

## SPECIFICATION

|              |   |                                                                                                                                                                        |
|--------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Part No.     | : | <b>DXP.01.A</b>                                                                                                                                                        |
| Product Name | : | SMD L1/L2 SAW Diplexer<br>For GPS/GALILEO L1, GLONASS L2 & BeiDou B2                                                                                                   |
| Features     | : | L2 1222.7625 / L1 1575.42MHz SAW Diplexer<br>SMT Direct Mount<br>Compact Size 5*5*1.7mm<br>Low Insertion Loss In band<br>High Isolation Port to Port<br>RoHS Compliant |



## 1. Introduction

The Taoglas DXP.01.A is an advanced compact SAW diplexer for use in any navigation system application using the GPS/GALILEO L1, GLONASS L2 and BeiDou B2 bands.

The diplexer is designed to function as both a bandpass filter for each band and to either split one path into two or to combine both bands back into one RF feed. For example, a customer who wanted to use passive dual band antenna elements would need to implement a diplexer in some cases to split both bands out into separate paths. It is also designed to isolate and reject any unwanted GPS/GALILEO signals from getting to the application port.

It is housed in a compact 5\*5\*1.7mm over-molded laminate package and is easy to integrate using SMT process mounting directly onto the target PCB.

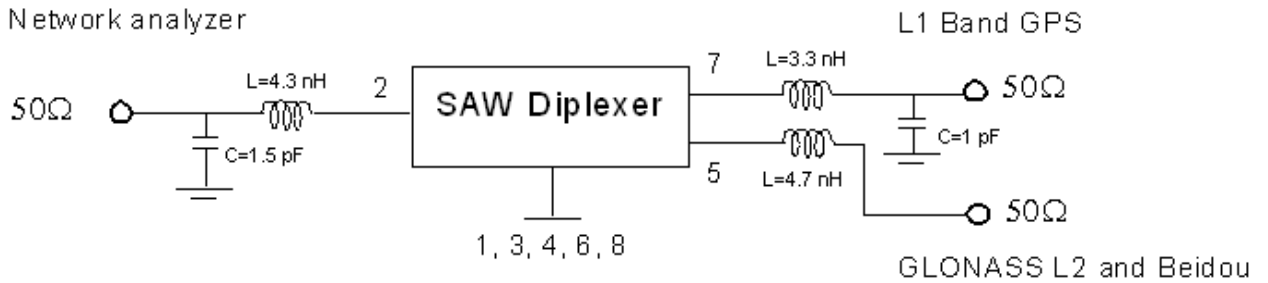
Contact your regional Taoglas sales office for more information or support.

## 2. Specification

| L1 Band GPS/GALILEO                                     |               |           |      |
|---------------------------------------------------------|---------------|-----------|------|
|                                                         | Min.          | Typ.      | Max. |
| <b>Center Frequency</b> (MHz)                           | -             | 1575.42   | -    |
| <b>Insertion Loss</b> (dB)                              | -             | 3.3       | 3.8  |
| <b>Amplitude Ripple</b> (dB)                            | -             | 0.1       | 1.0  |
| <b>Return Loss</b> (dB)                                 | -             | -12       | -8.5 |
| <b>Attenuation</b> (Reference level from 0dB)           |               |           |      |
| 824 ~ 960 (MHz)                                         | 25            | 47        | -    |
| 1500 ~ 1525.42 (MHz)                                    | 8             | 19        | -    |
| 1625.42 ~ 1650 (MHz)                                    | 8             | 16        | -    |
| 1710 ~ 2170 (MHz)                                       | 25            | 34        | -    |
| L2 Band GLONASS and B2 Band BeiDou                      |               |           |      |
|                                                         | Min.          | Typ.      | Max. |
| <b>Center frequency</b> (MHz)                           | -             | 1222.7625 | -    |
| <b>Insertion Loss</b> (dB)                              | -             | 4.1       | 4.8  |
| <b>Amplitude Ripple</b> (dB)                            | -             | 0.9       | 1.8  |
| <b>Return Loss</b> (dB)                                 | -             | -12       | 8.5  |
| <b>Attenuation</b> (Reference level from 0dB)           |               |           |      |
| 464 ~ 600 (MHz)                                         | 25            | 32        | -    |
| 1110 ~ 1130 (MHz)                                       | 16            | 23        | -    |
| 1330 ~ 1450 (MHz)                                       | 28            | 37        | -    |
| 1500 ~ 1820 (MHz)                                       | 25            | 30        | -    |
| L1 Band GPS/GALILEO, L2 Band GLONASS and B2 Band BeiDou |               |           |      |
|                                                         | Min.          | Typ.      | Max. |
| Isolation (1196.9~1248.625MHz)                          | 22            | 36        | -    |
| Isolation (1574.22~1576.62 dB)                          | 22            | 33        | -    |
| Environmental                                           |               |           |      |
| Operating Temperature                                   | -40°C to 85°C |           |      |
| Storage Temperature                                     | -40°C to 85°C |           |      |
| Input power Level                                       | 10 dBm        |           |      |
| DC Voltage                                              | 3 V           |           |      |

