**TAI-SAW TECHNOLOGY CO., LTD.**
No. 3, Industrial 2nd Rd., Ping-Chen Industrial District,
Taoyuan, 324, Taiwan, R.O.C.
TEL: 886-3-4690038 FAX: 886-3-4697532
E-mail: tstsales@mail.taisaw.com Web: www.taisaw.com

# Product Specifications Approval Sheet

Product Name: SAW Diplexer 1176.45/1585.47 MHz BW 20.46/52.84

TST Parts No.: TE0149A

Customer Parts No.:_____

Company:_____

Division:_____

Approved by :_____

Date:_____

Checked by:_____ Sam Lin Sam Lin _____

Approval by:_____ Andy Yu Andy Yu _____

Date:_____ 2020/04/23 _____

1. Customer signed back is required before TST can proceed with sample build and receive orders.
2. Orders received without customer signed back will be regarded as agreement on the specifications.
3. Any specifications changes must be approved upon by both parties and a new revision of specifications shall be released to reflect the changes

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## SAW Diplexer 1176.45/1585.47 MHz BW 20.46/52.84 SMD 1.5x1.1 mm

MODEL NO.:TE0149A REV. NO.:1.0

RoHS Compliant

Lead-free soldering

**E**lectrostatic **S**ensitive **D**evice (**ESD**)

### A. MAXIMUM RATING:

1. Input Power Level: 15 dBm
2. DC Voltage : 0 V
3. Operating Temperature: -30℃ to +85℃
4. Storage Temperature: -40℃ to +85℃
5. Moisture Sensitive Level: MSL 3

### B. ELECTRICAL CHARACTERISTICS:

Terminating source impedance (single) : $Z_S$ = 50 Ω

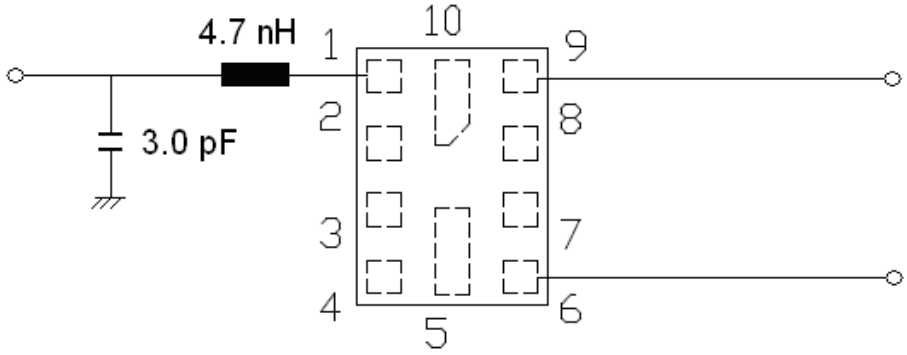
Terminating load impedance (single) : $Z_L$ = 50 Ω

| **Item** (L5 Band to Antenna) | Unit | Min. | Typ. | Max. |
|---|---|---|---|---|
| **Center frequency** | MHz | - | 1176.45 | - |
| **Insertion Loss** (1166.22 ~ 1186.68 MHz) | dB | - | 2.0 | 2.4 |
| **Group Delay Ripple** (1166.22 ~ 1186.68 MHz) | ns | - | 8 | 15 |
| **VSWR** (1166.22 ~ 1186.68 MHz) | - | | 2.4 | 2.8 |
| **Attenuation** (reference level from 0 dB) | | | | |
| 850 ~ 980 MHz | dB | 30 | 40 | - |
| 980 ~ 1010 MHz | dB | 30 | 40 | - |
| 1010 ~ 1100 MHz | dB | 30 | 36 | - |
| 1100 ~ 1130 MHz | dB | 30 | 35 | - |
| 1220 ~ 1250 MHz | dB | 20 | 27 | - |
| 1260 ~ 1427 MHz | dB | 30 | 33 | |
| **Temperature Coefficient of Frequency** | ppm/K | - | -36 | - |

| **Item** (L1 Band + GLONASS to Antenna) | Unit | Min. | Typ. | Max. |
|---|---|---|---|---|
| **Center frequency** | MHz | - | 1585.47 | - |
| **Insertion Loss** (1559.05 ~ 1611.89 MHz) | dB | - | 2.5 | 3 |
| **Group Delay Ripple** (1559.05 ~ 1611.89 MHz) | ns | - | 13 | 20 |
| **VSWR** (1559.05 ~ 1611.89 MHz) | - | | 2.3 | 2.8 |
| **Attenuation** (reference level from 0 dB) | | | | |
| 10 ~ 960 MHz | dB | 35 | 45 | - |
| 960 ~ 1463 MHz | dB | 35 | 42 | - |
| 1710 ~ 1785 MHz | dB | 30 | 36 | - |
| 1785 ~ 1990 MHz | dB | 35 | 39 | - |
| 1990 ~ 2280 MHz | dB | 35 | 44 | - |
| 2280 ~ 3000 MHz | dB | 30 | 50 | |
| 3000 ~ 6000 MHz | dB | 30 | 50 | |
| **Temperature Coefficient of Frequency** | ppm/K | - | -36 | - |

