



# 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](mailto:tstsales@mail.taisaw.com) Web: [www.taisaw.com](http://www.taisaw.com)

## Product Specifications Approval Sheet

Product Name: SAW DPX 1950/2140 MHz Band 1 SMD 2.0x1.6 mm (BW=60 MHz)

TST Parts No.: TF0104A

Customer Part No.: \_\_\_\_\_

|                             |
|-----------------------------|
| Customer signature required |
| Company: _____              |
| Division: _____             |
| Approved by : _____         |
| Date: _____                 |

Checked by: \_\_\_\_\_ Hayley Chou *Hayley Chou*

Approved by: \_\_\_\_\_ Andy Yu *Andy Yu*

Date: \_\_\_\_\_ 2019/09/18

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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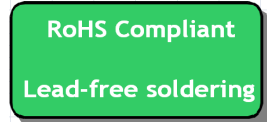
## SAW DPX 1950/2140 MHz

MODEL NO.:TF0104A

REV. NO.:3.0

### A. MAXIMUM RATING:

1. Input Power Level (1920.48~1979.52 MHz): 29 dBm (50k hours Max.)
2. DC Voltage: +/-5 V
3. Operating Temperature: -30 °C to +85 °C
4. Storage Temperature: -40 °C to +100 °C
5. Moisture Sensitive Level: Level 1 (MSL1)
6. ESD: 50 V(MM), 100 V(HBM)



Electrostatic Sensitive Device (ESD)

### B. ELECTRICAL CHARACTERISTICS:

Terminating impedance (Tx port): 50//4.3nH Ω

Terminating impedance (Rx port): 50//7.5nH Ω

Terminating impedance (Ant port): 50//3.3nH Ω

#### Tx to Ant

| Item   | Unit   | Min. | Typ. | Max. | Remark     |
|--|--------|------|------|------|------------|
| <b>Insertion Loss</b> (1920.48~1979.52 MHz)    | dB(*1) | -    | 1.9  | 2.2  | -          |
| <b>Amplitude Ripple</b> (1920~1980 MHz)        | dB     | -    | 0.6  | 1.0  | -          |
| <b>VSWR Ant</b> (1920~1980 MHz)                | -      | -    | 1.5  | 2.0  | -          |
| <b>VSWR Tx</b> (1920~1980 MHz)                 | -      | -    | 1.5  | 2.0  | -          |
| <b>Attenuation</b> (Reference level from 0 dB) |        |      |      |      |            |
| 420 ~ 494 MHz                                  | dB     | 44   | 60   | -    | -          |
| 843 ~ 894 MHz                                  | dB     | 30   | 42   | -    | -          |
| 1565.42 ~ 1573.374 MHz                         | dB     | 38   | 43   | -    | -          |
| 1573.374 ~ 1585.42 MHz                         | dB     | 40   | 45   | -    | -          |
| 1597.5515 ~ 1605.886 MHz                       | dB     | 40   | 50   | -    | -          |
| 1605.886 ~ 1805 MHz                            | dB     | 25   | 40   | -    | -          |
| 1805 ~ 1865 MHz                                | dB     | 15   | 27   | -    | -          |
| 1865 ~ 1880 MHz                                | dB     | 10   | 20   | -    | -          |
| 2010 ~ 2025 MHz                                | dB     | 18   | 21   | -    | +15~+85 °C |
| 2110 ~ 2170 MHz                                | dB     | 38   | 42   | -    | -          |
| 2400 ~ 2500 MHz                                | dB     | 36   | 42   | -    | -          |
| 3840 ~ 3960 MHz                                | dB     | 10   | 22   | -    | -          |

