

**Description:** 1003 GPS & 2.4GHz Chip Antenna

**PART NUMBER:** ANT1003LL15R1524A

**Features:**

- Size : 9.90x3.20x1.47 mm
- Cover dual frequency bands in 2.4 & 1.575 GHz
- Omni-directional Radiation
- Tape & reel automatic mounting
- Reflow process compatible
- RoHS compliant

**Applications:**

- Tablet
- Navigation device
- Telematics box
- Fleet management
- 2.4 GHz WiFi device
- Bluetooth gadget
- Zigbee device
- ISM band equipment

**ELECTRICAL SPECIFICATIONS**

|                                      |   |
|--------------------------------------|---|
| <b>Working Frequency</b>             | 1.575 GHz / 2.45 GHz                        |
| <b>Bandwidth</b>                     | 15 MHz(Typ.) / 84 MHz (Typ.)                |
| <b>Gain</b>                          | 6.49 dBi Min.                               |
| <b>Polarization</b>                  | Linear                                      |
| <b>Azimuth Beamwidth</b>             | Omni-directional<br>1.15 dBi / 2.90 dBi     |
| <b>Impedance</b>                     | 50 Ω  |
| <b>Operating Temperature</b>         | - 40~105 °C                                 |
| <b>Maximum Power</b>                 | 1 W   |
| <b>Termination</b>                   | Ni / Sn (Environmentally-Friendly Leadless) |
| <b>Resistance to Soldering Heats</b> | 260°C , 10sec.                              |

NOTE  
1. The specification is defined on Pulse evaluation board

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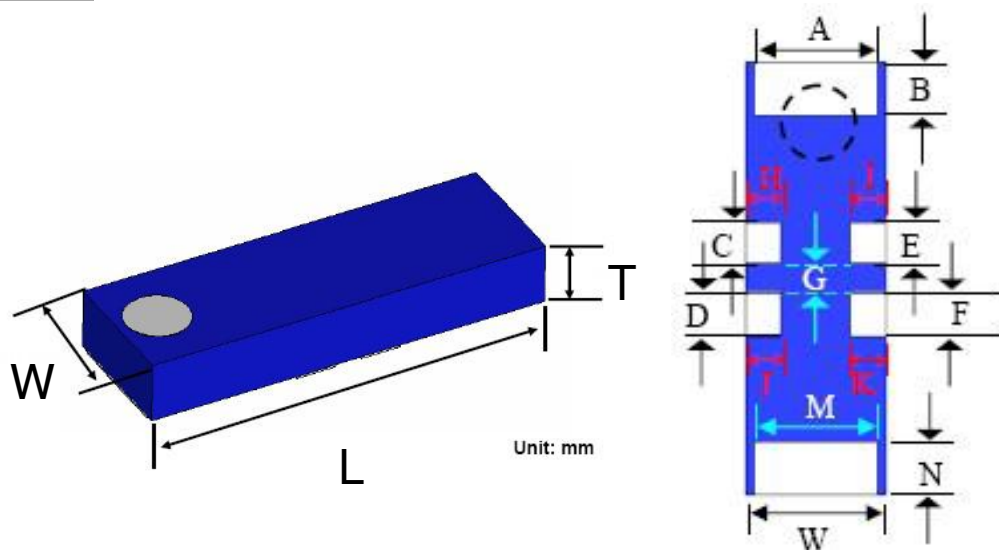
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**MECHANICAL DRAWING**

|        | <b>Dimension</b> |
|--------|------------------|
| L (mm) | 9.90 ±0.15       |
| W (mm) | 3.20 ±0.15       |
| T (mm) | 1.47 ±0.15       |
| A (mm) | 2.81 ±0.15       |
| B (mm) | 1.23 ±0.15       |
| C (mm) | 1.03 ±0.15       |
| D (mm) | 1.03 ±0.15       |
| E (mm) | 1.03 ±0.15       |
| F (mm) | 1.03 ±0.15       |
| G (mm) | 0.60 ±0.15       |
| H (mm) | 0.83 ±0.15       |
| I (mm) | 0.83 ±0.15       |
| J (mm) | 0.83 ±0.15       |
| K (mm) | 0.83 ±0.15       |
| L (mm) | 0.83 ±0.15       |
| M (mm) | 2.81 ±0.15       |
| n (mm) | 1.23 ±0.15       |



| <b>Terminal name</b> | <b>Function</b> |
|----------------------|-----------------|
| A                    | Feed BT / GND   |
| B                    | Feed BT / GND   |
| C                    | GND             |
| D                    | GND             |
| E                    | GND             |
| F                    | GND             |

| <b>Terminal name</b> | <b>Function</b> |
|----------------------|-----------------|
| H                    | GND             |
| I                    | GND             |
| J                    | GND             |
| K                    | GND             |
| M                    | Feed GPS / GND  |
| N                    | Feed GPS / GND  |