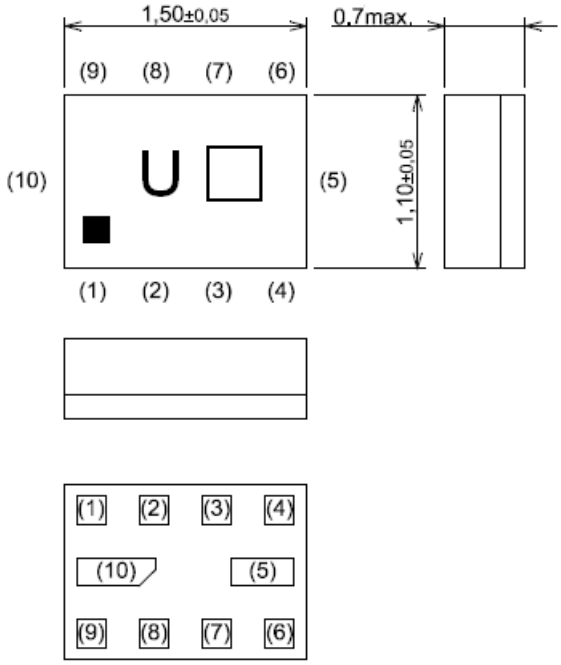
| **Item** (Isolation) | Unit | Min. | Typ. | Max. |
|---|---|---|---|---|
| **Attenuation** (reference level from 0 dB) | | | | |
| 1166.22 ~ 1186.68 MHz | dB | 35 | 48 | - |
| 1559.05 ~ 1605.89 MHz | dB | 35 | 40 | - |

## C. TEST CIRCUIT:




| Pin # | Function |
|---|---|
| (1) | Antenna |
| (2) | Ground |
| (3) | Ground |
| (4) | Ground |
| (5) | Ground |
| (6) | L1 Band |
| (7) | Ground |
| (8) | Ground |
| (9) | L5 Band |
| (10) | Ground |

## D. OUTLINE DRAWING:



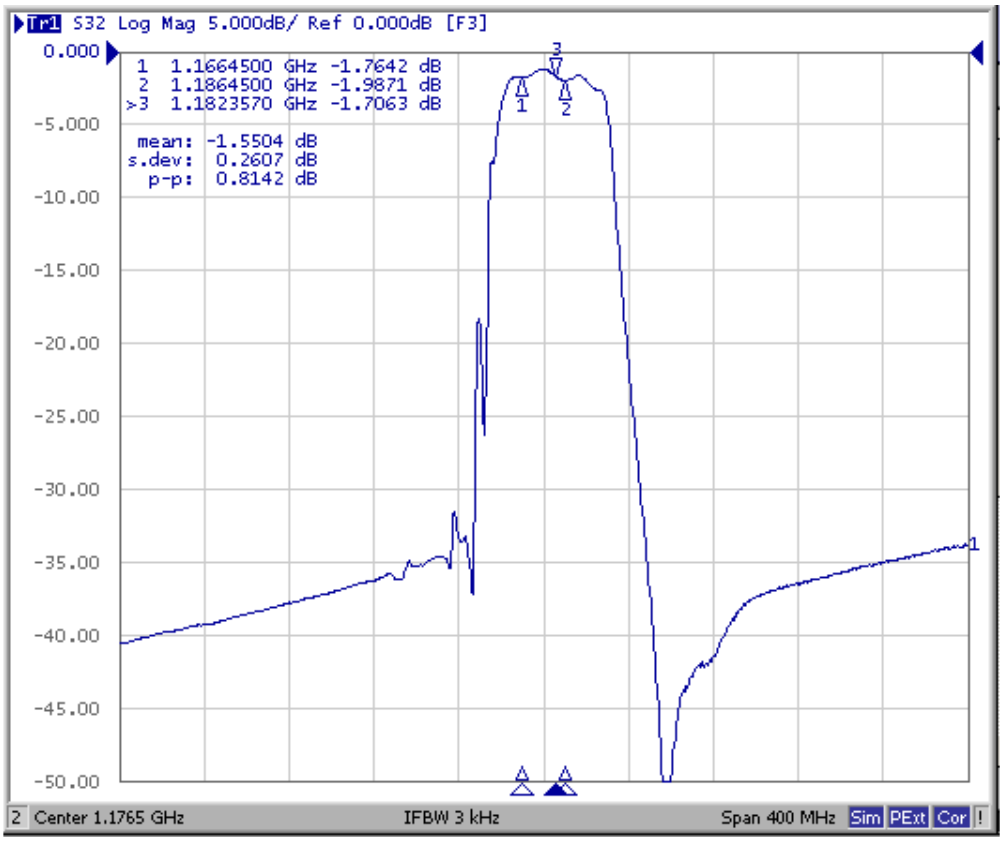

| Pin # | Function |
|---|---|
| (1) | Antenna |
| (2) | Ground |
| (3) | Ground |
| (4) | Ground |
| (5) | Ground |
| (6) | L1 Band |
| (7) | Ground |
| (8) | Ground |
| (9) | L5 Band |
| (10) | Ground |