### Ant to Rx

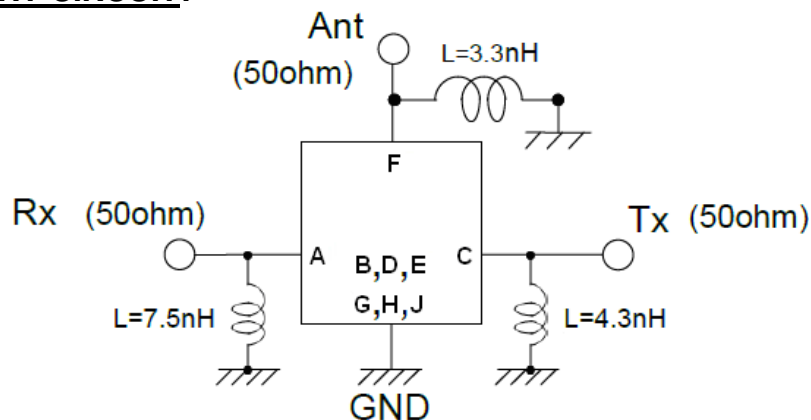
| Item   | Unit   | Min. | Typ. | Max. | Remark |
|--|--------|------|------|------|--------|
| Insertion Loss (2110~2170 MHz)                 | dB(*1) | -    | 1.9  | 2.5  | -      |
| Amplitude Ripple (2110~2170 MHz)               | dB     | -    | 0.5  | 1.2  | -      |
| VSWR Ant (2110~2170 MHz)                       | -      | -    | 1.5  | 2.0  | -      |
| VSWR Rx (2110~2170 MHz)                        | -      | -    | 1.7  | 2.1  | -      |
| <b>Attenuation</b> (Reference level from 0 dB) |        |      |      |      |        |
| 190 MHz  | dB     | 50   | 75   | -    | -      |
| 814 ~ 849 MHz                                  | dB     | 40   | 65   | -    | -      |
| 880 ~ 915 MHz                                  | dB     | 40   | 63   | -    | -      |
| 1447 ~ 1463 MHz                                | dB     | 40   | 49   | -    | -      |
| 1730 ~ 1790 MHz                                | dB     | 40   | 55   | -    | -      |
| 1920 ~ 1980 MHz                                | dB     | 45   | 50   | -    | -      |
| 2015 ~ 2075 MHz                                | dB     | 13   | 17   | -    | -      |
| 2400 ~ 2500 MHz                                | dB     | 40   | 46   | -    | -      |
| 4030 ~ 4150 MHz                                | dB     | 40   | 51   | -    | -      |
| 4220 ~ 4340 MHz                                | dB     | 40   | 51   | -    | -      |
| 4340 ~ 6000 MHz                                | dB     | 15   | 48   | -    | -      |
| 4900 ~ 5950 MHz                                | dB     | 40   | 47   | -    | -      |
| 5950 ~ 6130 MHz                                | dB     | 40   | 48   | -    | -      |
| 6130 ~ 6330 MHz                                | dB     | 35   | 48   | -    | -      |
| 6330 ~ 6510 MHz                                | dB     | 35   | 48   | -    | -      |

### Tx to Rx

| Item                                     | Unit            | Min. | Typ. | Max. | Remark |
|--|-----------------|------|------|------|--------|
| Isolation<br>(Reference level from 0 dB) | 1920 ~ 1980 MHz | dB   | 53   | 56   | -      |
|  | 2110 ~ 2170 MHz | dB   | 50   | 55   | -      |

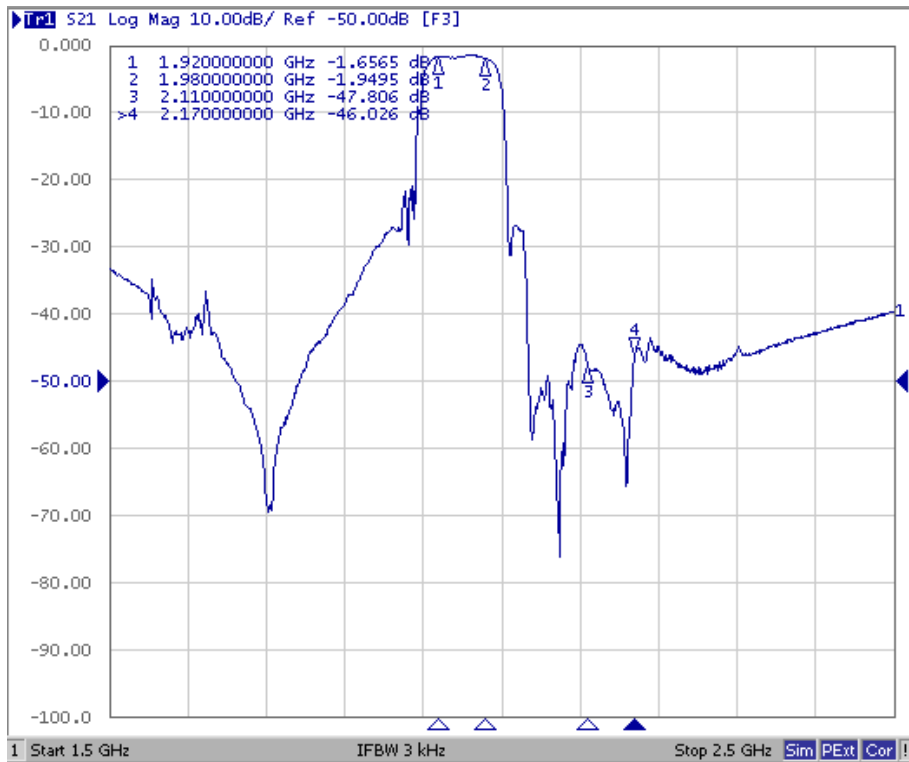
(\*1) Specification of insertion loss excludes loss that comes from the test board.