### 3. Measurement circuit

HP Network analyzer

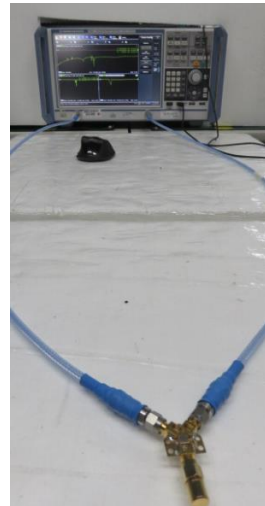


#### 3.1 Test setup

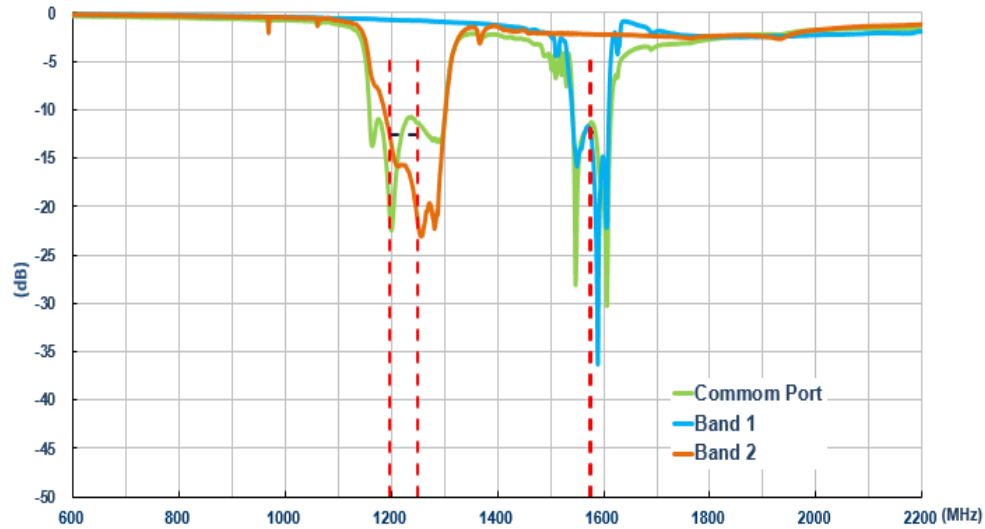
**Band 1 (L1)**      **Band 2(L2/L5)**



**Common Port**

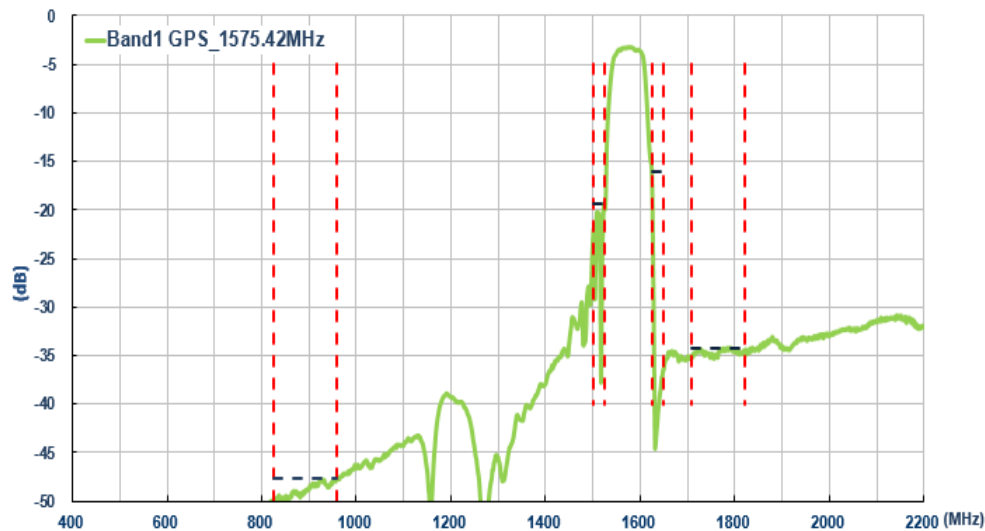


### 3.2 S-Parameter



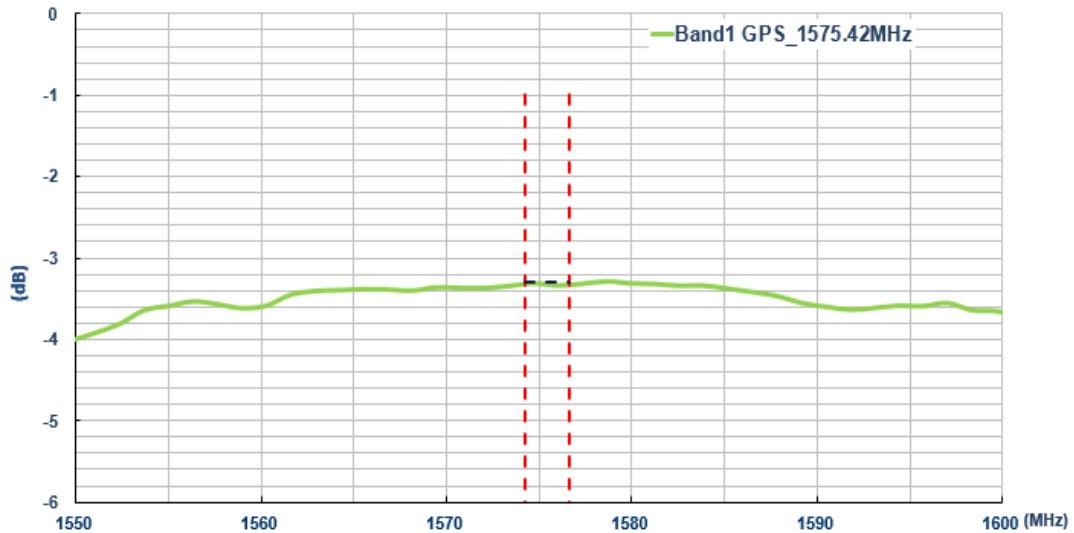
| Return Loss (dB)                    |                                     |
|-------------------------------------|-------------------------------------|
| <b>Band 1</b><br>1574.22~1576.62MHz | <b>Band 2</b><br>1196.9~1248.625MHz |
