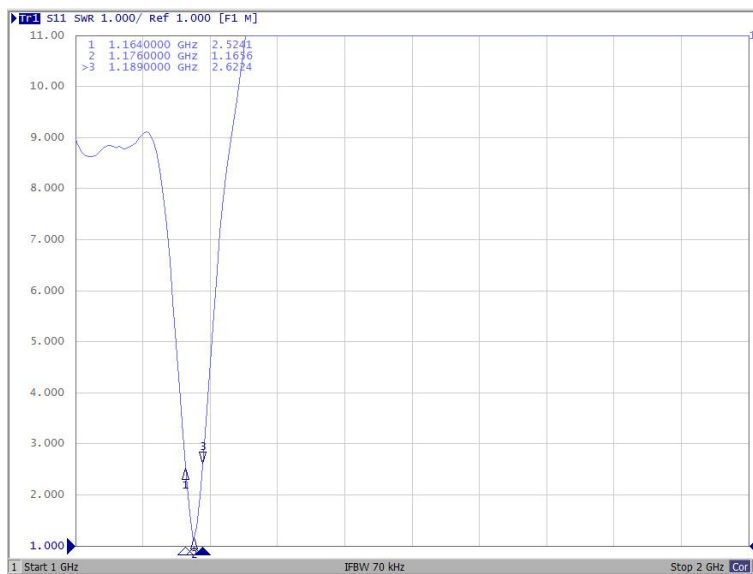
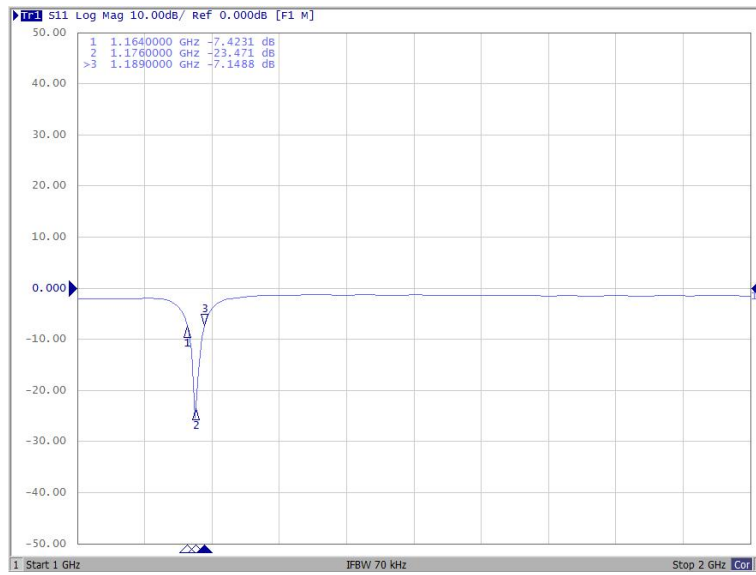