### C. MEASUREMENT CIRCUIT:

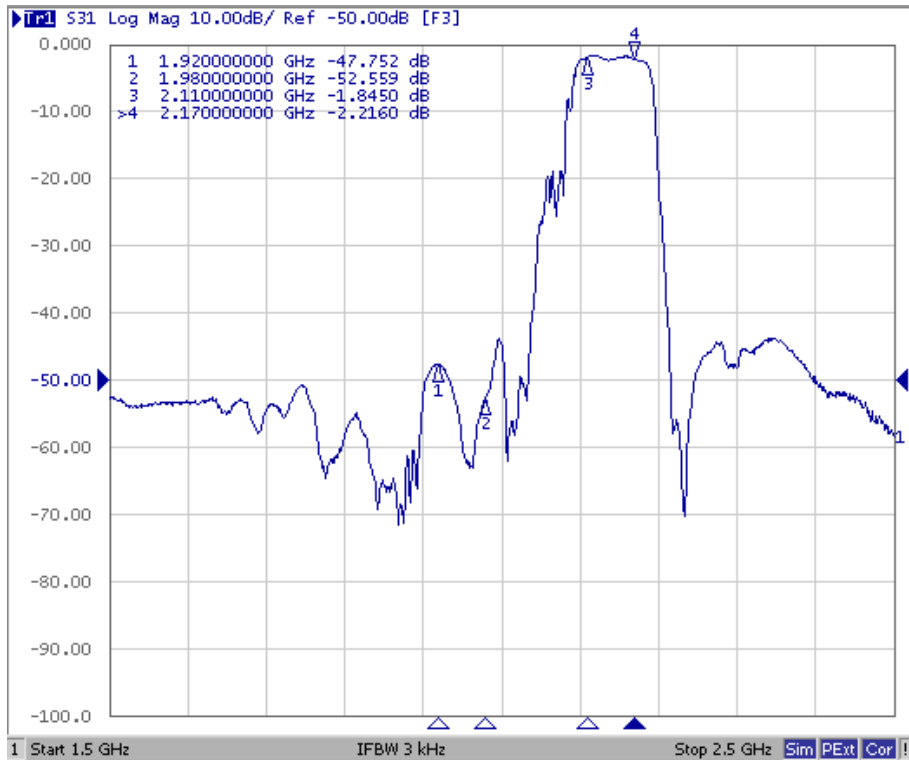


## D. FREQUENCY CHARACTERISTICS:

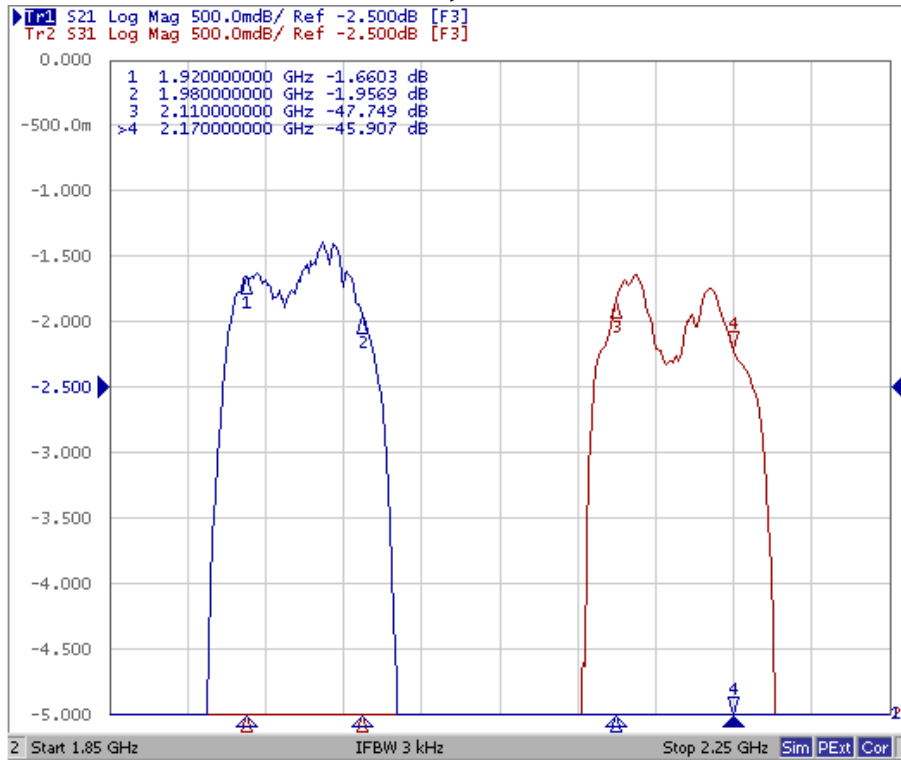