| <-12.3                              | <12.6                               |

### 3.3. Common Port to Band 1 Port \_ 1575.42MHz Attenuation



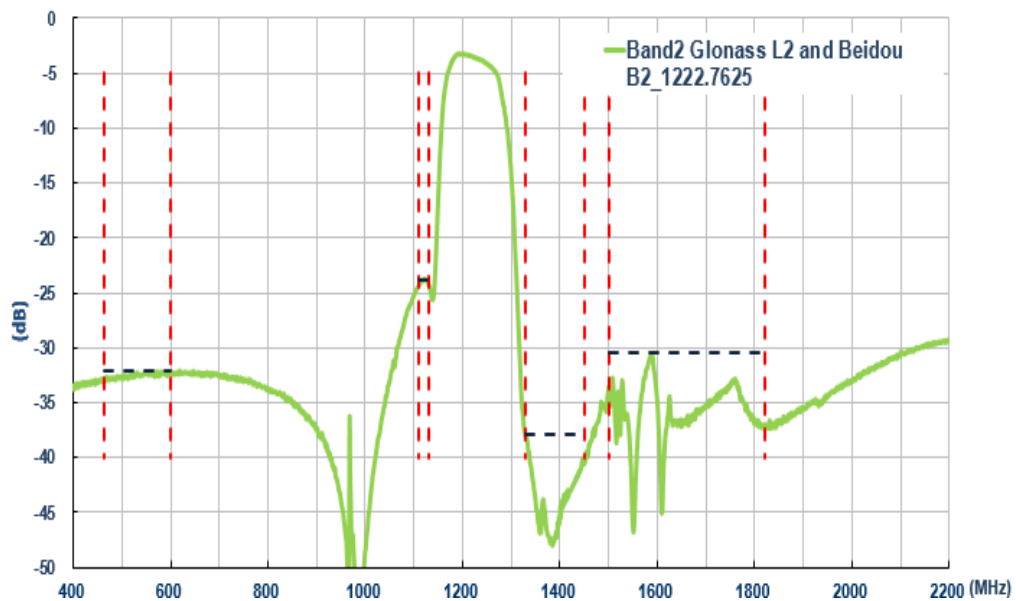
| Attenuation (dB)  |                        |                        |                     |
|-------------------|------------------------|------------------------|---------------------|
| <b>824~960MHz</b> | <b>1500~1525.42MHz</b> | <b>1625.42~1650MHz</b> | <b>1710~1820MHz</b> |
| <-47.6            | <-19.4                 | <-16.1                 | <-34.2              |

