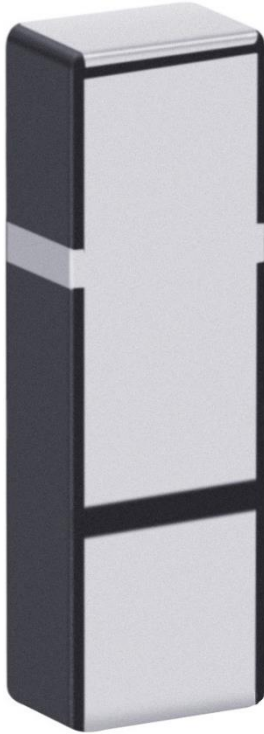


**Description:** 3-in-1 Combo GNSS L1+L2+L5  
Ceramic SMD Antenna

**Series:** Chip Antenna

**PART NUMBER:** W3089



**Features:**

- 3 in1 –combo antenna
  - Port 1: 1170-1249 MHz
  - Port 2: 1559-1608 MHz
- Compact size 3.2 x 10 x 2mm
- Omni radiation pattern
- SMT mounting on PCB
- Tape & Reel packing
- MSL-1

**Applications:**

- Multiband GNSS Receivers
- All bands in one antenna: L1, L2, L5
- GNSS (GPS, Glonass, Beidou, Galileo)
- High precision navigation and location based services

Issue: 2035

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Pulse GmbH & Do, KG  
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Pulse (Suzhou) Wireless Products Co, Inc.  
99 Huo Ju Road(#29 Bldg,4<sup>th</sup> Phase  
Suzhou New District  
Jiangsu Province, Suzhou 215009 PR China  
Tel: 86 512 6807 9998



**Description:** 3-in-1 Combo GNSS L1+L2+L5  
Ceramic SMD Antenna

**Series:** Chip Antenna

**PART NUMBER:** W3089

## ELECTRICAL SPECIFICATIONS

Antenna Type	ceramic
Frequency	1170-1249MHz; 1559-1608MHz
Nominal Impedance	50 $\Omega$
Radiation Pattern	Omni
Return Loss	1170-1249MHz <-5 1559-1608 <-8
Gain	1dBi @ 1.2GHz -1dBi @ 1.6GHz
Efficiency	50% @ 1.2GHz 45% @ 1.6GHz
Polarization	Vertical
Power Withstanding	2W

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Ceramic SMD Antenna

**Series:** Chip Antenna

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### MECHANICAL SPECIFICATIONS

Weight	0.3 g
Overall Length	10[0.39] MM[INCHES]
Over all width	3.2[0.13] MM[INCHES]
Over all thickness	2[0.08] MM[INCHES]
MSL (Moisture Sensitivity Level)	1

### ENVIRONMENTAL SPECIFICATIONS

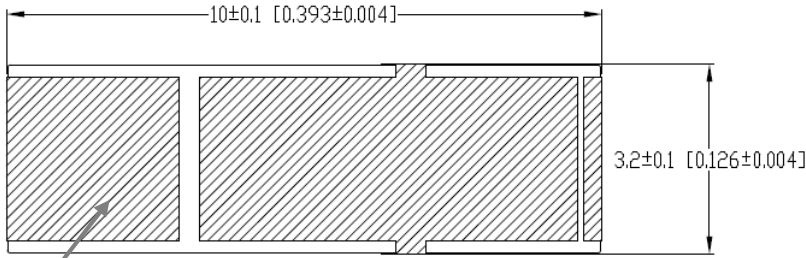
Operating Temperature	-40/+85 ° C
Storage Temperature	-10/+30 ° C
RoHS Compliant	Yes

**Description:** 3-in-1 Combo GNSS L1+L2+L5  
 Ceramic SMD Antenna

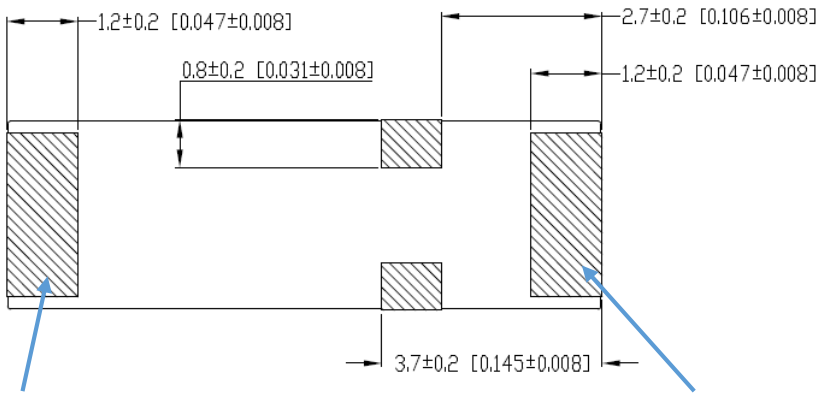
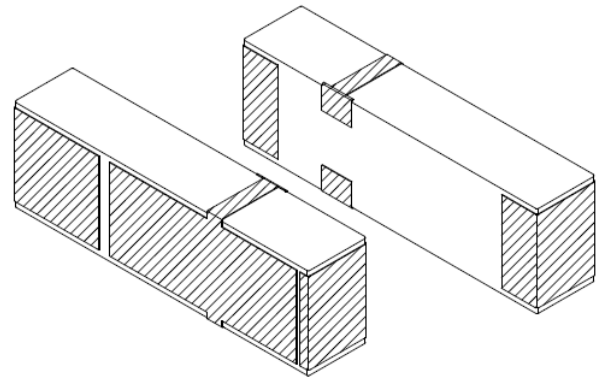
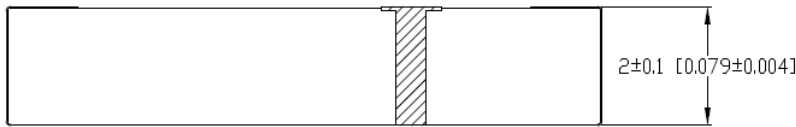
**Series:** Chip Antenna