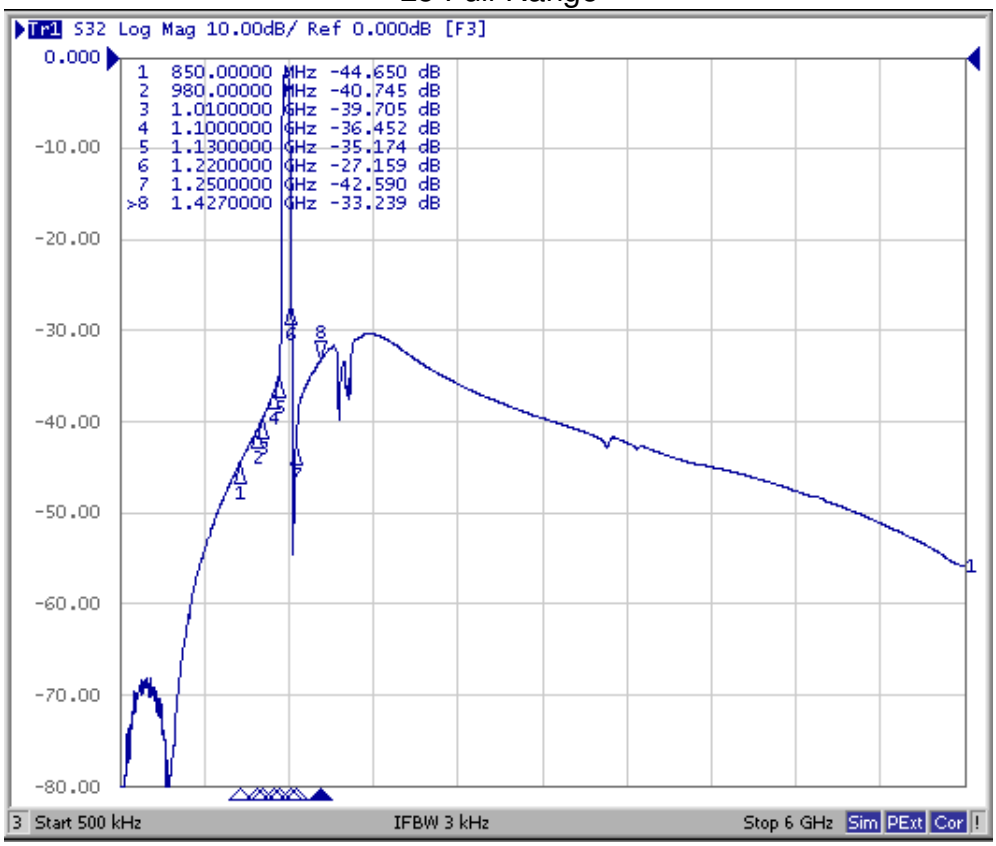

| Year/Month | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | A | B | C | D | E | F | G | H | J | K | L | M |
| 2018 | N | P | Q | R | S | T | U | V | W | X | Y | Z |
| 2019 | a | b | c | d | e | f | g | h | j | k | l | m |
| 2020 | n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