### 3.4. Common Port to Band 1 Port \_ 1575.42MHz Insertion Loss



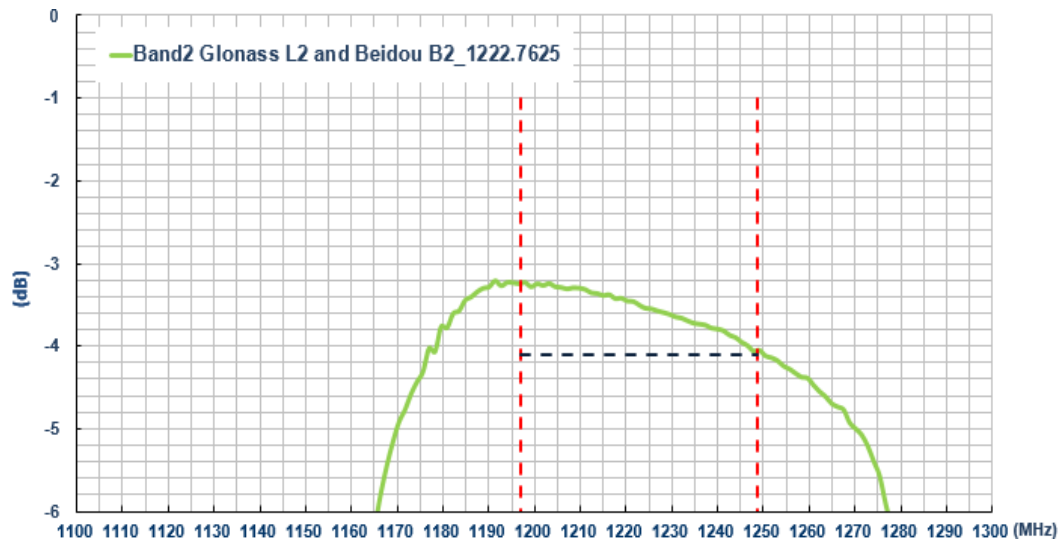
| Insertion Loss(dB) |
|--------------------|
| 1574.22~1576.62MHz |
| > -3.3             |

### 3.5. Common Port to Band 1 Port \_1222.7625MHz Attenuation



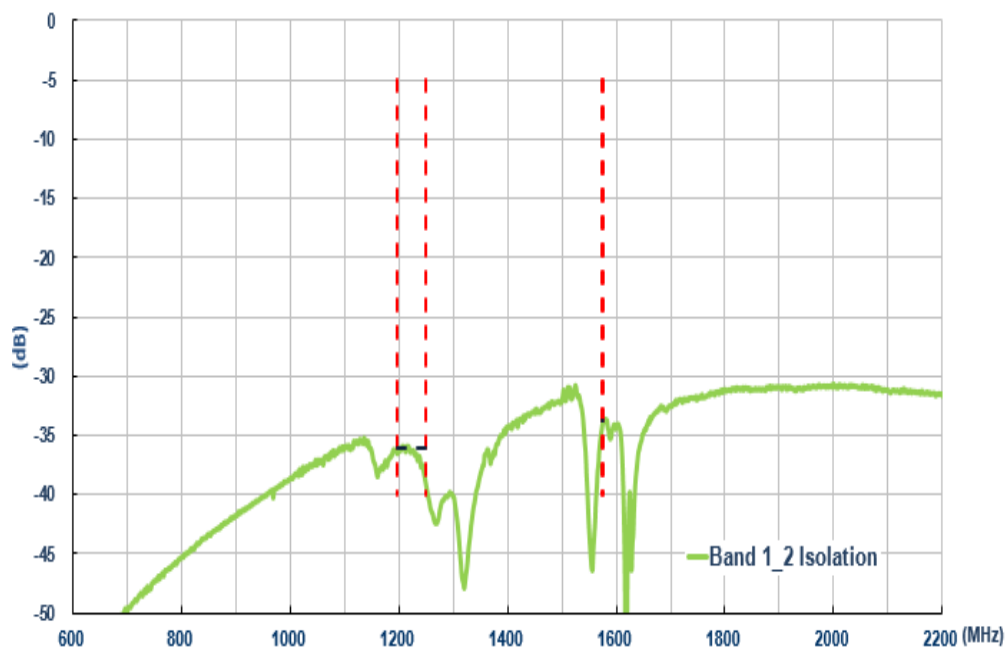
| Attenuation (dB) |              |              |              |
|------------------|--------------|--------------|--------------|
| 464~600MHz       | 1110~1130MHz | 1330~1450MHz | 1500~1820MHz |
| <-32.1           | <-23.8       | <-37.9       | <-30.5       |