### Tx to Ant



### Ant to Rx



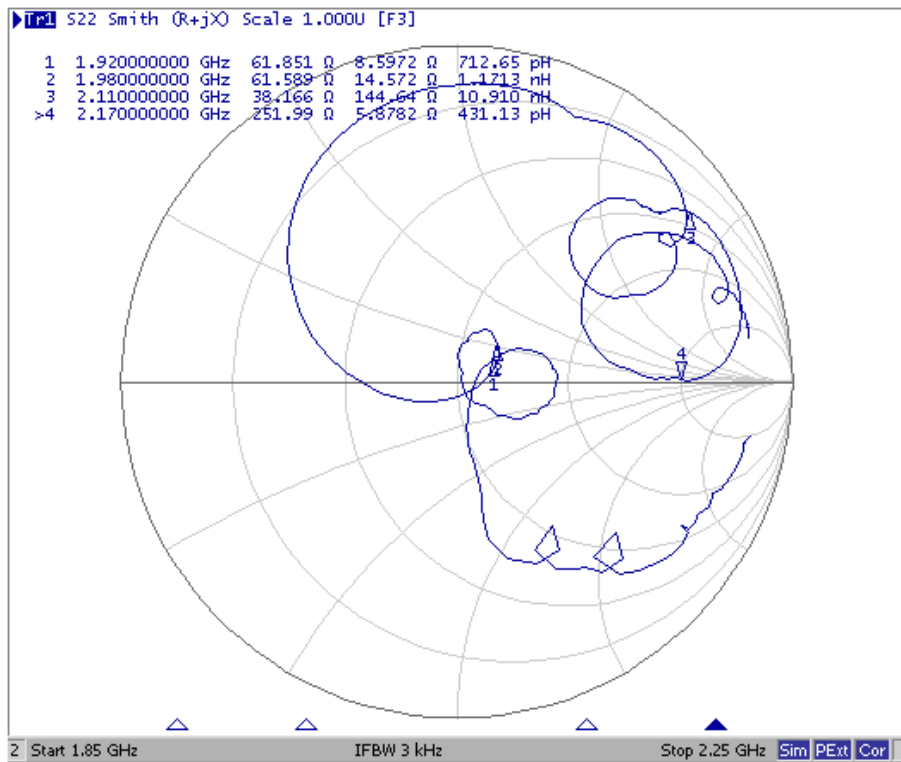
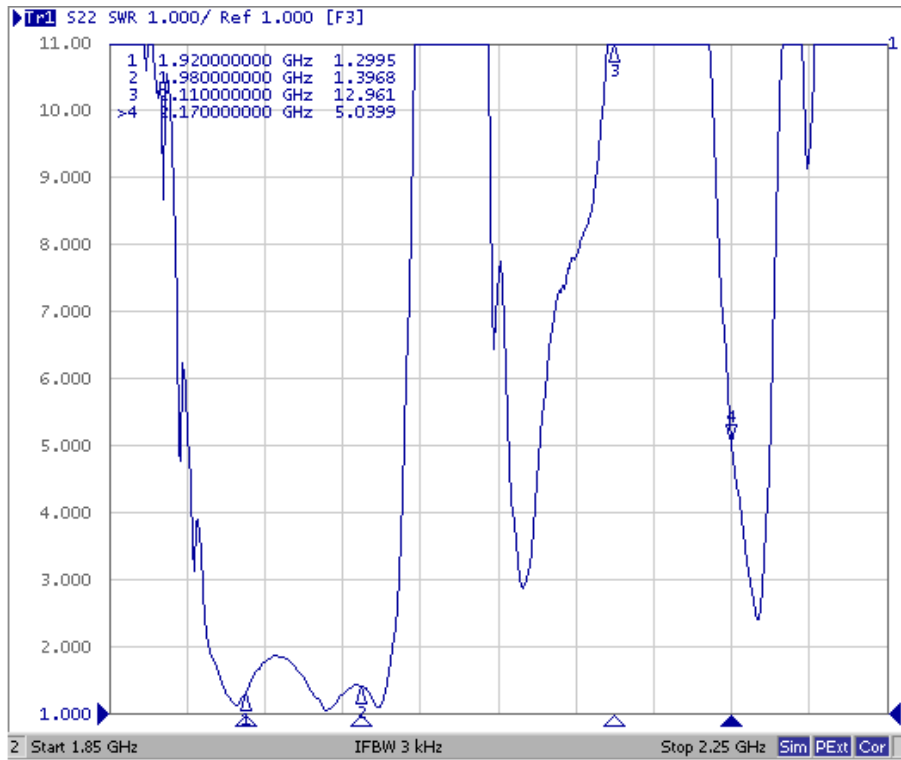
### Tx to Ant, Ant to Rx