Figure 7. Return Loss



Radiation Pattern & Efficiency & Peak Gain

Figure 8. The Gain pattern is measured in FAR-field chamber

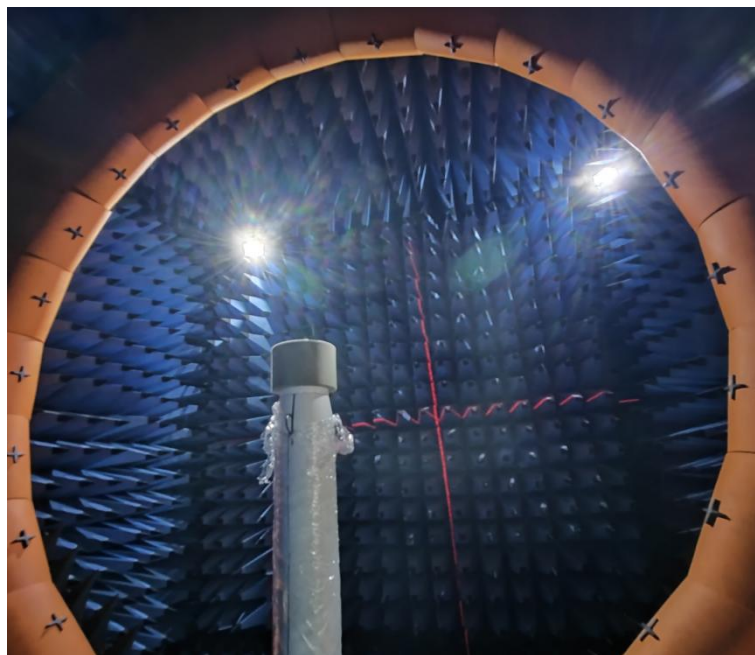


Table 4. Total Efficiency&Peak Gain

| Item (MHz) | Efficiency (%) | Peak Gain (dBi) | Avg gain (dB) |
|------------|----------------|-----------------|---------------|
| 1150 | 16 | -4.75 | -8.06 |
| 1165 | 31 | -1.59 | -5.09 |
| 1170 | 40 | -0.48 | -3.92 |
| 1176 | 46 | 0.01 | -3.39 |
| 1180 | 46 | 0.22 | -3.32 |
| 1190 | 34 | -1.49 | -4.67 |
| 1200 | 21 | -4.03 | -6.80 |

