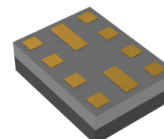


**SF2709J-1**

**1222.5/1582.5 MHz  
SAW Diplexer**



**SM1511-10**

#### MAXIMUM RATING:

- Input Power Level: 15 dBm
- DC Voltage : 0 V
- Operating Temperature: -40°C to +105°C
- Storage Temperature: -40°C to +105°C
- Moisture Sensitive Level: MSL 1
- AEC-Q200 Qualified

#### ELECTRICAL CHARACTERISTICS:

Terminating source impedance (single) :  $Z_s = 50 \Omega$   
 Terminating load impedance (single) :  $Z_L = 50 \Omega$

| Item (L2 Band to Antenna)                         | Unit  | Min. | Typ.   | Max. |
|---------------------------------------------------|-------|------|--------|------|
| <b>Center frequency</b>                           | MHz   | -    | 1222.5 | -    |
| <b>Insertion Loss</b> (1196 ~ 1249 MHz)           | dB    | -    | 3.4    | 3.8  |
| <b>Group Delay Ripple</b> (1197.14 ~ 1217.14 MHz) | ns    |      | 5.2    | 10   |
| <b>Group Delay Ripple</b> (1221.6 ~ 1233.6 MHz)   | ns    |      | 1.5    | 5    |
| <b>Group Delay Ripple</b> (1240 ~ 1252 MHz)       | ns    |      | 2.8    | 10   |
| <b>Amplitude Ripple</b> (1196 ~ 1249 MHz)         | dB    | -    | 0.8    | 2.0  |
| <b>Attenuation</b> (reference level from 0 dB)    |       |      |        |      |
| 880 ~ 920 MHz                                     | dB    | 20   | 45     | -    |
| 1565 ~ 1606 MHz (L1 Band)                         | dB    | 20   | 33     | -    |
| 1710 ~ 1850 MHz                                   | dB    | 20   | 28     | -    |
| 1850 ~ 1920 MHz                                   | dB    | 20   | 32     | -    |
| 1920 ~ 1980 MHz                                   | dB    | 20   | 33     | -    |
| <b>Temperature Coefficient of Frequency</b>       | ppm/K | -    | -36    | -    |



**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

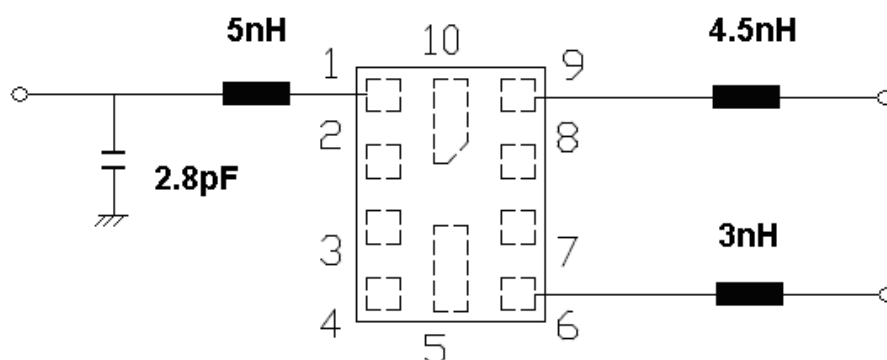
#### NOTES:

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

| Item (L1 Band to Antenna)                      | Unit  | Min. | Typ.   | Max. |
|------------------------------------------------|-------|------|--------|------|
| <b>Center frequency</b>                        | MHz   | -    | 1582.5 | -    |
| <b>Insertion Loss</b> (1559 ~ 1606 MHz)        | dB    | -    | 3.4    | 3.7  |
| <b>Group Delay Ripple</b> (1559 ~ 1606 MHz)    | ns    |      | 5      | 15   |
| <b>Amplitude Ripple</b> (1559 ~ 1606 MHz)      | dB    | -    | 0.7    | 2.0  |
| <b>Attenuation</b> (reference level from 0 dB) |       |      |        |      |
| 10 ~ 920 MHz                                   | dB    | 28   | 42     | -    |
| 1196 ~ 1249 MHz (L2 Band)                      | dB    | 30   | 38     | -    |
| 1427 ~ 1453 MHz                                | dB    | 25   | 32     | -    |
| 1453 ~ 1501 MHz                                | dB    | 20   | 27     | -    |
| 1501 ~ 1525 MHz                                | dB    | 10   | 16     | -    |
| 1710 ~ 1785 MHz                                | dB    | 20   | 31     | -    |
| 1850 ~ 1980 MHz                                | dB    | 30   | 39     | -    |
| <b>Temperature Coefficient of Frequency</b>    | ppm/K | -    | -36    | -    |