**PART NUMBER:** W3089

**MECHANICAL DRAWING**



PATTERN



Port for 1170-1249 MHz

Port for 1559-1608 MHz

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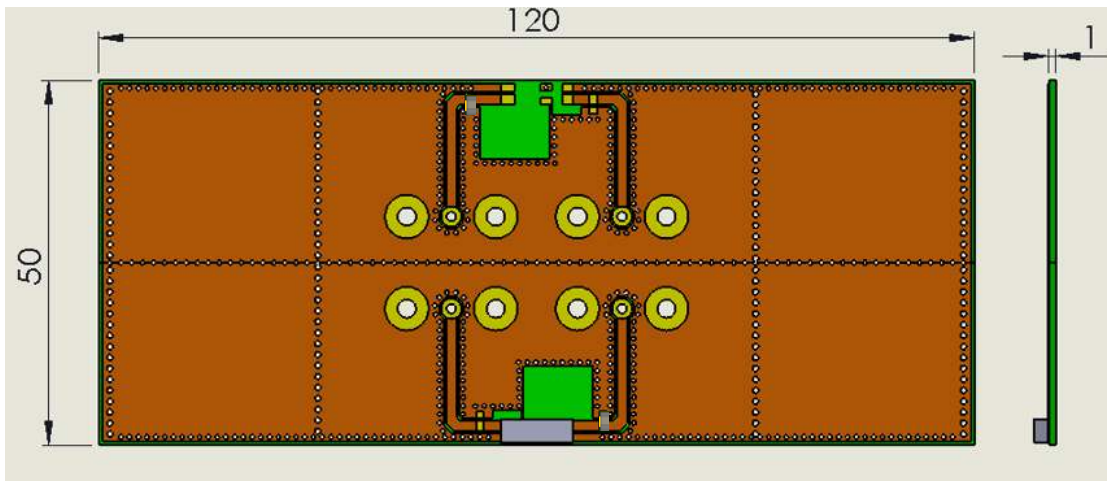
**Series:** Chip Antenna

**PART NUMBER:** W3089

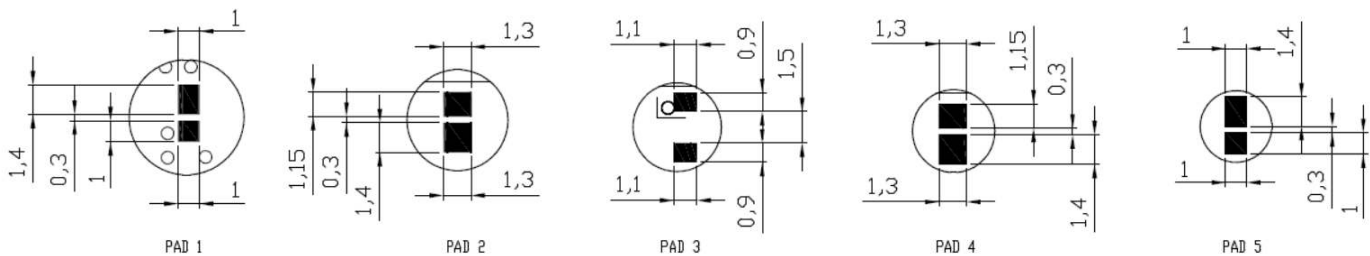
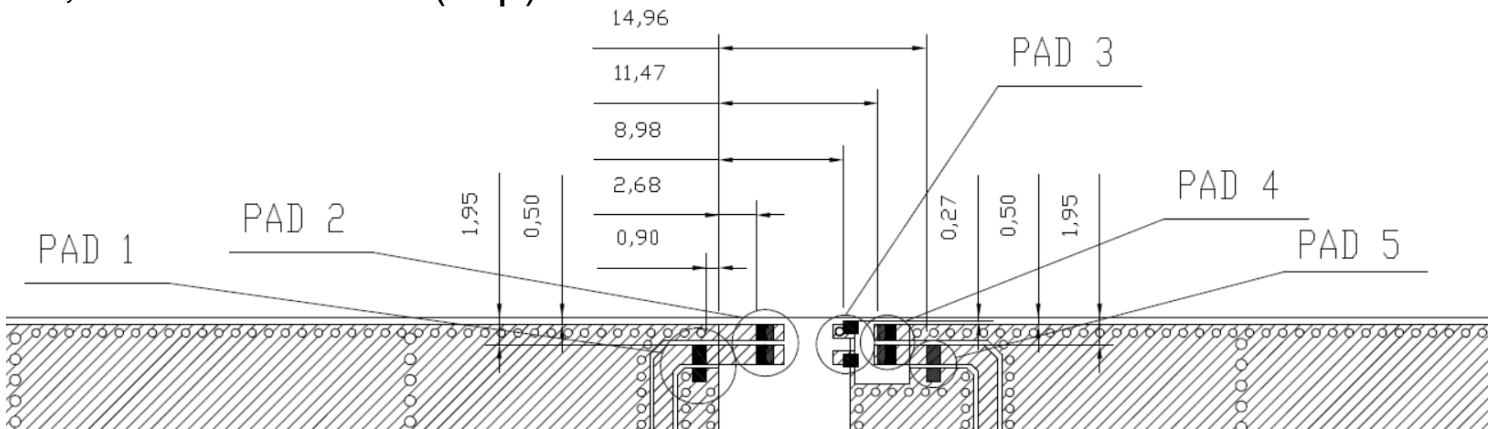
**OTHER SPECIFICATIONS**