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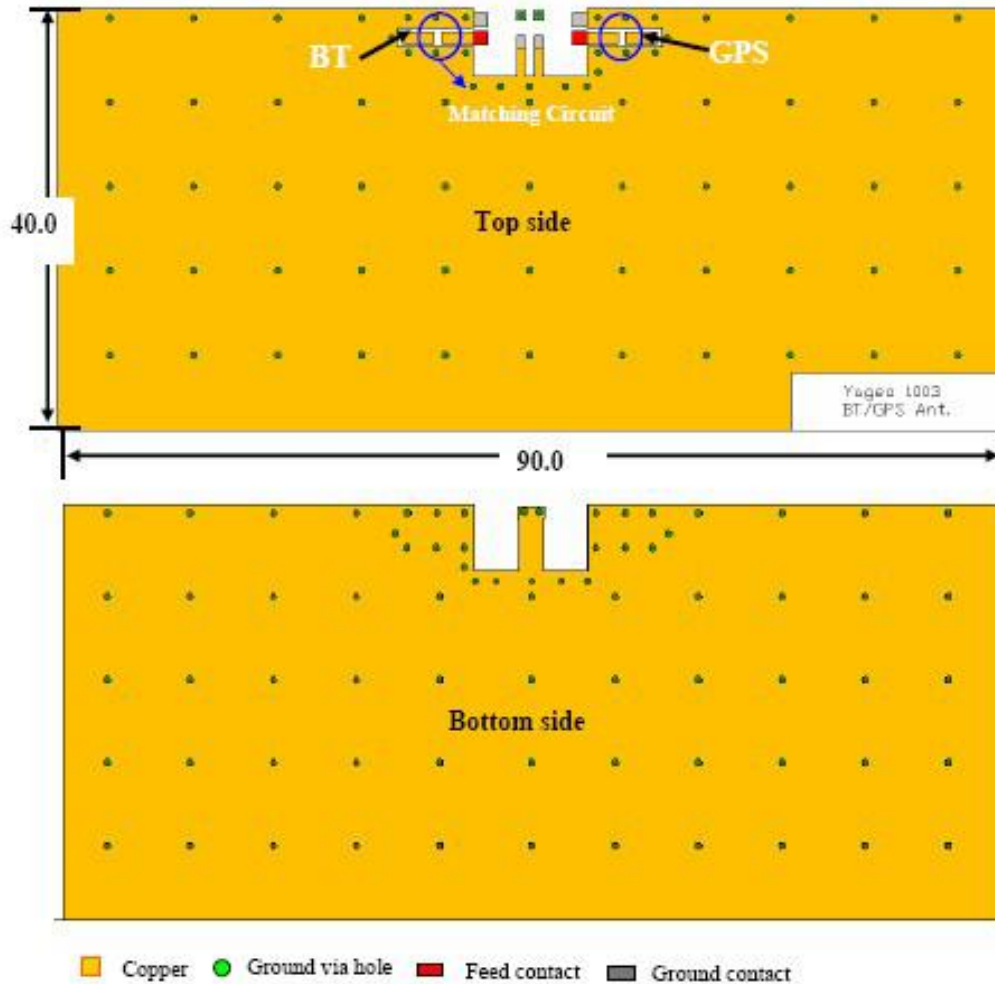
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**REFERENCE DESIGN OF EVALUATION BOARD**



Unit: mm

Outlook and dimension of evaluation board

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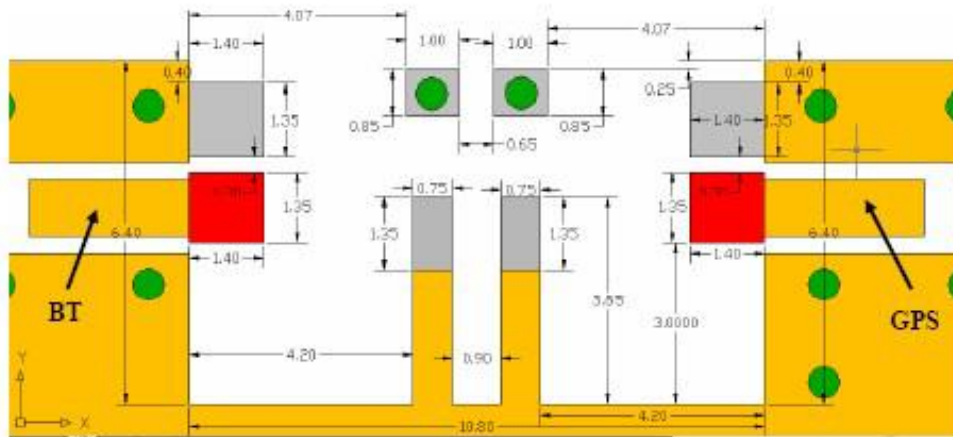
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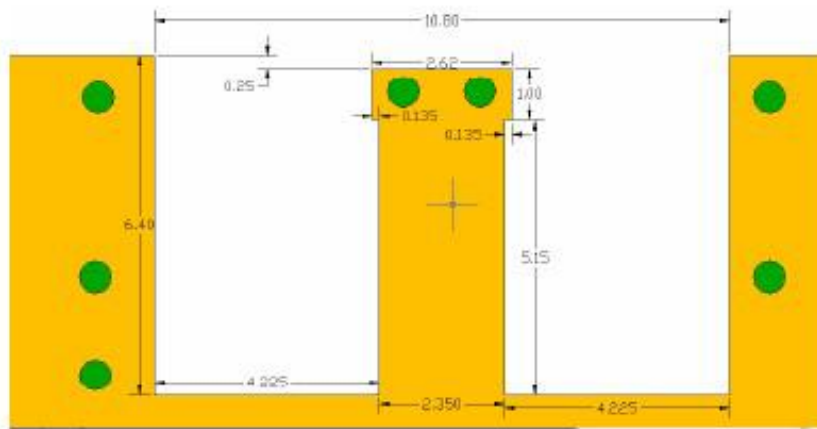
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**REFERENCE DESIGN OF EVALUATION BOARD**