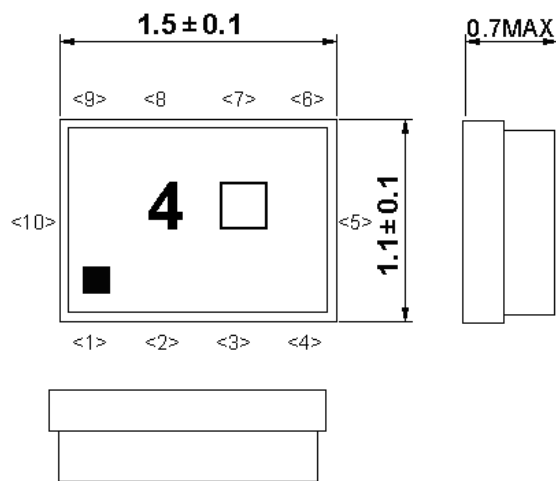
| Item (Isolation)                               | Unit  | Min. | Typ. | Max. |
|------------------------------------------------|-------|------|------|------|
| <b>Attenuation</b> (reference level from 0 dB) |       |      |      |      |
| 1196 ~ 1249 MHz (L2 Band)                      | dB    | 35   | 38   | -    |
| 1565 ~ 1606 MHz (L1 Band)                      | dB    | 35   | 38   | -    |
| <b>Temperature Coefficient of Frequency</b>    | ppm/K | -    | -36  | -    |

### TEST CIRCUIT: Simulation matching port extensions 90ps

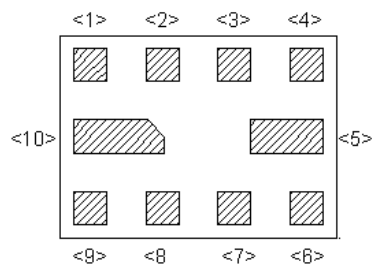


| Pin # | Function |
|-------|----------|
| (1)   | Antenna  |
| (2)   | Ground   |
| (3)   | Ground   |
| (4)   | Ground   |
| (5)   | Ground   |
| (6)   | L1 Band  |
| (7)   | Ground   |
| (8)   | Ground   |
| (9)   | L2 Band  |
| (10)  | Ground   |

OUTLINE DRAWING:

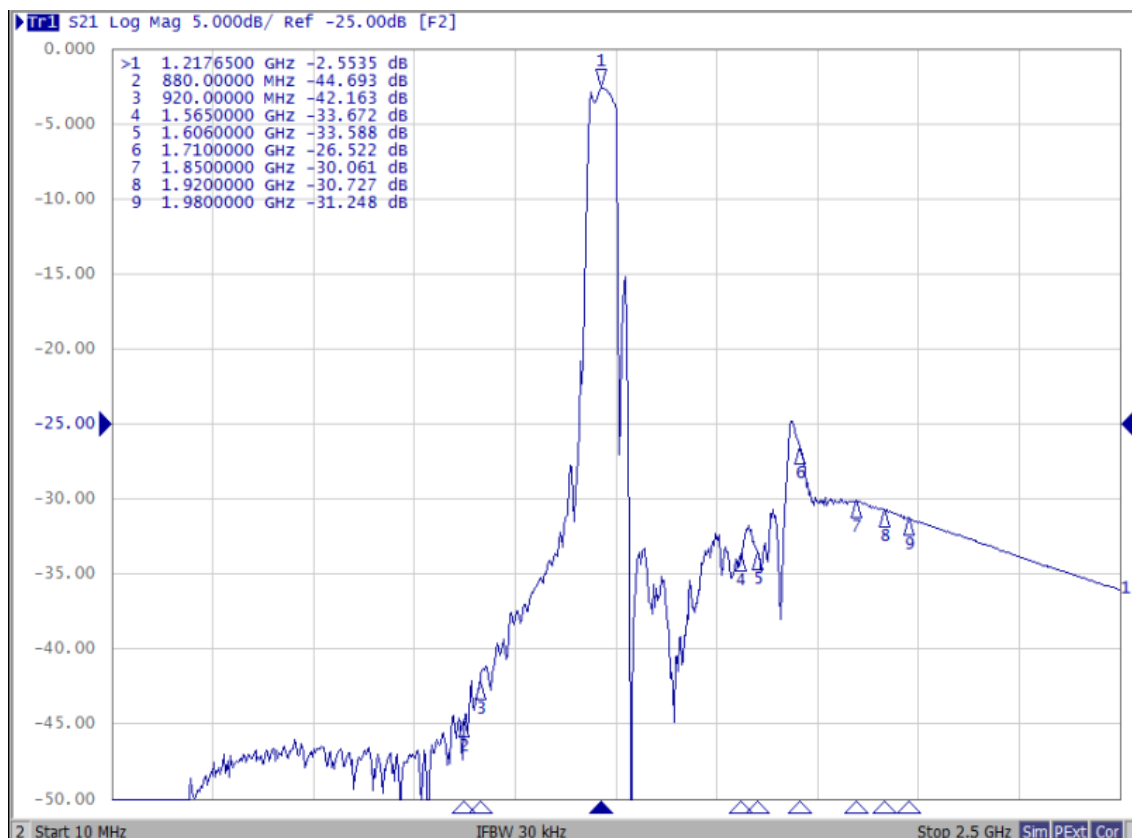
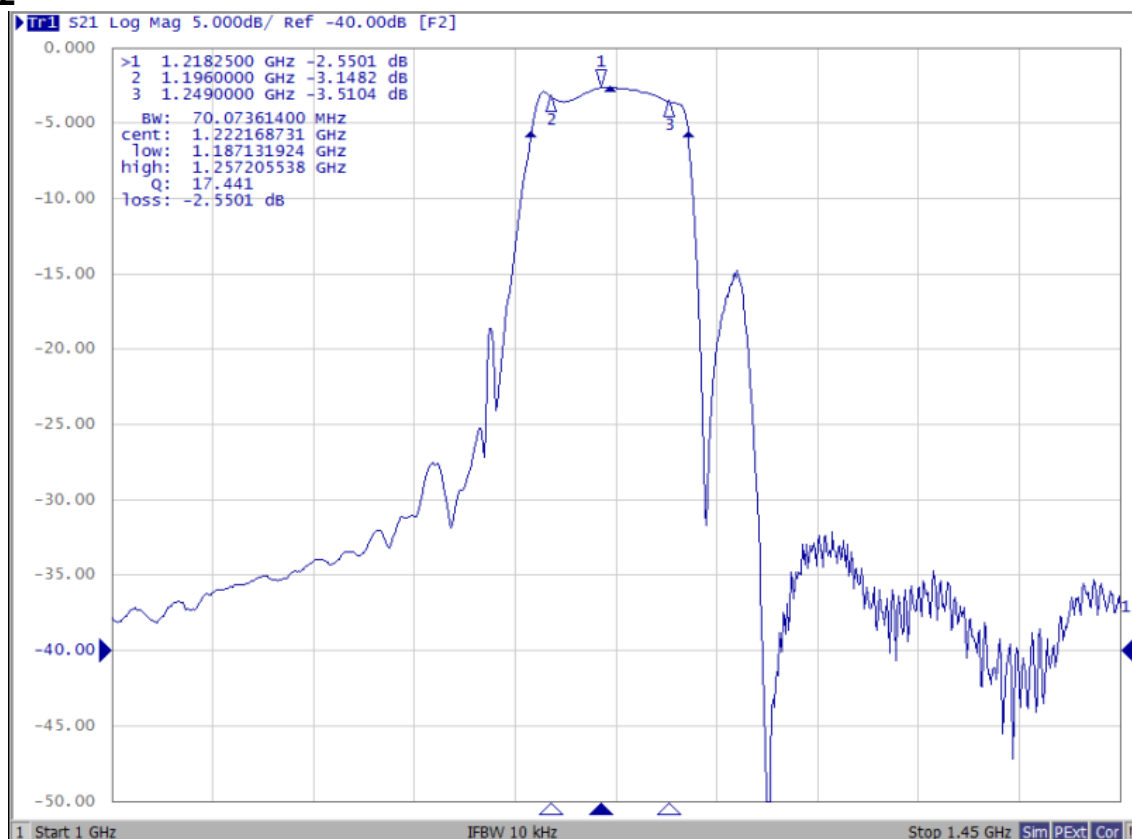