## E. Frequency Characteristics:

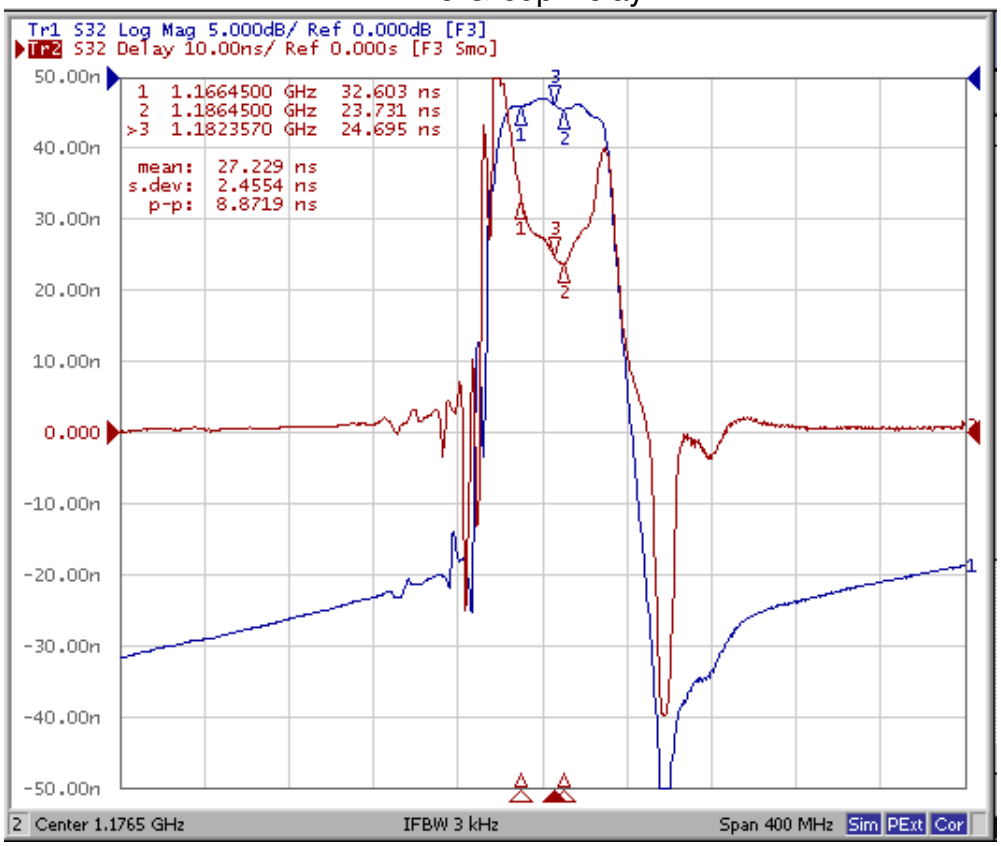
L5 Pass Band



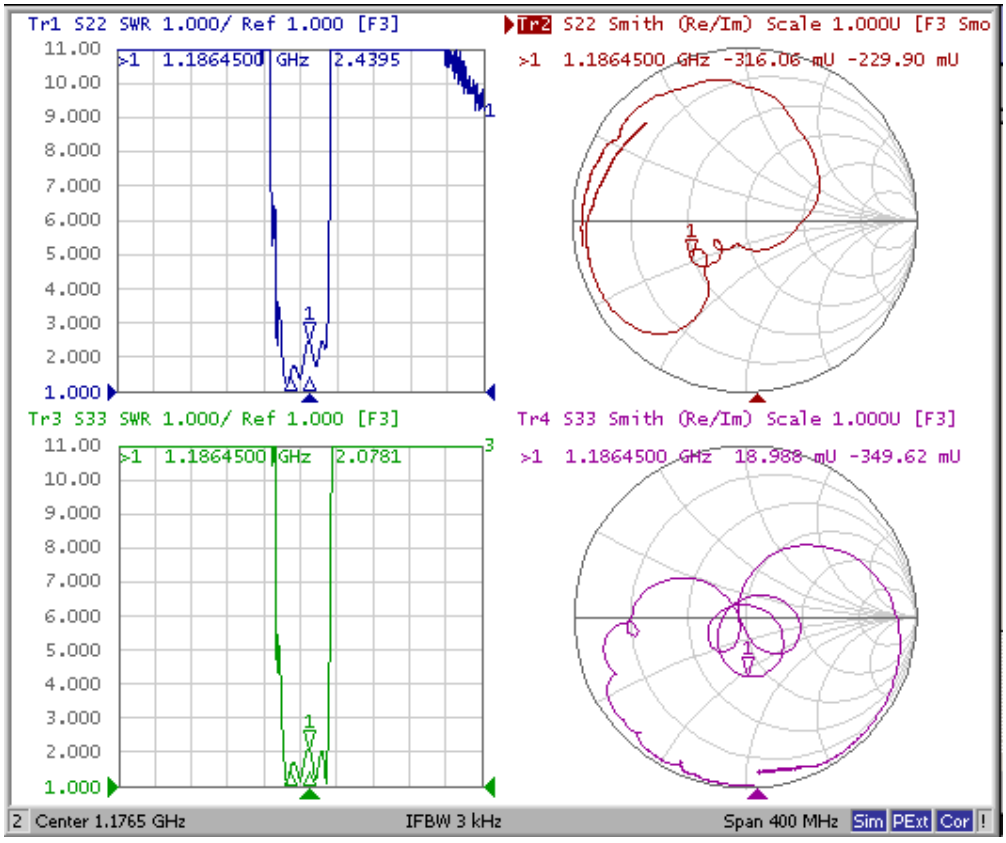

L5 Full Range



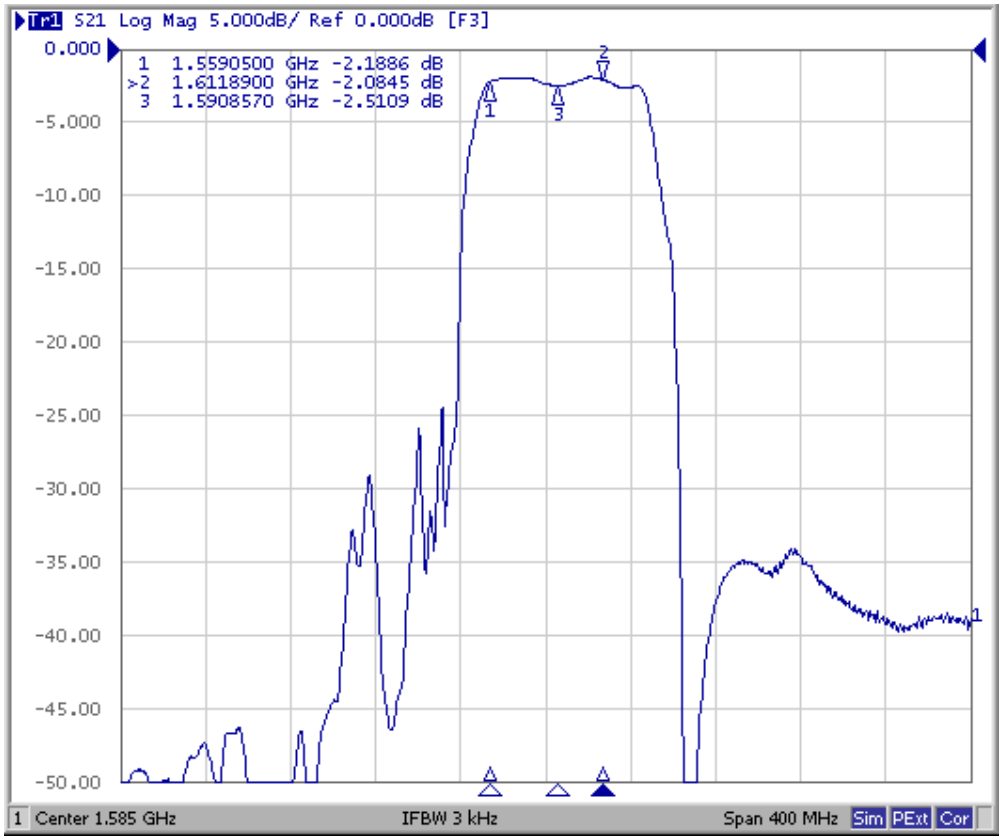
L5 Group Delay