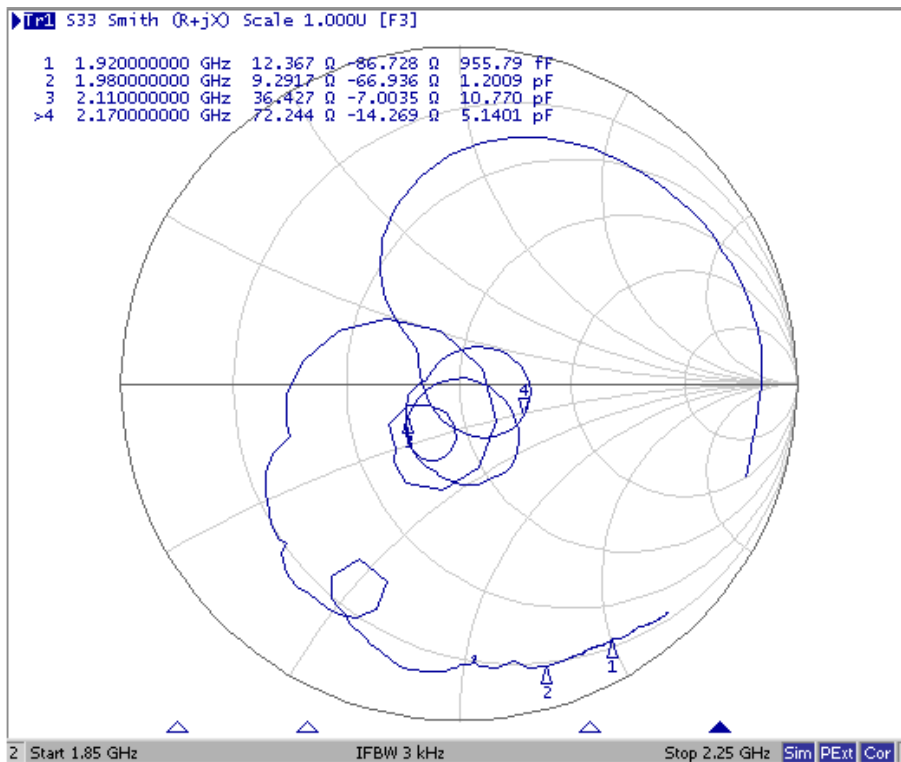
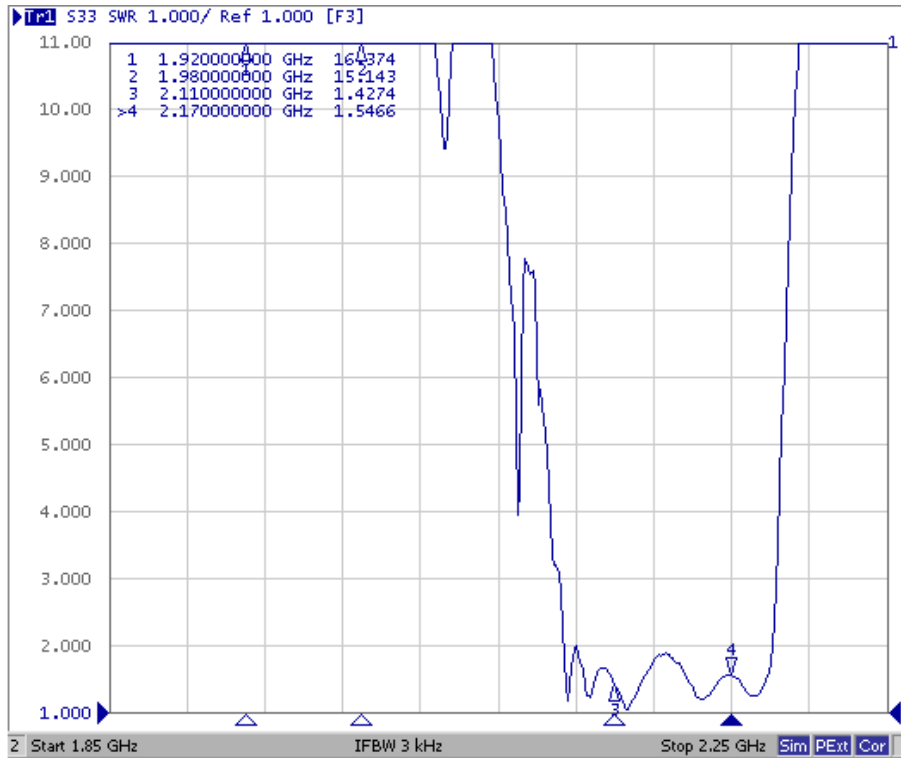
### Tx to Rx Isolation