**PCB LAYOUT**

1, PCB material, ISOLA 185HR, size, 120X50X1mm



**2, Clearance area (Top)**



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Ceramic SMD Antenna

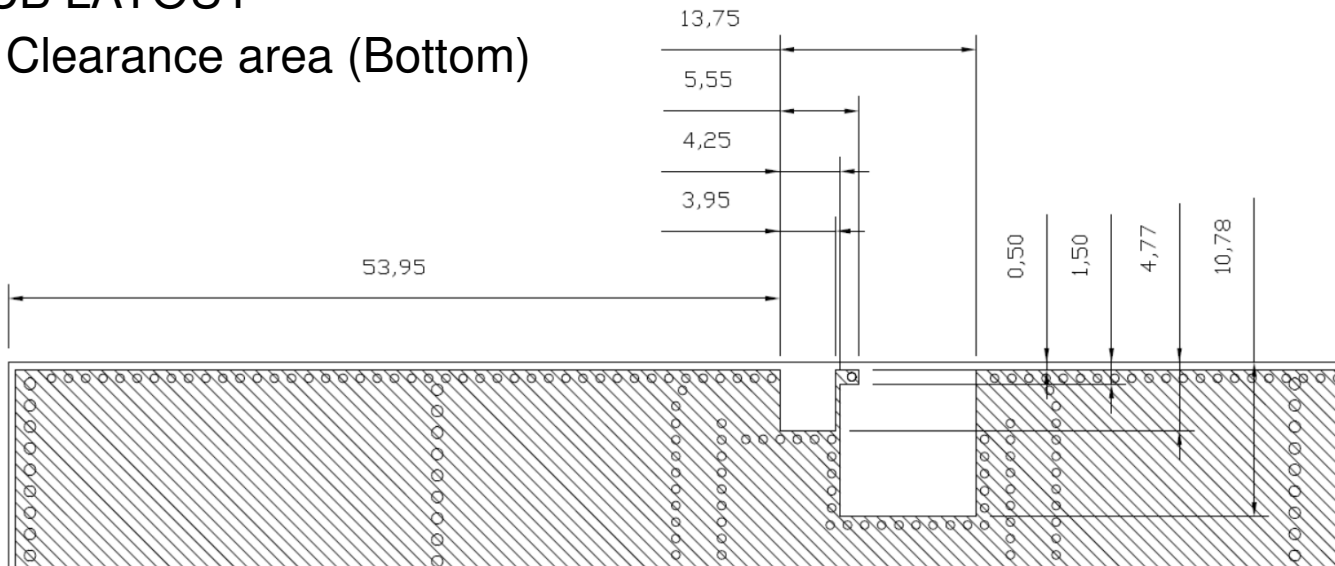
**Series:** Chip Antenna

**PART NUMBER:** W3089

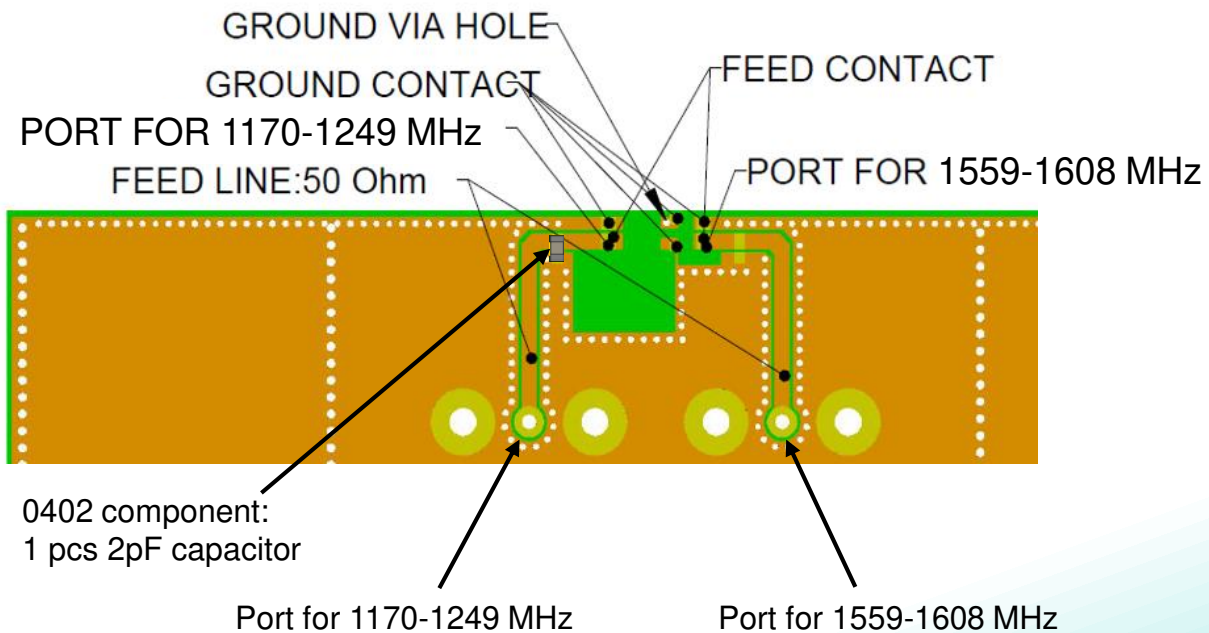