| Pin # | Function |
|-------|----------|
| (1)   | Antenna  |
| (2)   | Ground   |
| (3)   | Ground   |
| (4)   | Ground   |
| (5)   | Ground   |
| (6)   | L1 Band  |
| (7)   | Ground   |
| (8)   | Ground   |
| (9)   | L2 Band  |
| (10)  | Ground   |

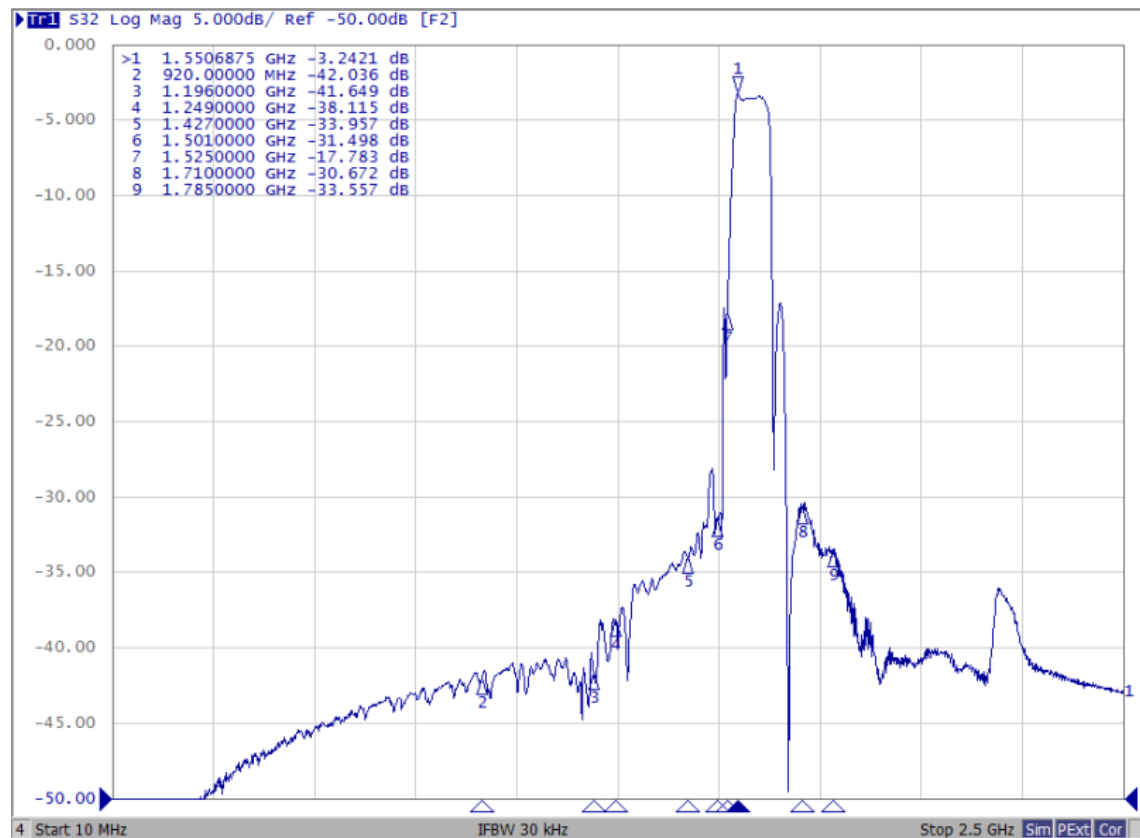
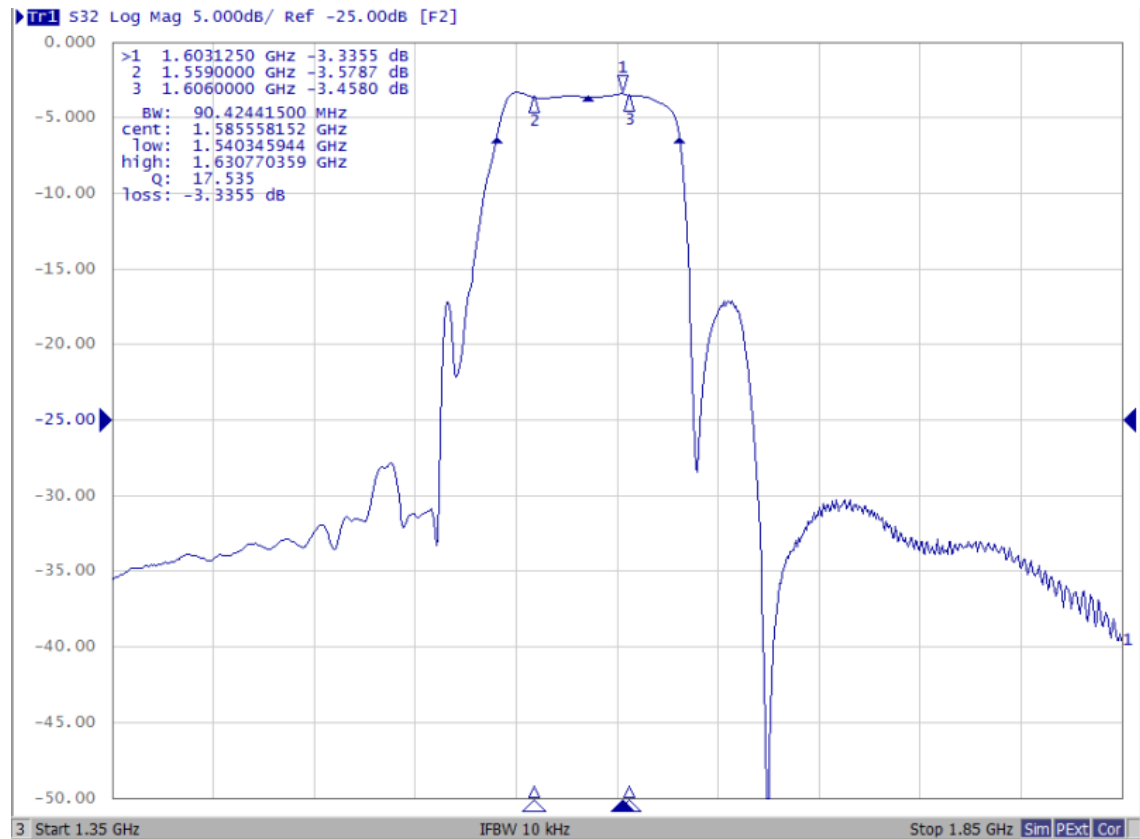