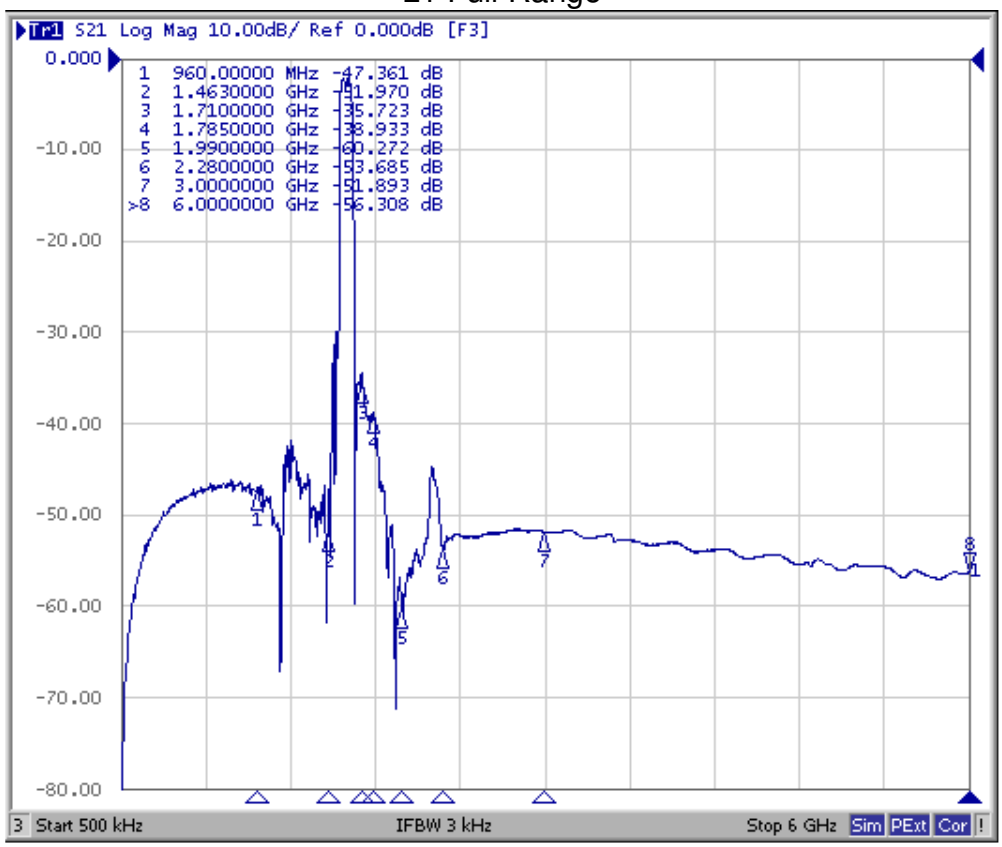

L5 Reflective Characteristic



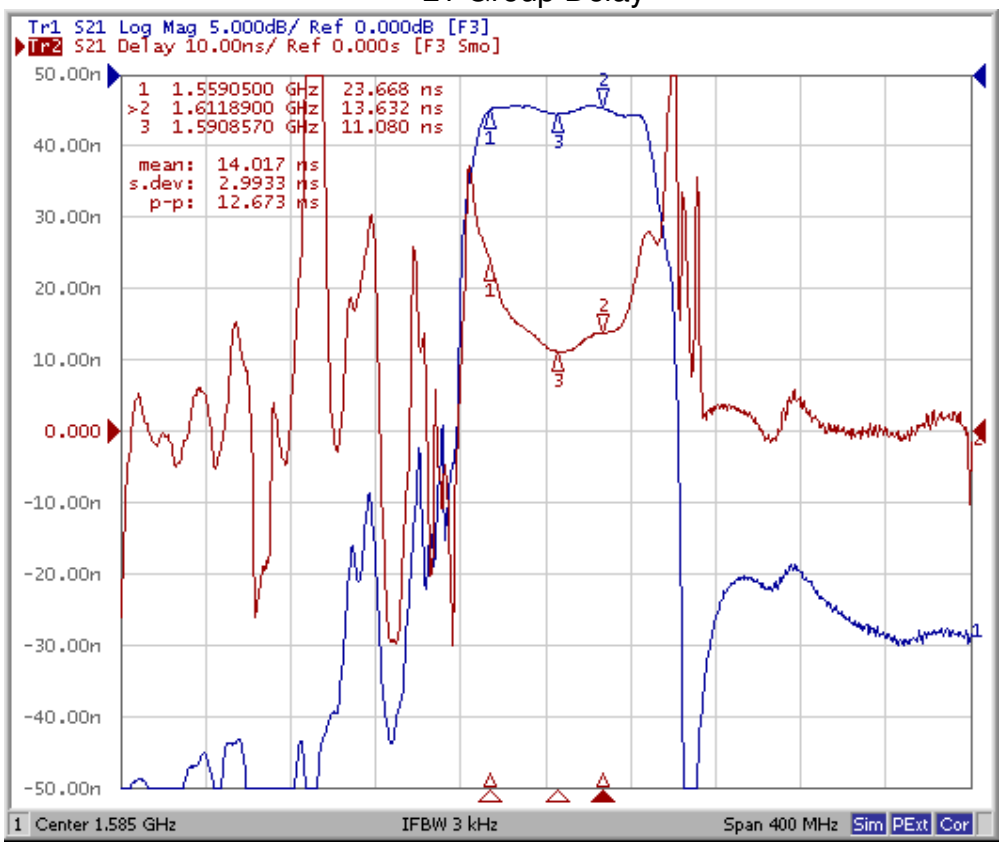
L1 Pass Band



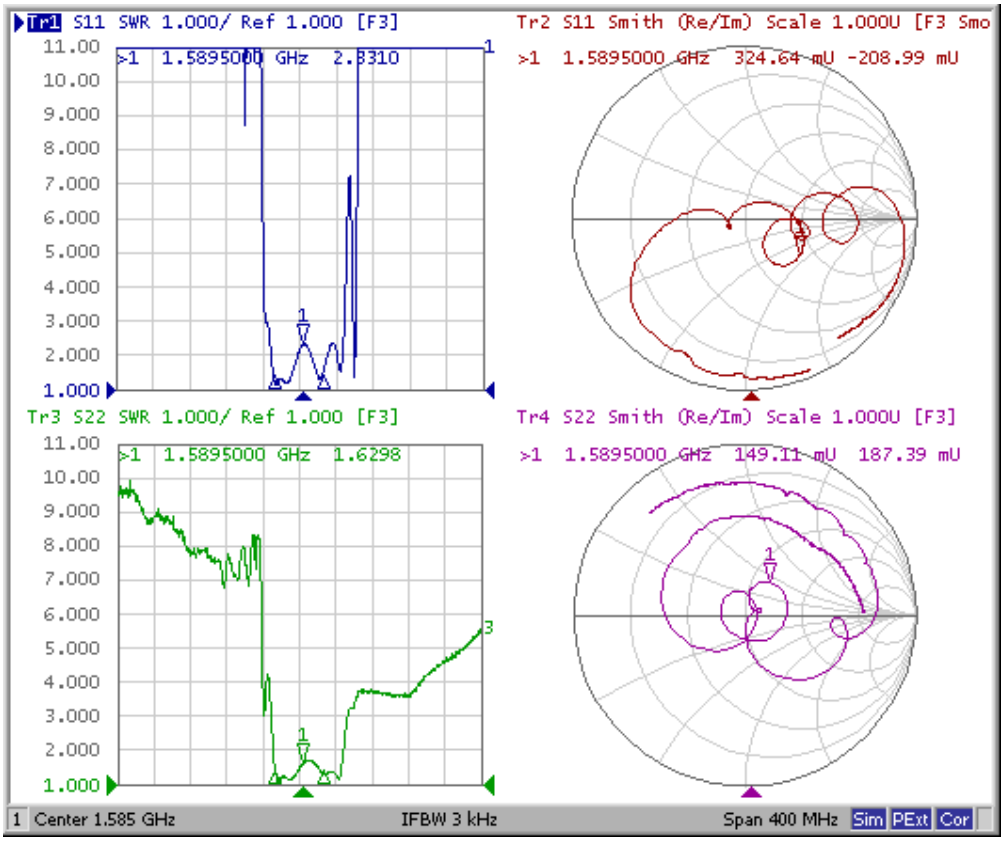

L1 Full Range