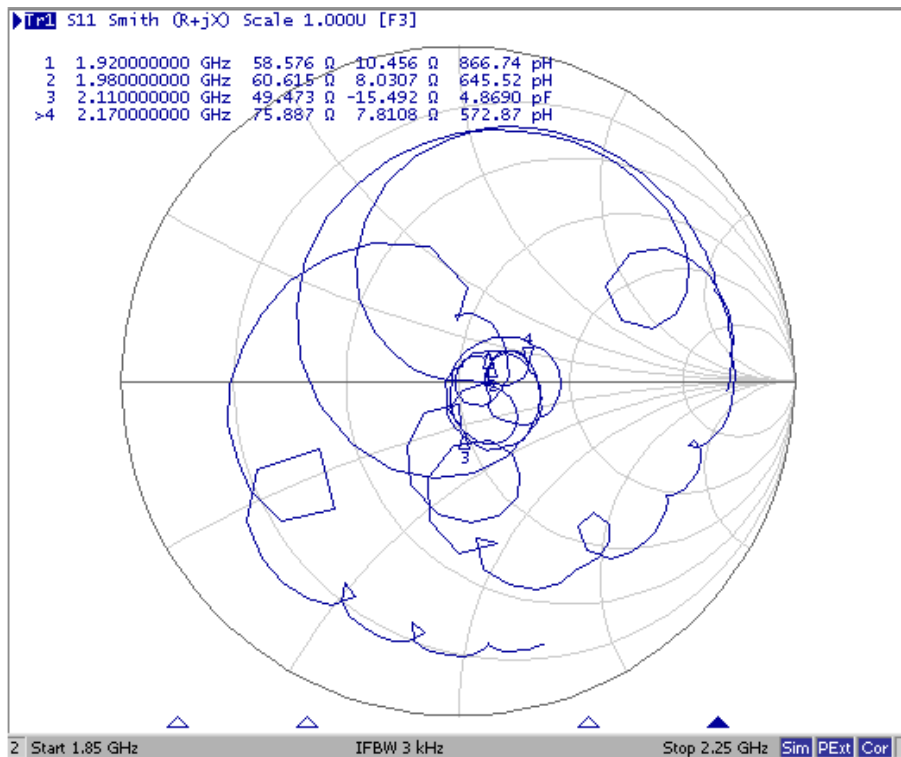
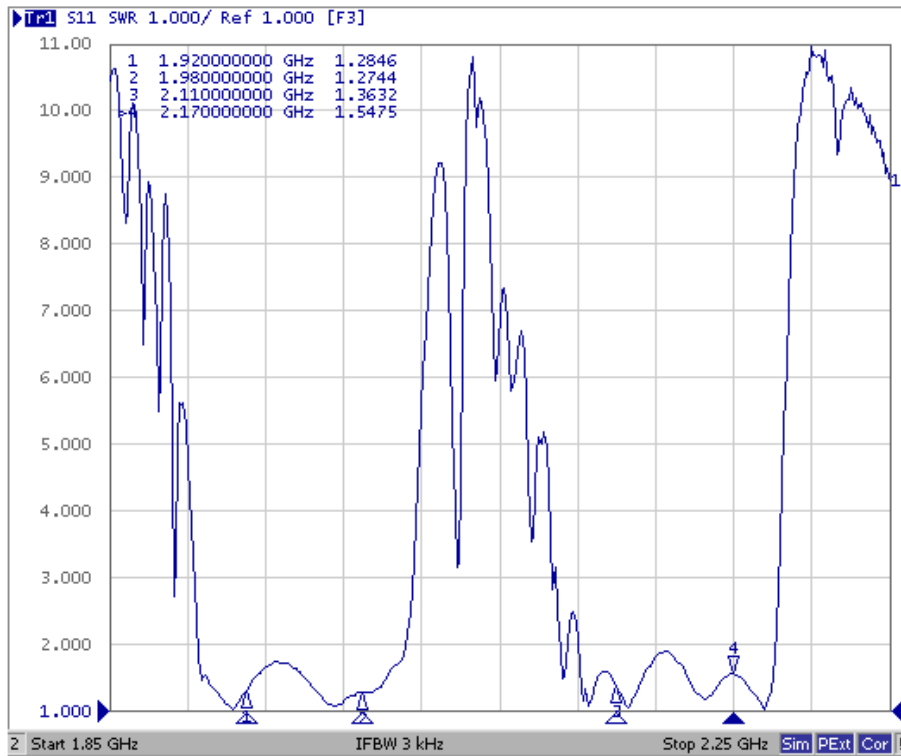
## Tx Port