**OTHER SPECIFICATIONS**

**PCB LAYOUT**

**3, Clearance area (Bottom)**



**4, PCB Features**



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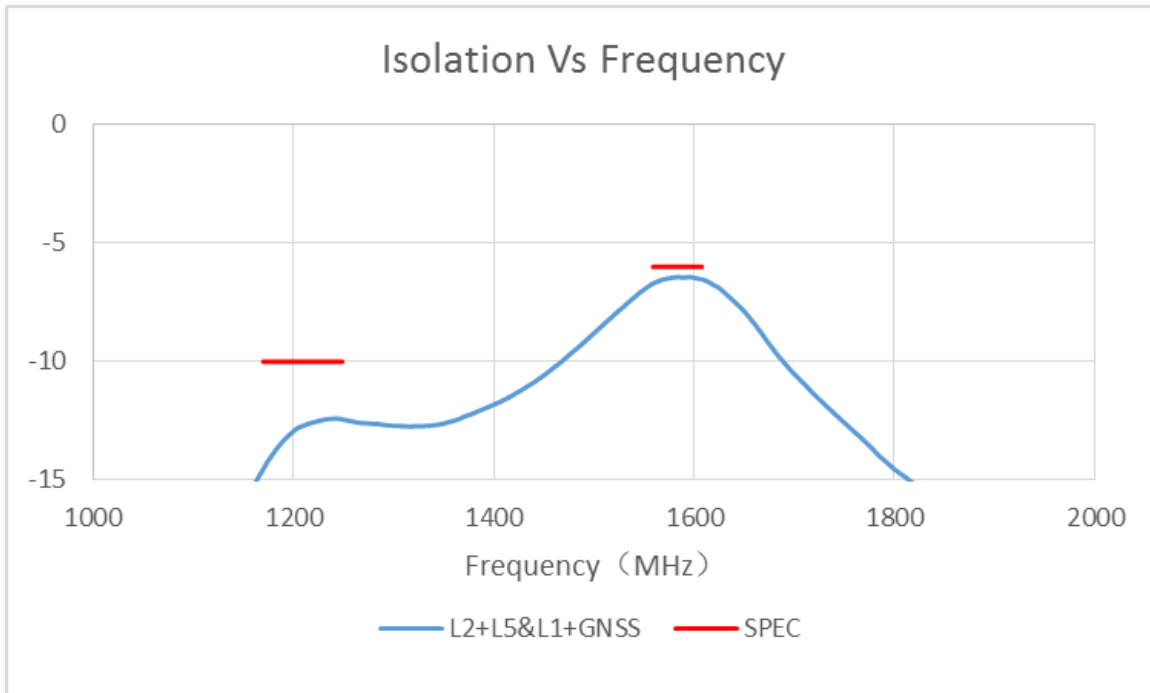
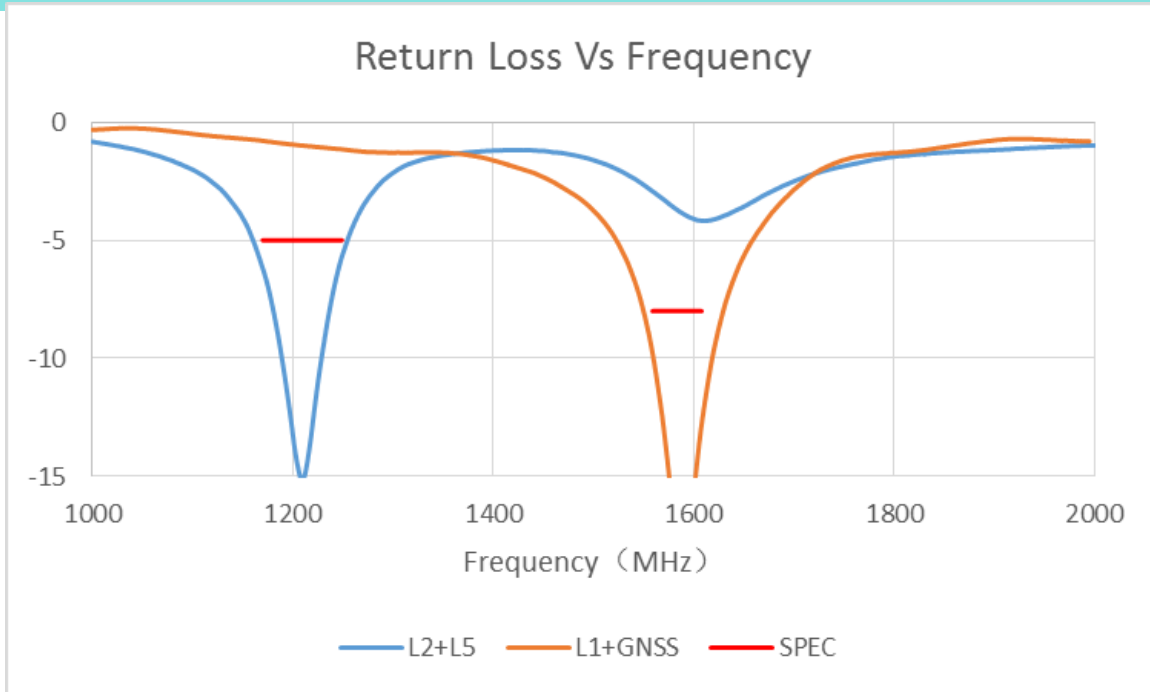
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**Description:** 3-in-1 Combo GNSS L1+L2+L5  
Ceramic SMD Antenna