Figure 9. MAN1176C103 Total Efficiency

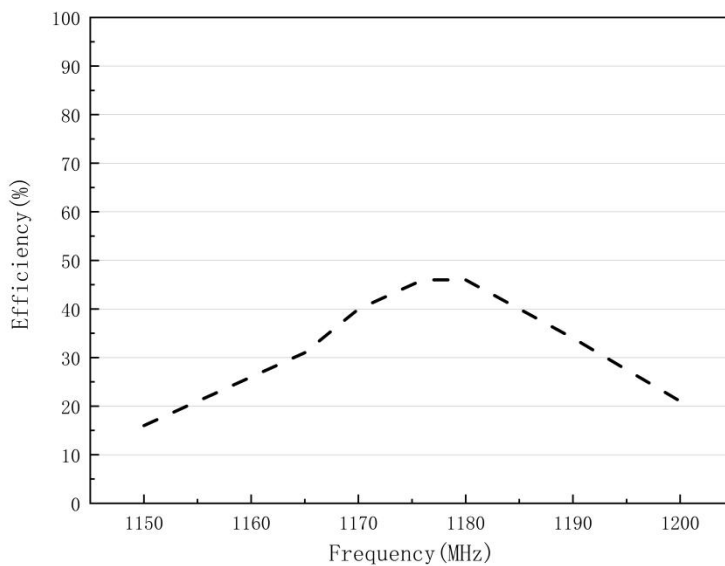


Figure 10. Peak Gain

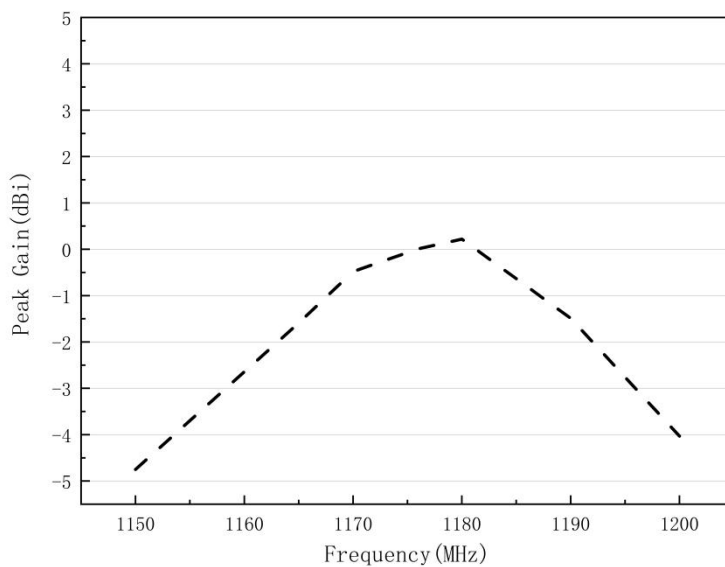
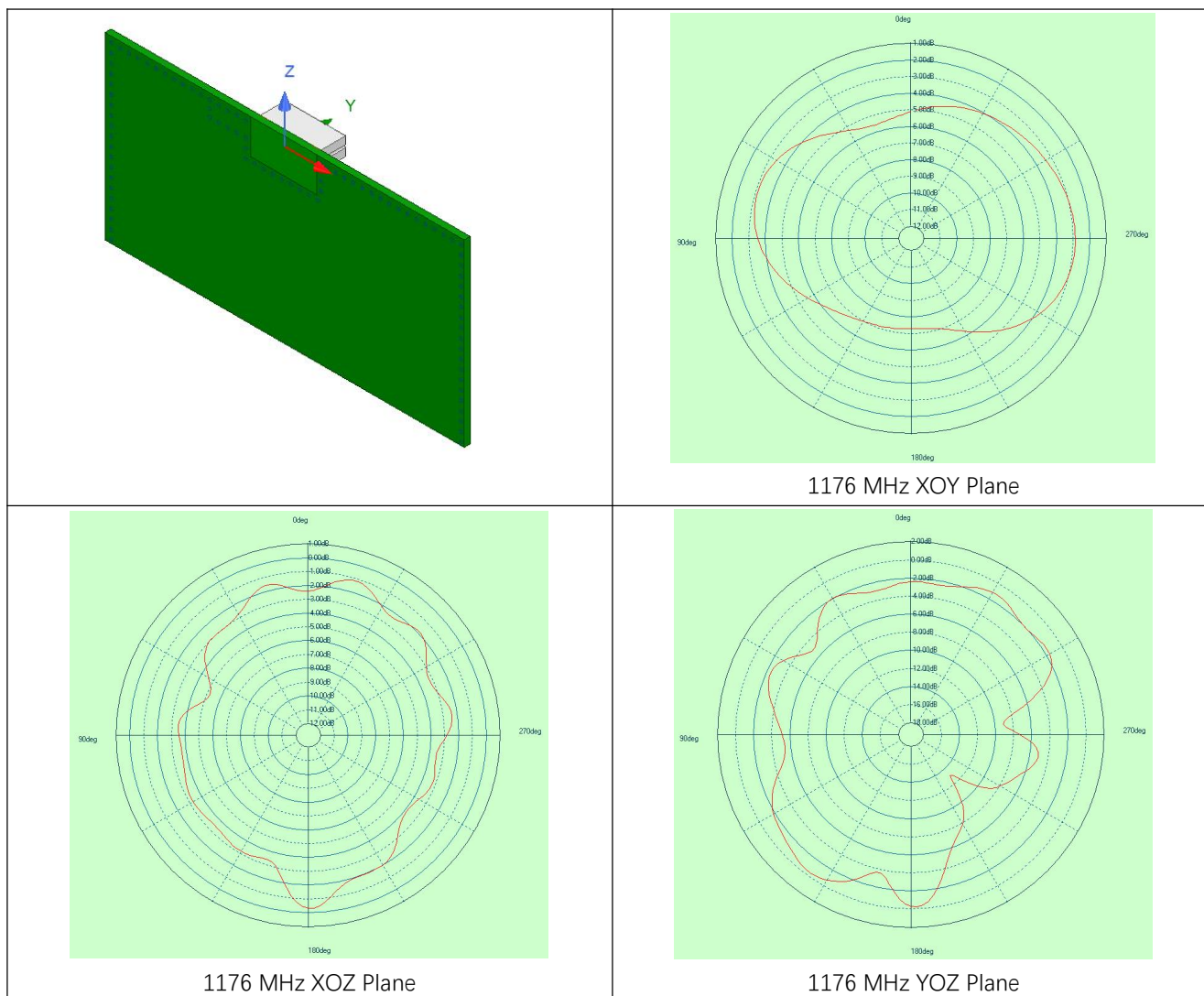