## Rx Port

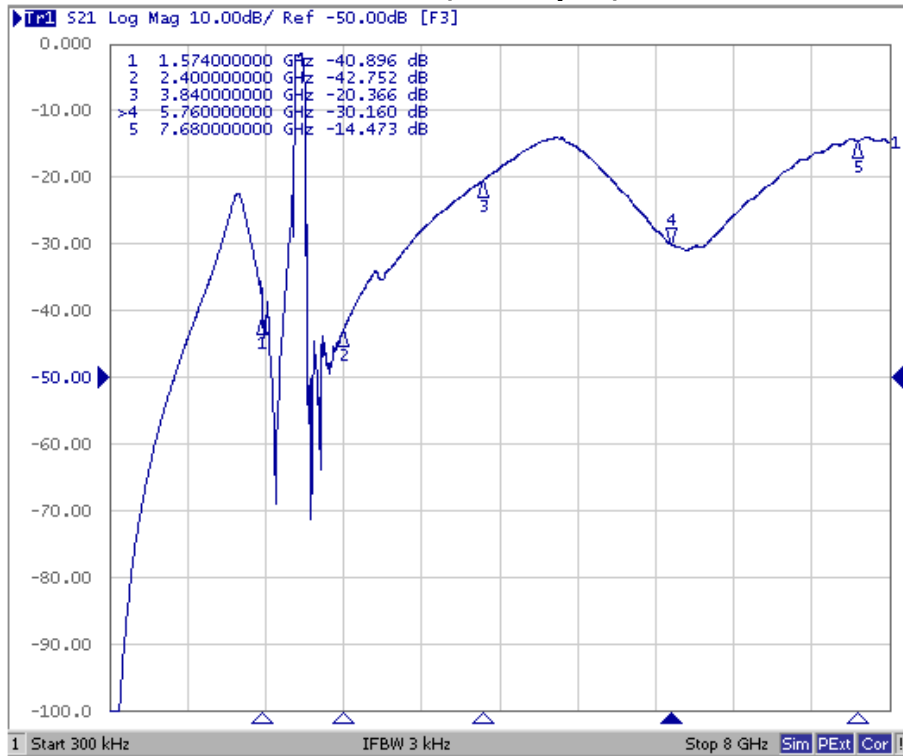


## Ant Port

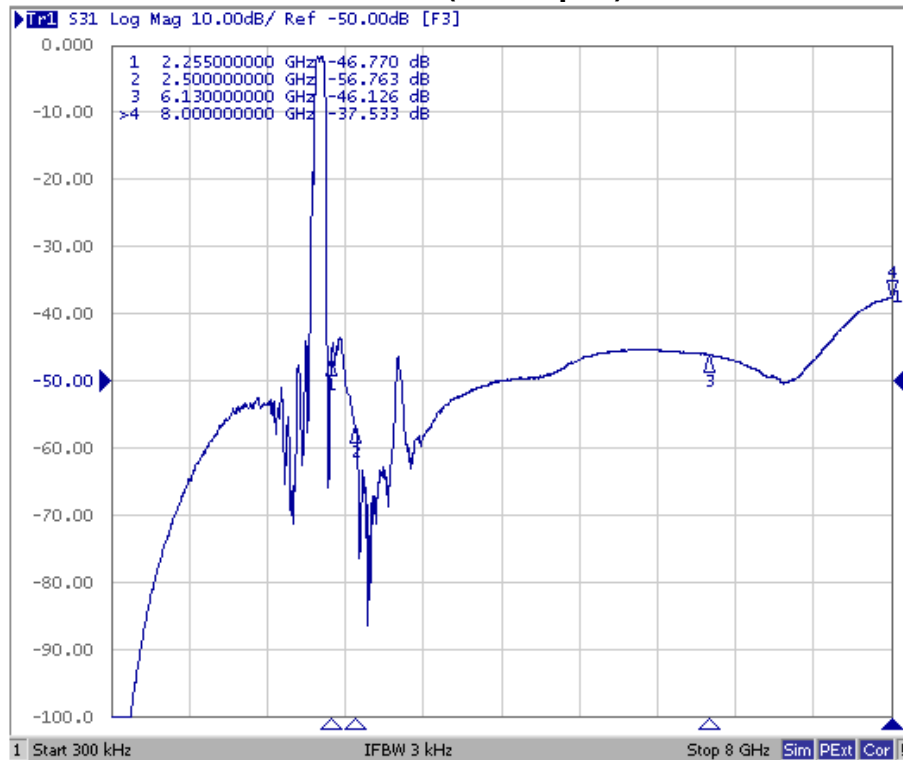




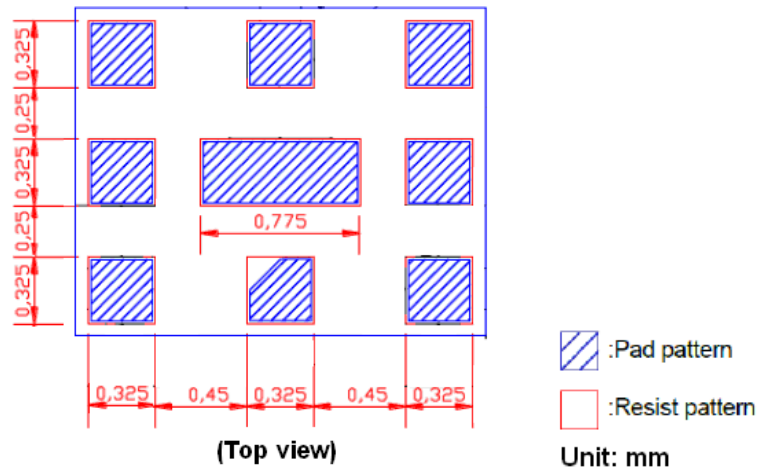
### Tx to Ant (Wide span)



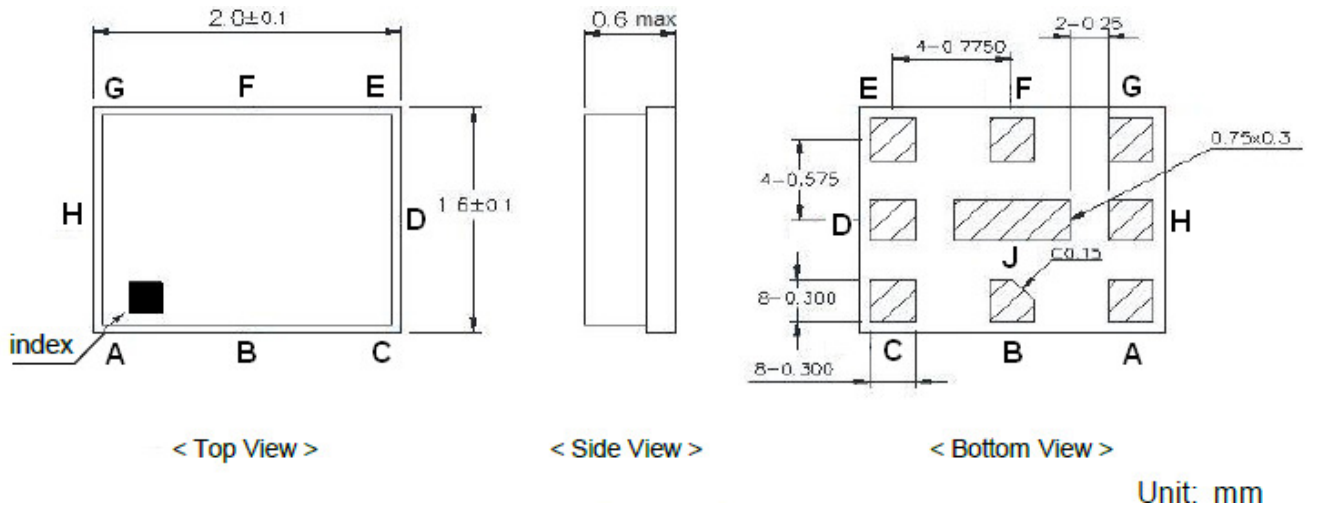
### Ant to Rx (Wide span)