| Year/Month | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | 10       | 11       | 12       |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 2017       | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>E</u> | <u>F</u> | <u>G</u> | <u>H</u> | <u>J</u> | <u>K</u> | <u>L</u> | <u>M</u> |
| 2018       | <u>N</u> | <u>P</u> | <u>Q</u> | <u>R</u> | <u>S</u> | <u>T</u> | <u>U</u> | <u>V</u> | <u>W</u> | <u>X</u> | <u>Y</u> | <u>Z</u> |
| 2019       | <u>a</u> | <u>b</u> | <u>c</u> | <u>d</u> | <u>e</u> | <u>f</u> | <u>g</u> | <u>h</u> | <u>i</u> | <u>k</u> | <u>l</u> | <u>m</u> |
| 2020       | <u>n</u> | <u>p</u> | <u>q</u> | <u>r</u> | <u>s</u> | <u>t</u> | <u>u</u> | <u>v</u> | <u>w</u> | <u>x</u> | <u>y</u> | <u>z</u> |
| 2021       | A        | B        | C        | D        | E        | F        | G        | H        | J        | K        | L        | M        |
| 2022       | N        | P        | Q        | R        | S        | T        | U        | V        | W        | X        | Y        | Z        |
| 2023       | a        | b        | c        | d        | e        | f        | g        | h        | j        | k        | l        | m        |
| 2024       | n        | p        | q        | r        | s        | t        | u        | v        | w        | x        | y        | z        |

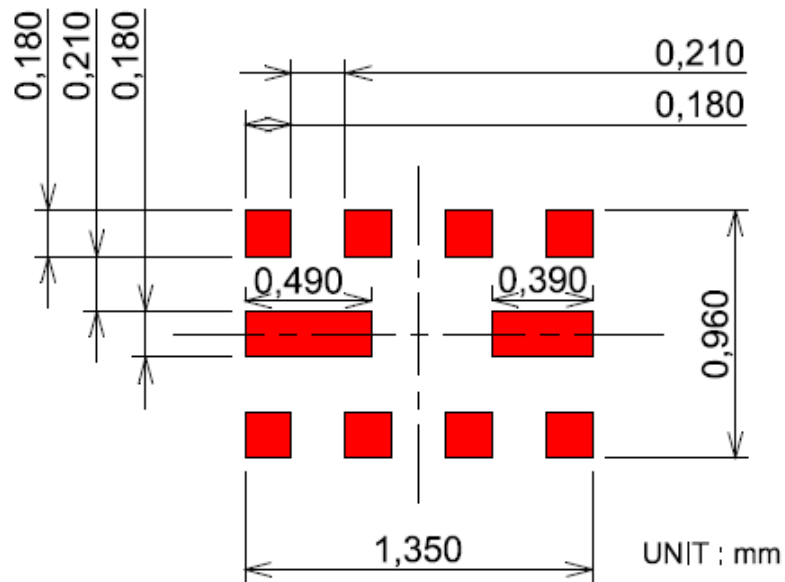
## Frequency Characteristics: L2



L1



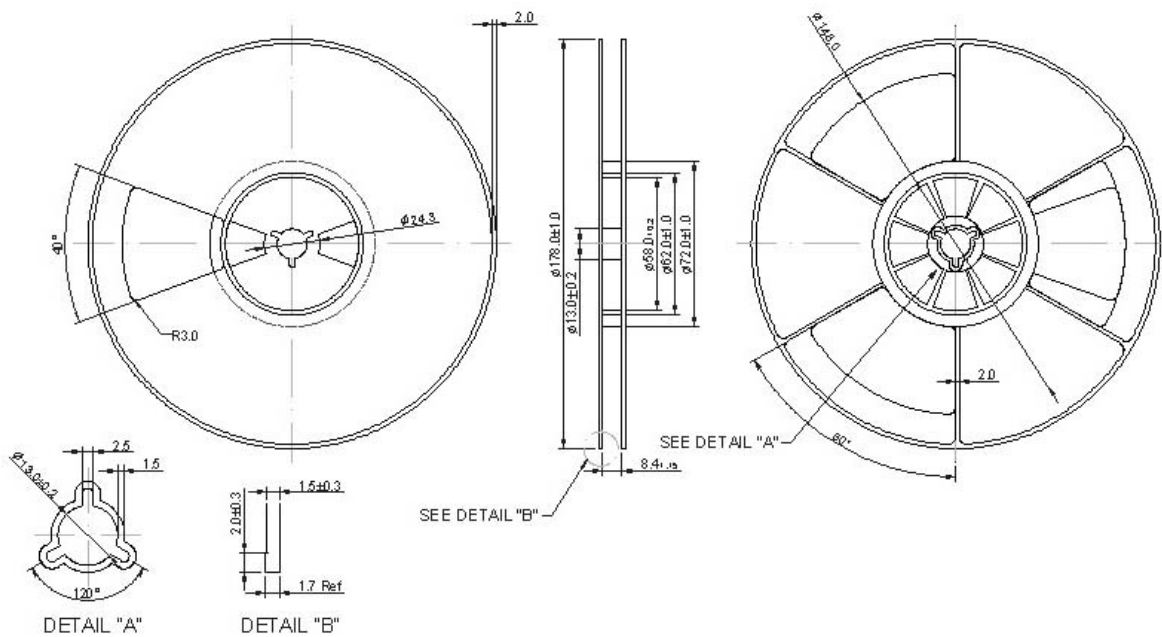
## PCB FOOTPRINT:



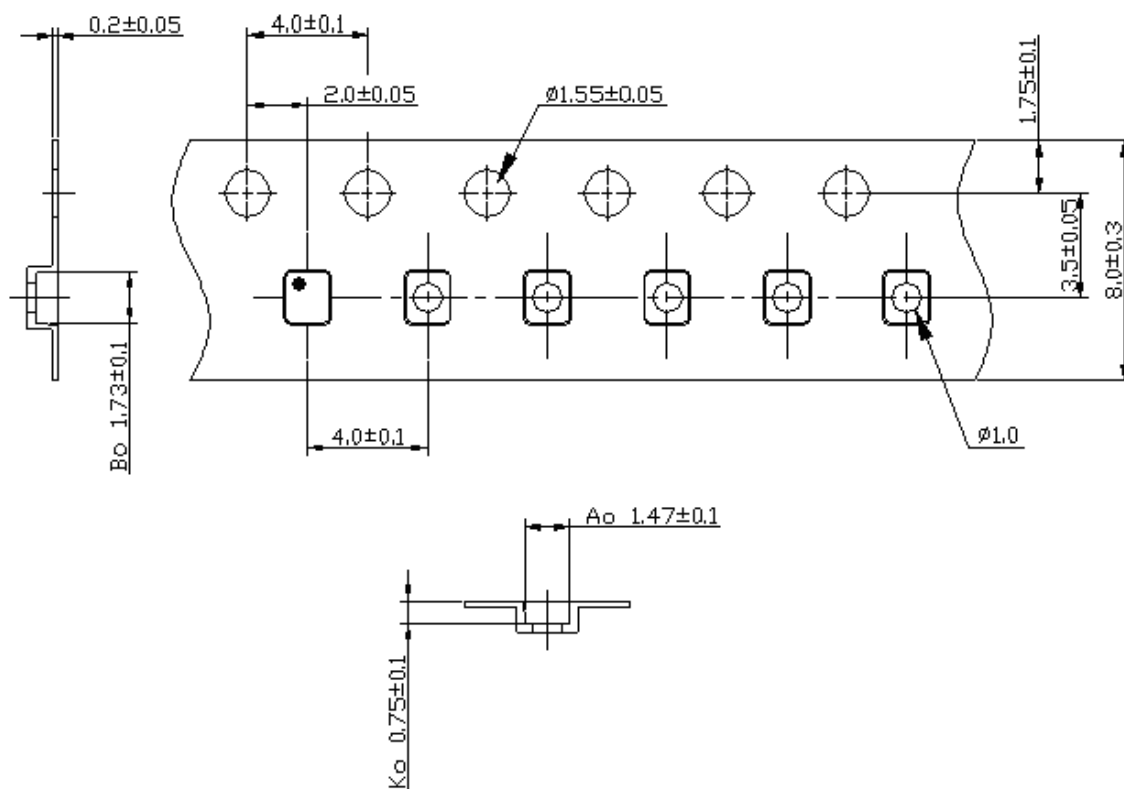
## PACKING:

### 1. REEL DIMENSION

Reel Count: 7" = 2000



## 2. TAPE DIMENSION



### 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 min.
3. Heating shall be fixed at 220°C for 50~80 seconds and at 260°C+0/-5°C peak (20~40sec).
4. Time: 2 times.