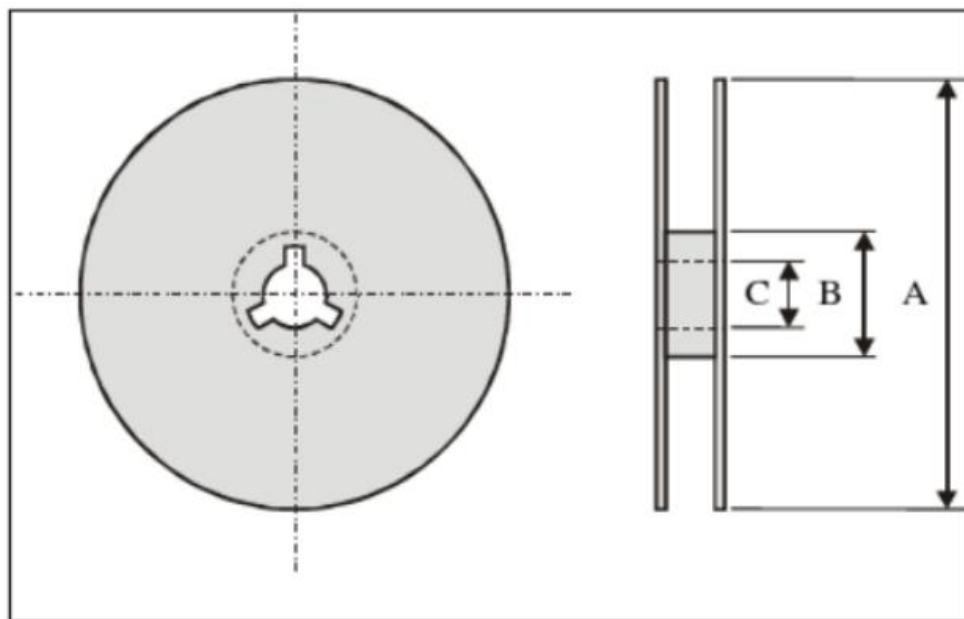
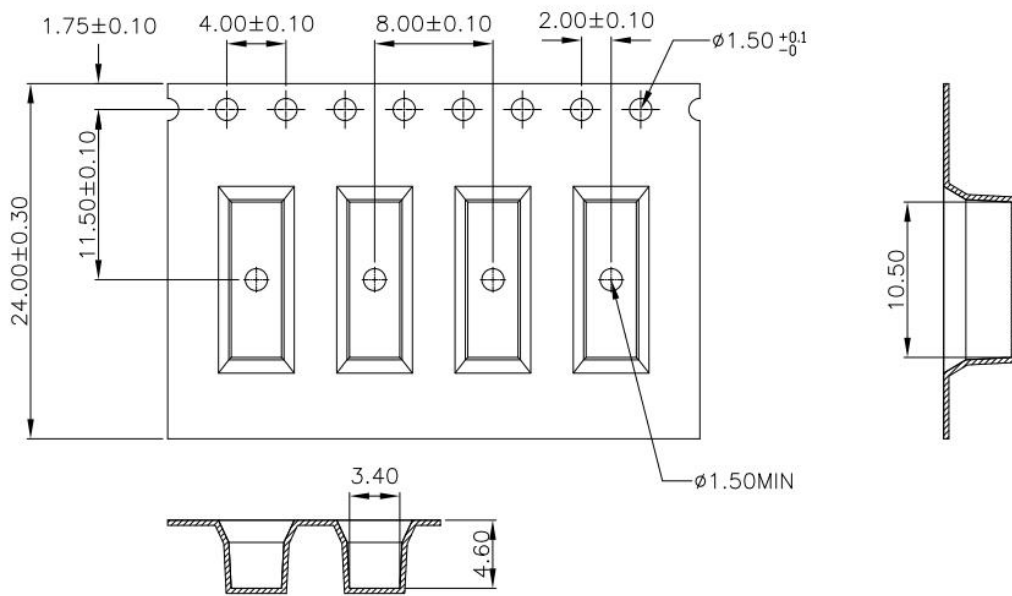
Figure 11. Radiation Pattern



*Antenna performance can also vary across different demo boards and in different environments. It is recommended to consult the relevant technical personnel to confirm the layout before use to ensure optimal performance.

Packaging and Ordering Information

Figure 12. Packaging Information



| Index | A | B | C |
|---------------|-----|-----|------|
| Dimension(mm) | 330 | 100 | 13.5 |

Table 5. Packaging and Shipping

| Device | Packaging | Reel | Shipping |
|--------|-----------|------|-----------|
| | SMD | 13" | 1500/Reel |

| Revision | Description | Date |
|----------|-------------|------------|
| Rev0 | Preliminary | 2024/12/25 |
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