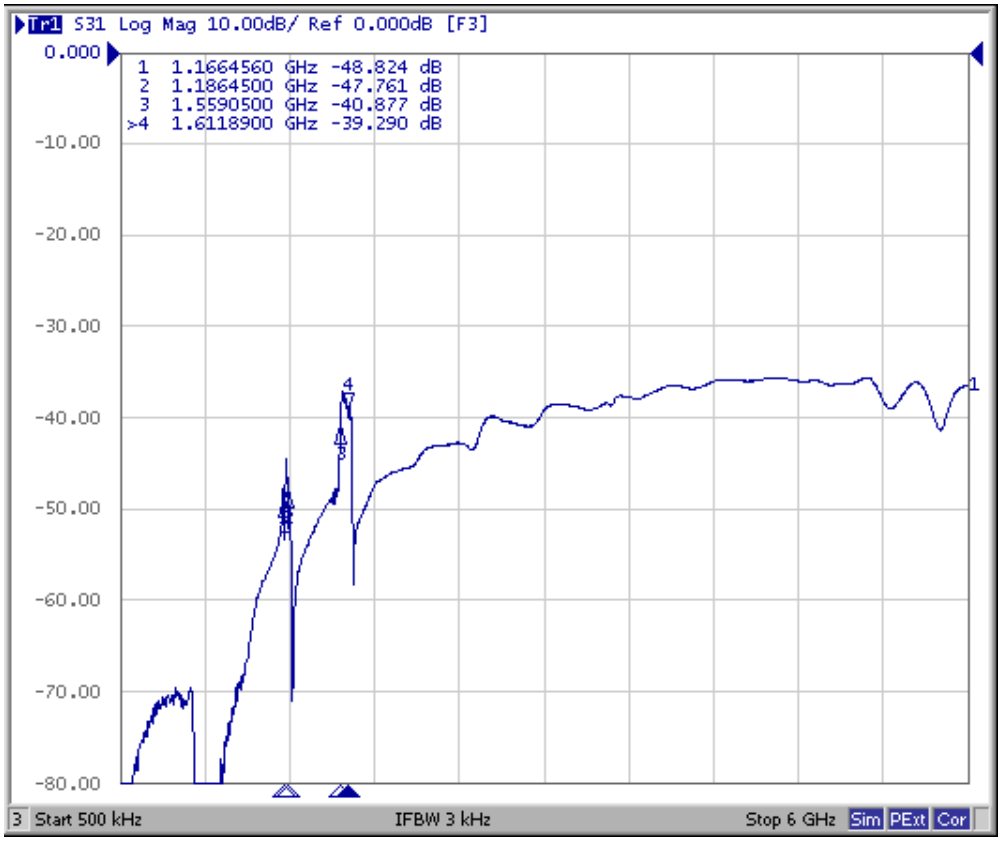
L1 Group Delay



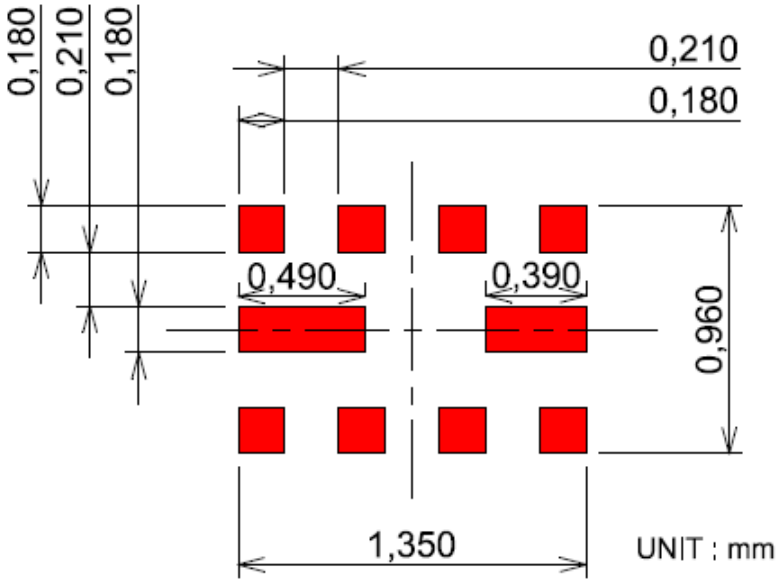

L1 Reflective Characteristic



Isolation



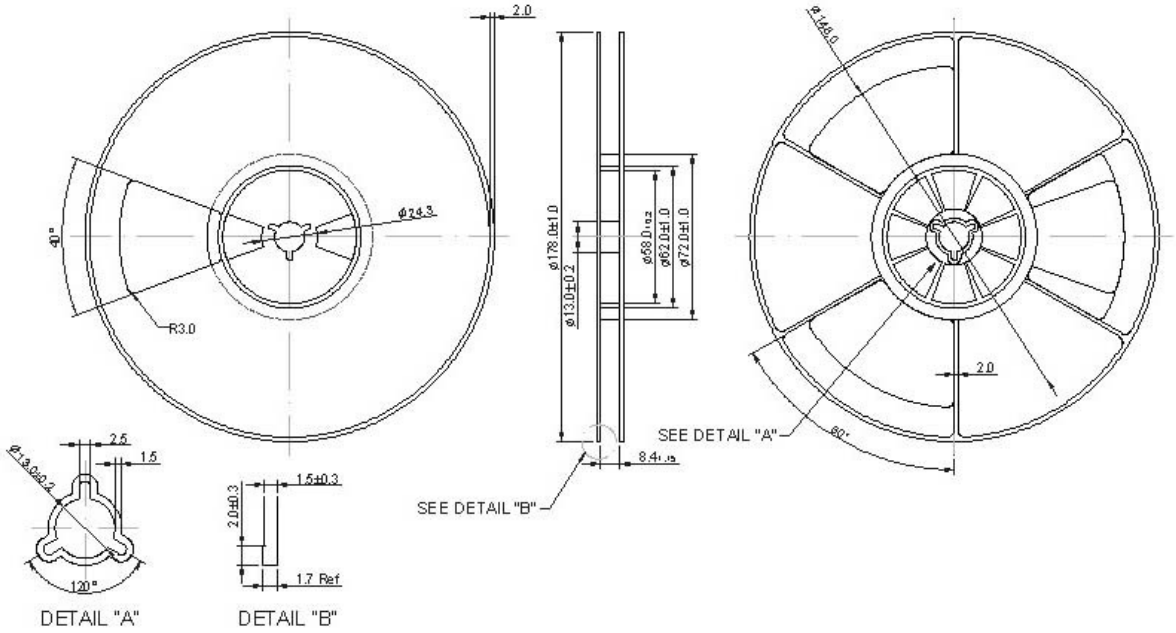

## F. PCB FOOTPRINT:



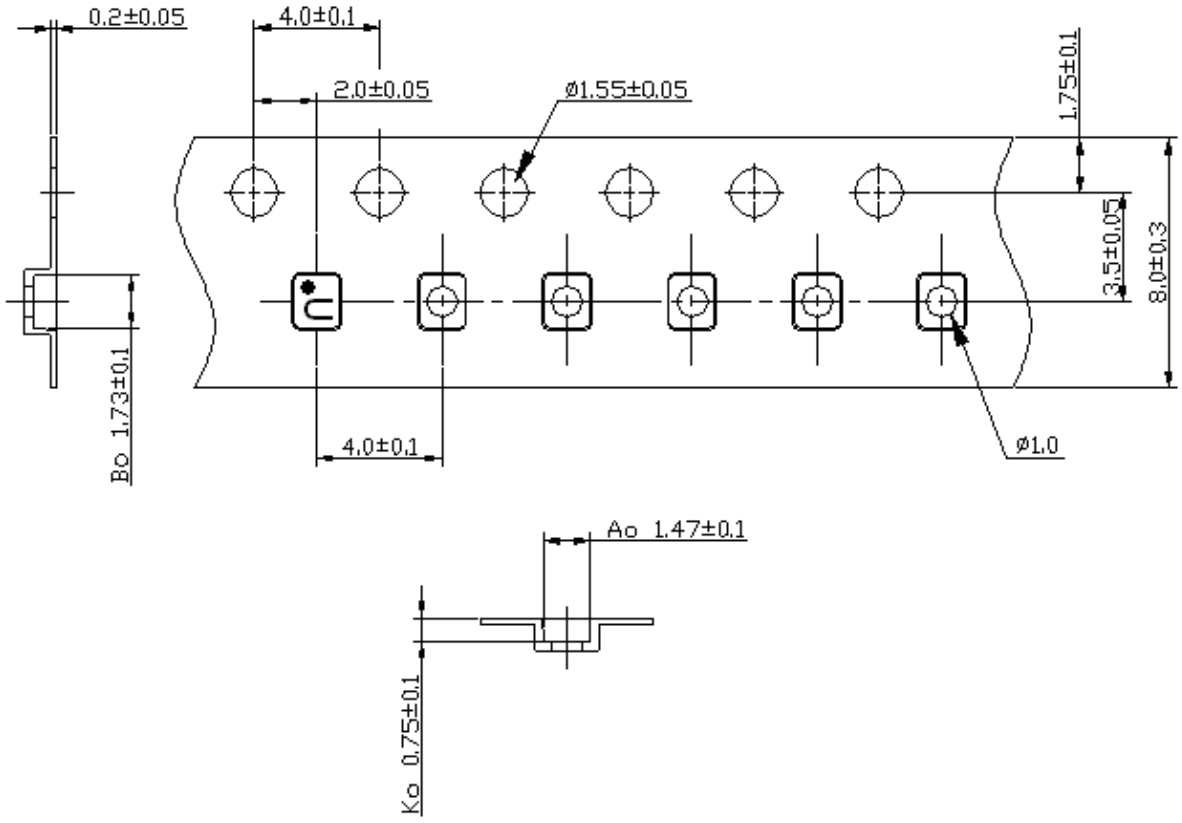
## G. PACKING:

1. REEL DIMENSION

**(Please refer to FR-75D10 for packing quantity)**




2. TAPE DIMENSION



## H. RECOMMENDED REFLOW PROFILE :

1. Preheating shall be fixed at 150~180℃ for 60~90 seconds.
2. Ascending time to preheating temperature 150℃ shall be 30 seconds min.
3. Heating shall be fixed at 220℃ for 50~80 seconds and at 260℃+0/-5℃ peak (20~40sec).
4. Time: 2 times.