**Series:** Chip Antenna

**PART NUMBER:** W3089

CHARTS



Issue: 2035

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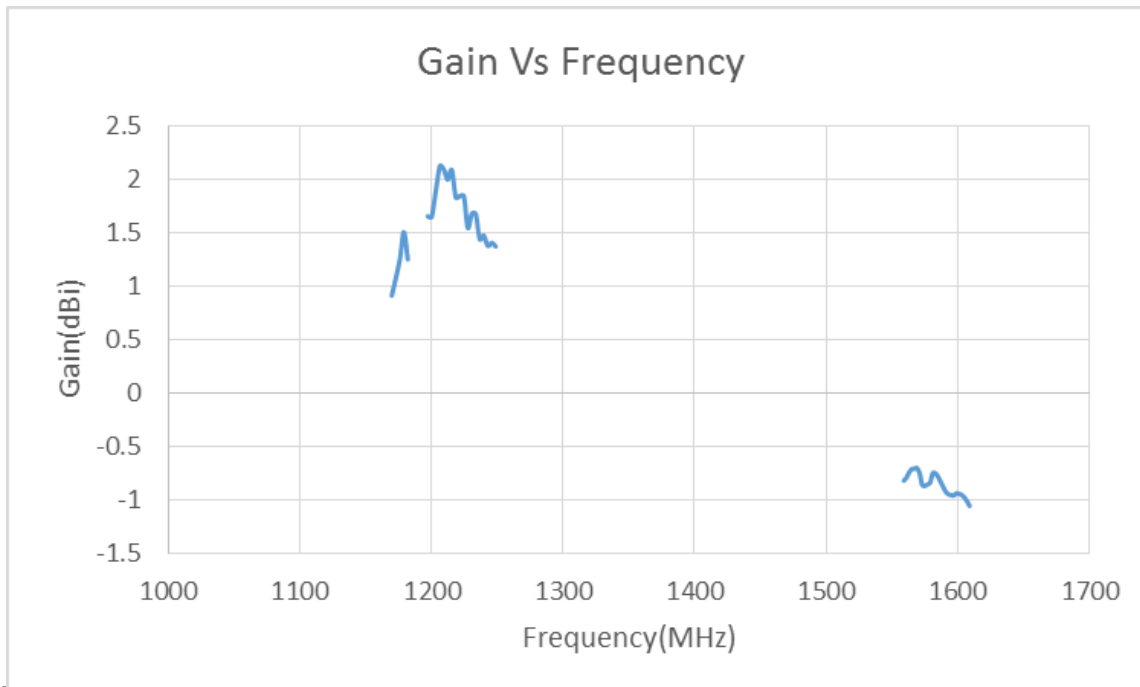
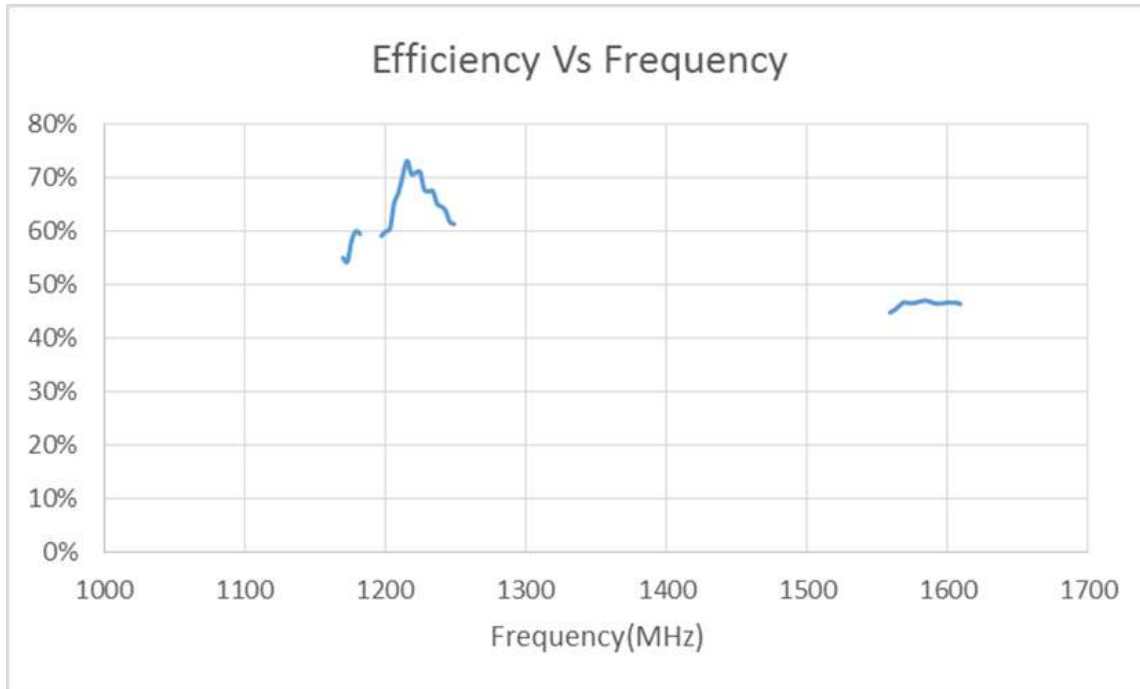
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 Ceramic SMD Antenna