### 3.6. Common Port to Band 1 Port \_1222.7625MHz Insertion Loss



| Insertion Loss(dB) |
|--------------------|
| 1196.9~1248.625MHz |
| > -4.1             |

### 3.7. Band1 Port – Band2 Port Isolation

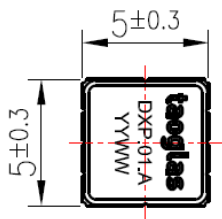


| Isolation (dB)                      |                                     |
|-------------------------------------|-------------------------------------|
| <b>Band 1</b><br>1196.5~1248.625MHz | <b>Band 2</b><br>1574.22~1576.62MHz |
| <-36.1                              | <-33.8                              |

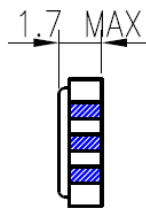
## 4. Drawing (Unit: mm)

### 4.1. Diplexer Drawing

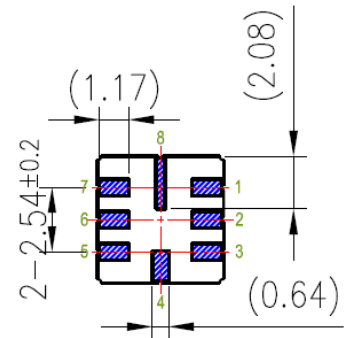
Front View



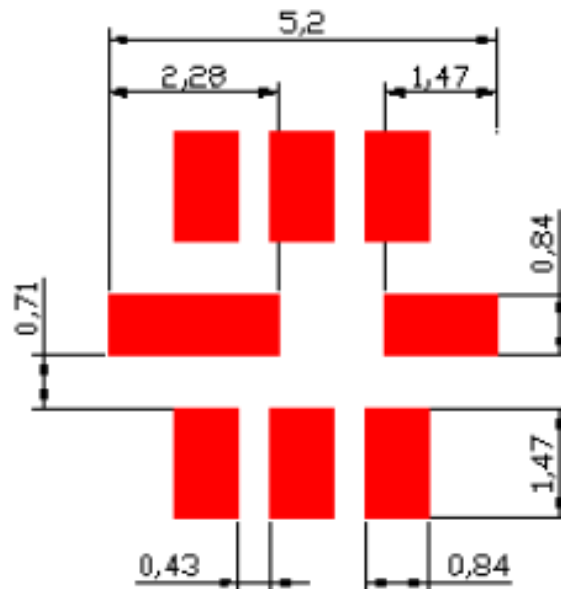
Side View



Back View

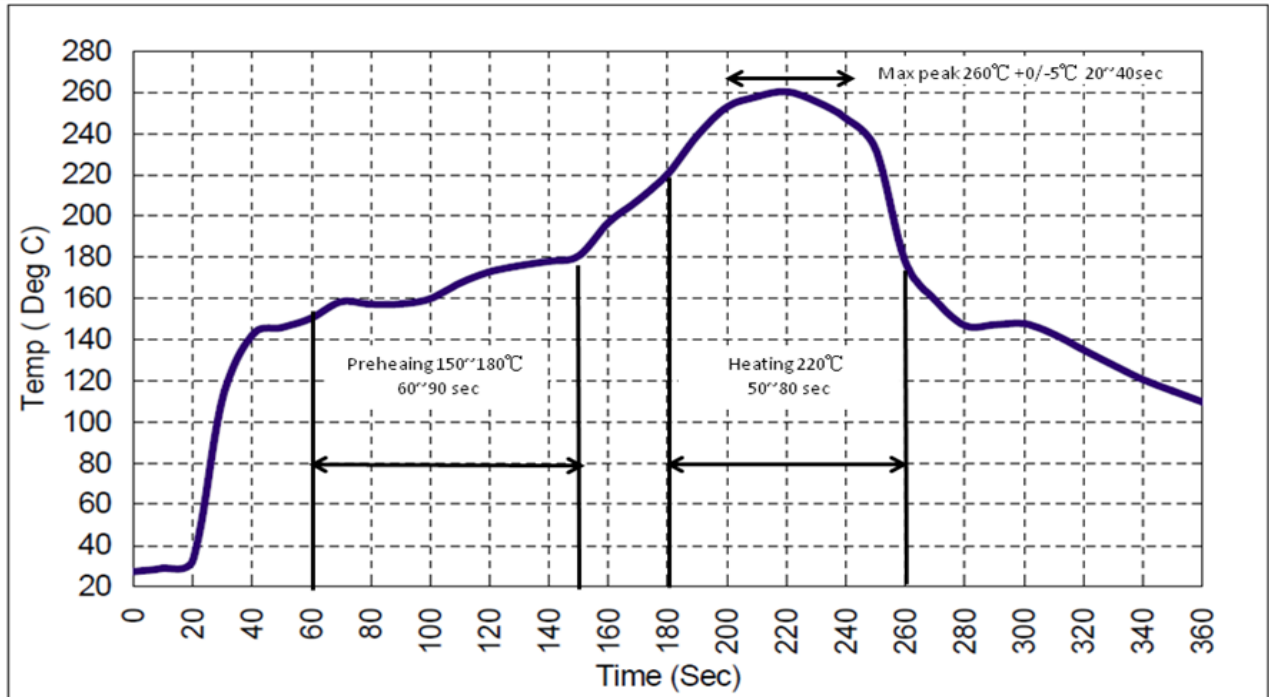


### 4.2. Foot Print





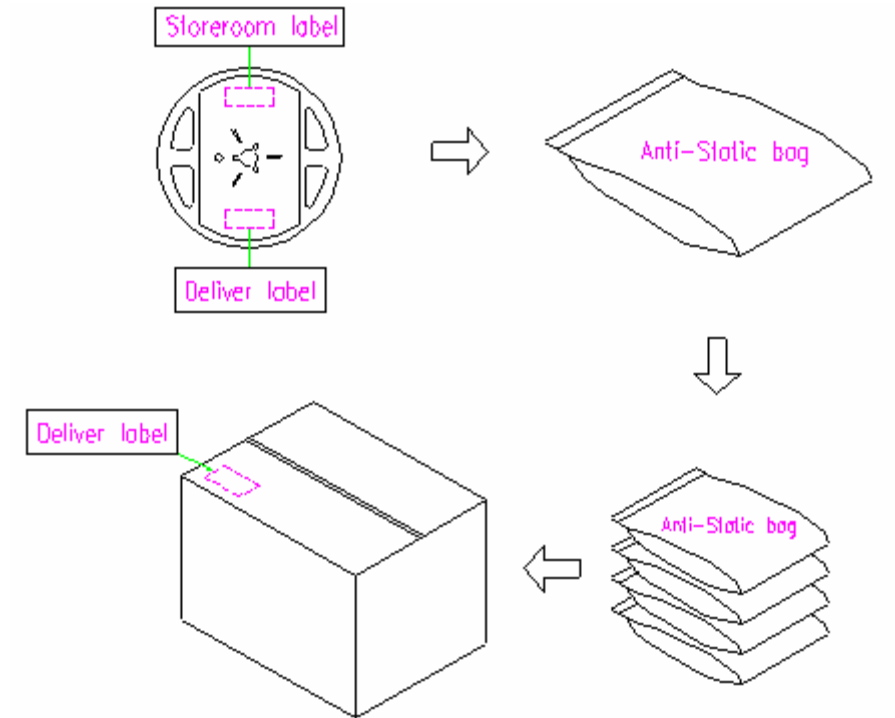
## 5. Recommended Reflow Profile



1. Preheating shall be fixed at 150~180°C for 60~90 seconds.
2. Ascending time to preheating temperature 150°C shall be 30 seconds minimum.
3. Heating shall be fixed at 220°C for 50~80 seconds and 260°C as the peak for 20-40 seconds.
4. Time: 2 times.



## Packaging Detail



**1k pieces per reel, 4 reels per carton.**

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