Top side



Bottom side

Copper 
  Ground via hole 
  Feed contact 
  Ground contact

Tol : ±0.1  
Unit: mm

Details of soldering Pad

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**ELECTRICAL PERFORMANCES**



Return loss

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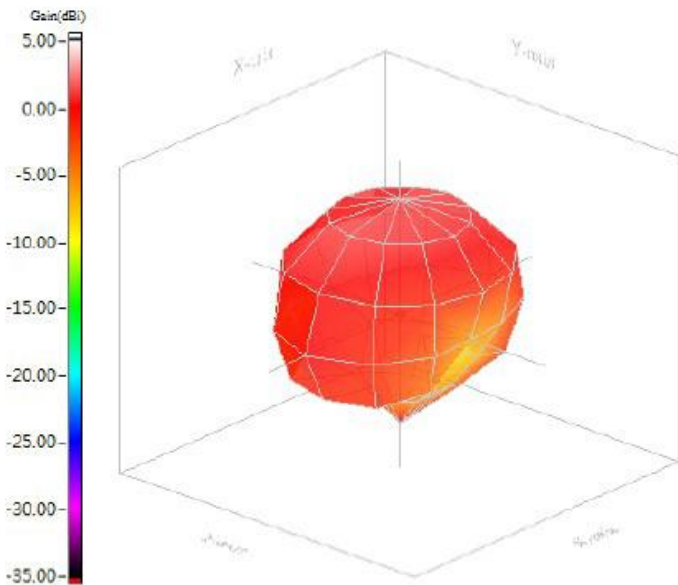
**ELECTRICAL PERFORMANCES**

Radiation Pattern\_1.575z GHz

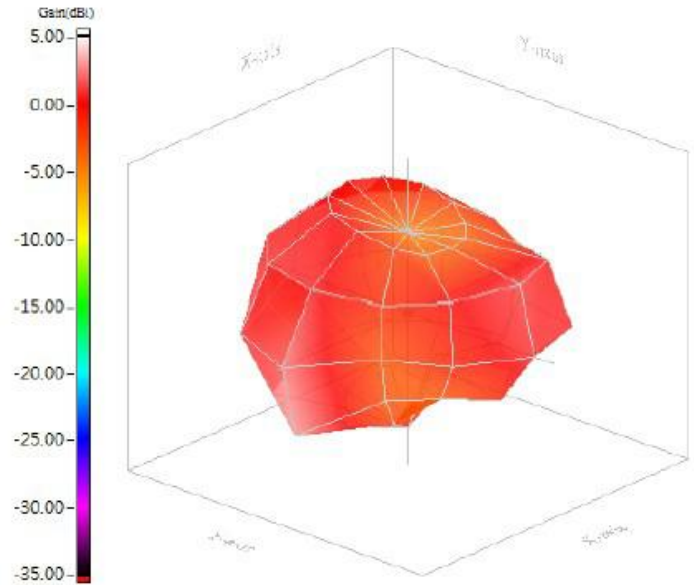
|   |                         |
|---|-------------------------|
| Model name<br>1003 GPS                                    | Test mode<br>3D         |
| Test frequency / Polarization<br>1575.00 MHz / Vector sum | Test date<br>2011/12/15 |

Radiation Pzzattern\_2.45 GHz

|   |                         |
|---|-------------------------|
| Model name<br>1003 BT                                     | Test mode<br>3D         |
| Test frequency / Polarization<br>2450.00 MHz / Vector sum | Test date<br>2011/12/15 |



Max gain= 1.15dBi, at (0, 0)  
MEG(mean effective gain)= -0.79dBi  
Directivity(dB)= 2.90  
Efficiency= -1.75dB, 66.83%



Max gain= 2.90dBi, at (120, 0)  
MEG(mean effective gain)= -1.41dBi  
Directivity(dB)= 3.79  
Efficiency= -0.89dB, 81.55%

Radiation pattern

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### REVISION HISTORY

| Revision  | Date          | Description |
|-----------|---------------|-------------|
| Version 1 | Nov. 19, 2020 | - New issue |

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