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**CHARTS**



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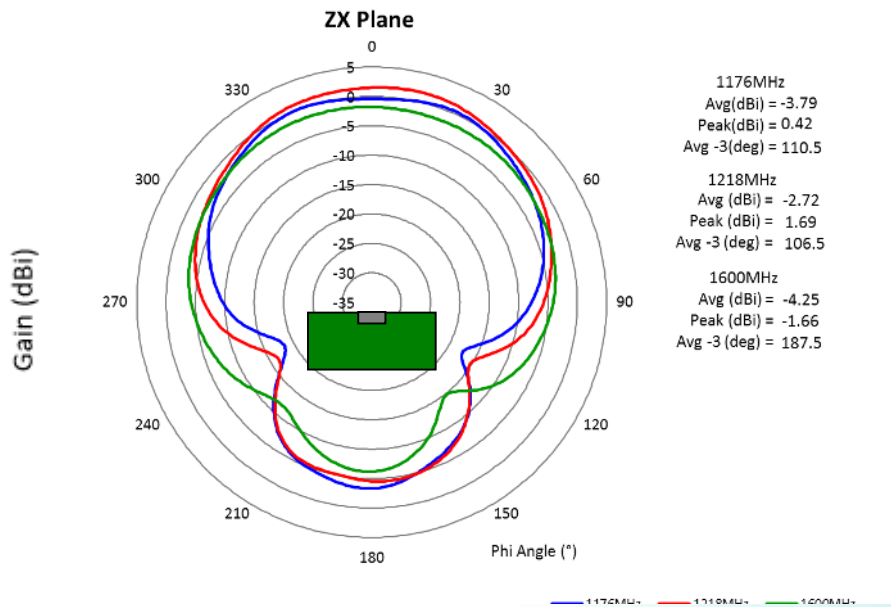
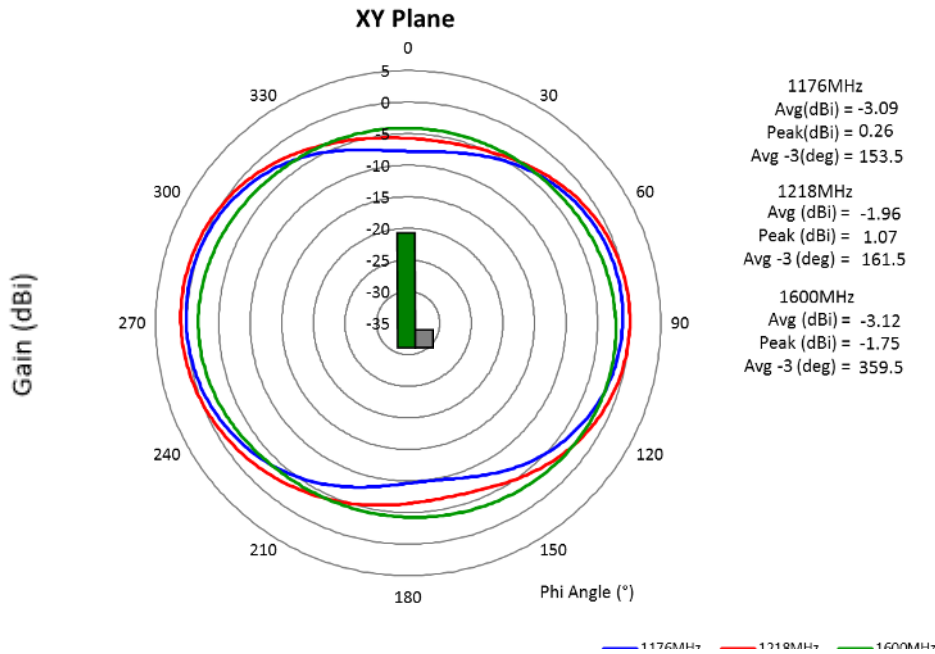


**Description:** 3-in-1 Combo GNSS L1+L2+L5  
Ceramic SMD Antenna

Series: Chip Antenna

**PART NUMBER: W3089**

**CHARTS**



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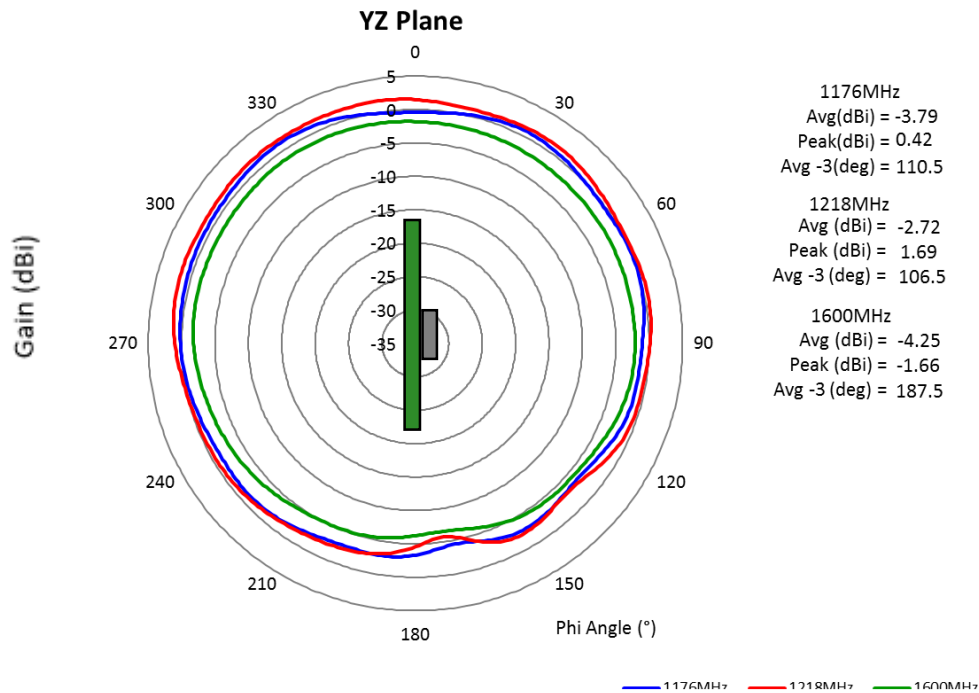
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Series: Chip Antenna

**Description:** 3-in-1 Combo GNSS L1+L2+L5  
Ceramic SMD Antenna

**PART NUMBER: W3089**

## Recommendations for ceramic chip antenna storage

### Storage time

Products should be used within 6 months from the day of manufacturers packaging even when they are stored under below mentioned conditions. Longer storage period may decrease the component solderability.

### Storage environmental conditions

To maintain solderability of Pulse ceramic products care must be taken to control the storage and use conditions:

- Do not store or use products in a corrosive atmosphere, especially where chloride, sulphur or sulfide, alkali or acid salts exist in the air. Corrosive gases may cause oxidation of electrodes and reduce solderability
- Keep temperature and humidity stable and do not exceed the below mentioned minimum and maximum conditions: Temperature: -10 to +30 Deg C  
Humidity: below 60% RH
- Do not store the products under direct sun light.

It is recommended to keep the products in manufacturers packing (tape&reel) until the time of assembly and soldering process. Air tight vacuum package is recommended in the conditions where it is know to be some corrosive gases.

### Handling

Do not touch the components with bare hands. Protective gloves must be used to prevent contamination of terminals which may cause reduced solderability. Do not touch or damage the silver plated surface by any sharp objects. Soft materials (plastic, wood etc.) must be used if tweezers or other tools are used to pick the components. Avoid any excess mechanical shock or vibration during storage and handling.

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**Description:** 3-in-1 Combo GNSS L1+L2+L5  
Ceramic SMD Antenna

**Series:** Chip Antenna

**PART NUMBER:** W3089

**Recommendations for reflow soldering process**

Printing stencil thickness 0,15 - 0,25 mm is recommended for the solder paste. The maximum soldering temperature should not exceed 260°C. The temperature profile recommendations for reflow soldering process is presented in the Figures 1 and 2. The reflow profile

presented in figure 1 describes minimum reflow temperatures. The reflow profile presented in figure 2 describes maximum reflow temperatures. located at the center of the coverage area.

	Method of heat transfer	Controlled hot air convection
1	Average temperature gradient in preheating	2.5 °C/s
2	Soak time	2-3 minutes
3	Max temperature gradient in reflow	3 °C/s
4	Time above 217 °C	Max 30 sec
5	Peak temperature in reflow	230 °C for 10 seconds
6	Temperature gradient in cooling	Max -5 °C/s

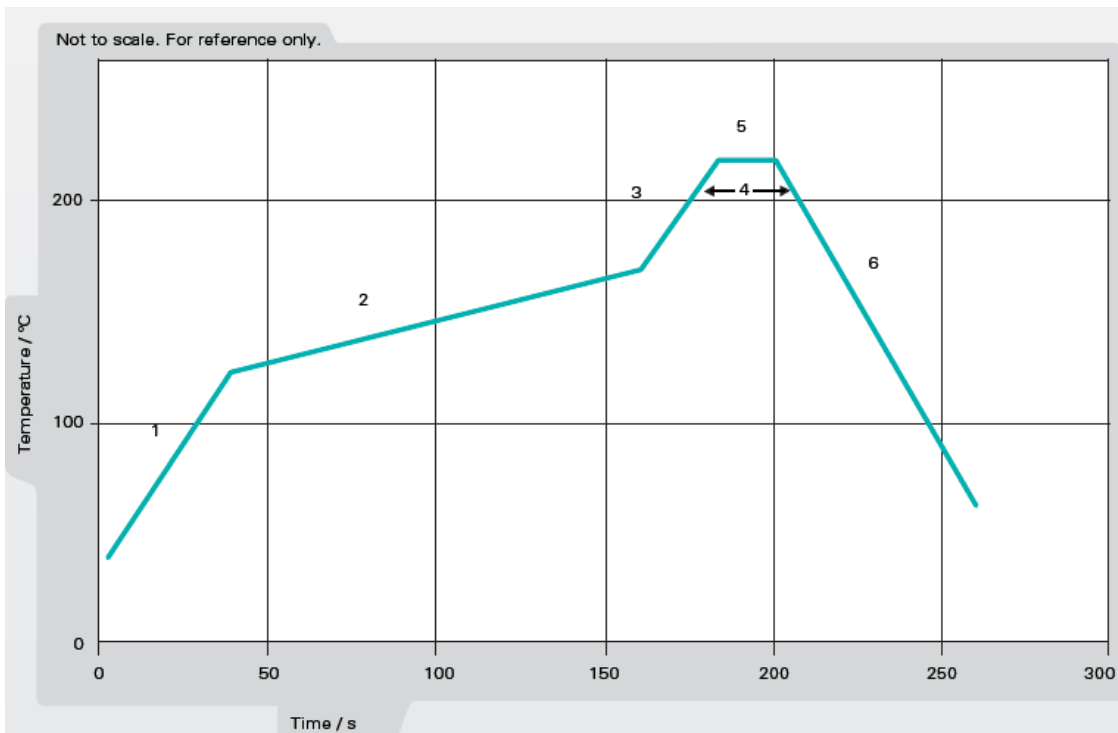


Figure 1. Minimum temperature profile recommendation for reflow soldering process

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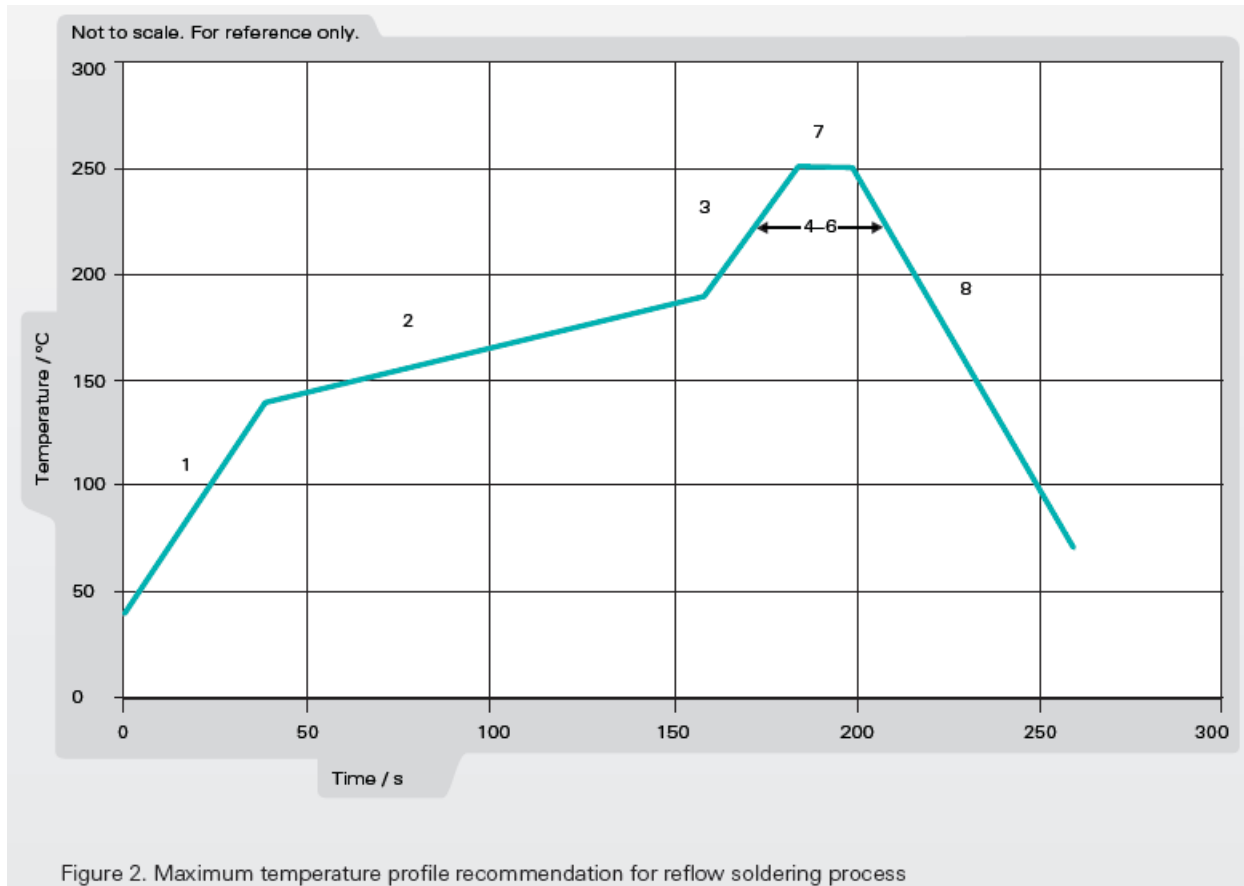
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**Series:** Chip Antenna

**PART NUMBER:** W3089

**Recommendations for reflow soldering process**

	Method of heat transfer	Controlled hot air convection
1	Average temperature gradient in preheating	2.5 °C/s
2	Soak time	2-3 minutes
3	Max temperature gradient in reflow	3 °C/s
4	Time above 217 °C	Max 60 sec
5	Time above 230 °C	Max 50 sec
6	Time above 250 °C	Max 10 sec
7	Peak temperature in reflow	260 °C for 5 seconds
8	Temperature gradient in cooling	Max -5 °C/s



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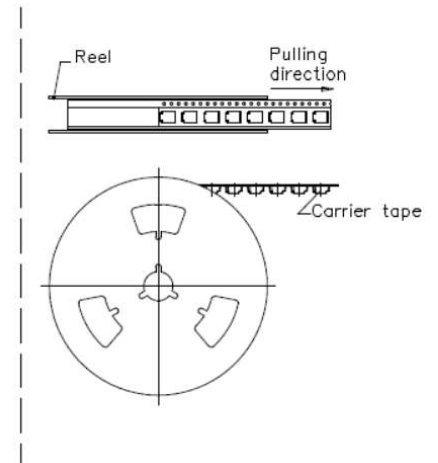
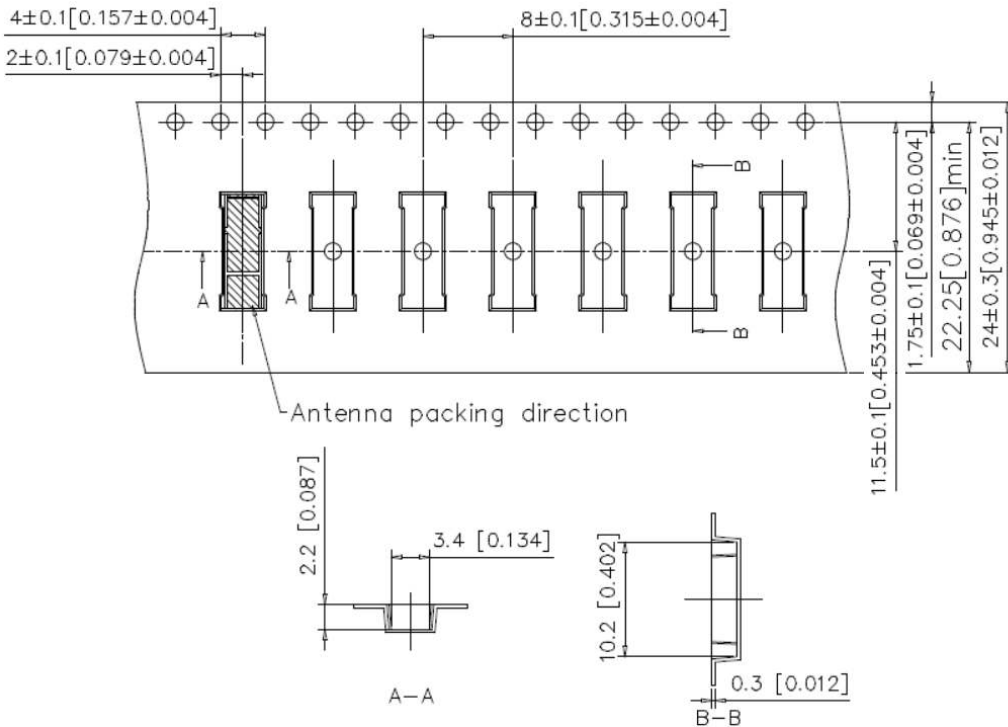
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**PACKAGING**

Taping package  
1000PCS/Reel  
3000PCS/Small box  
6000PCS/Carton box



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