**E. PCB Footprint:**



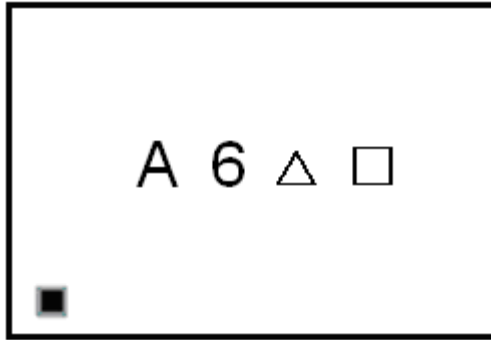
**F. OUTLINE DRAWING:**



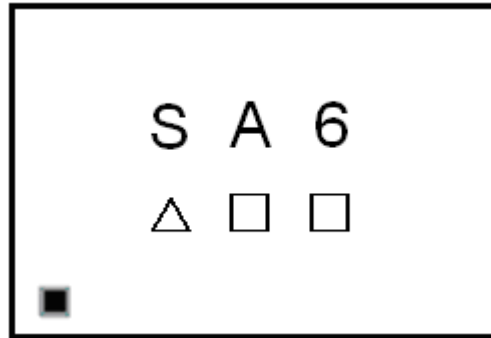
**Pin Configuration**

| Pin No. | Symbol | Function    |
|---------|--------|-------------|
| A       | RX     | Receiver    |
| B       | GND    | Ground      |
| C       | TX     | Transmitter |
| D       | GND    | Ground      |
| E       | GND    | Ground      |
| F       | ANT    | Antenna     |
| G       | GND    | Ground      |
| H       | GND    | Ground      |
| J       | GND    | Ground      |

**Top View (Sample Production):**



**Top View (Mass Production):**



Δ: Date Code (Fallow below table)

□: Lot No. (Indicated by 0~9 or A to Z and a to z, except l, O, i, o and l)

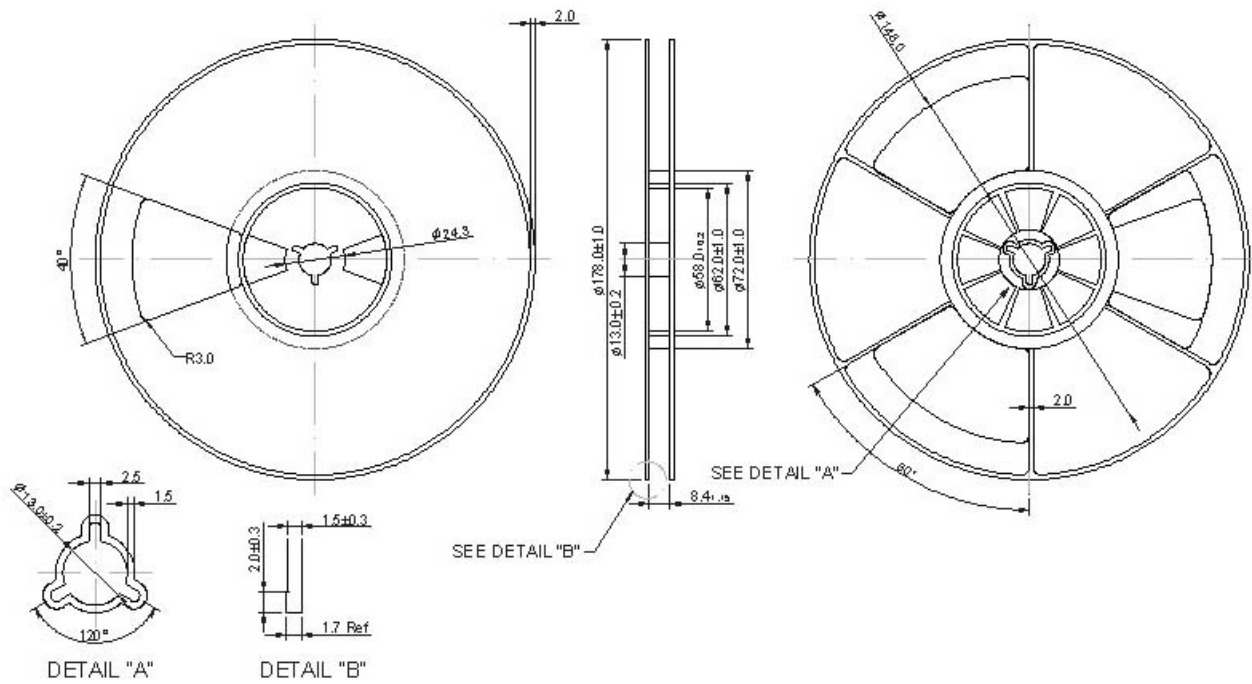
Date Code table:

| Year | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. |
|------|------|------|------|------|-----|------|------|------|------|------|------|------|
| 2017 | A    | B    | C    | Ð    | 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    |

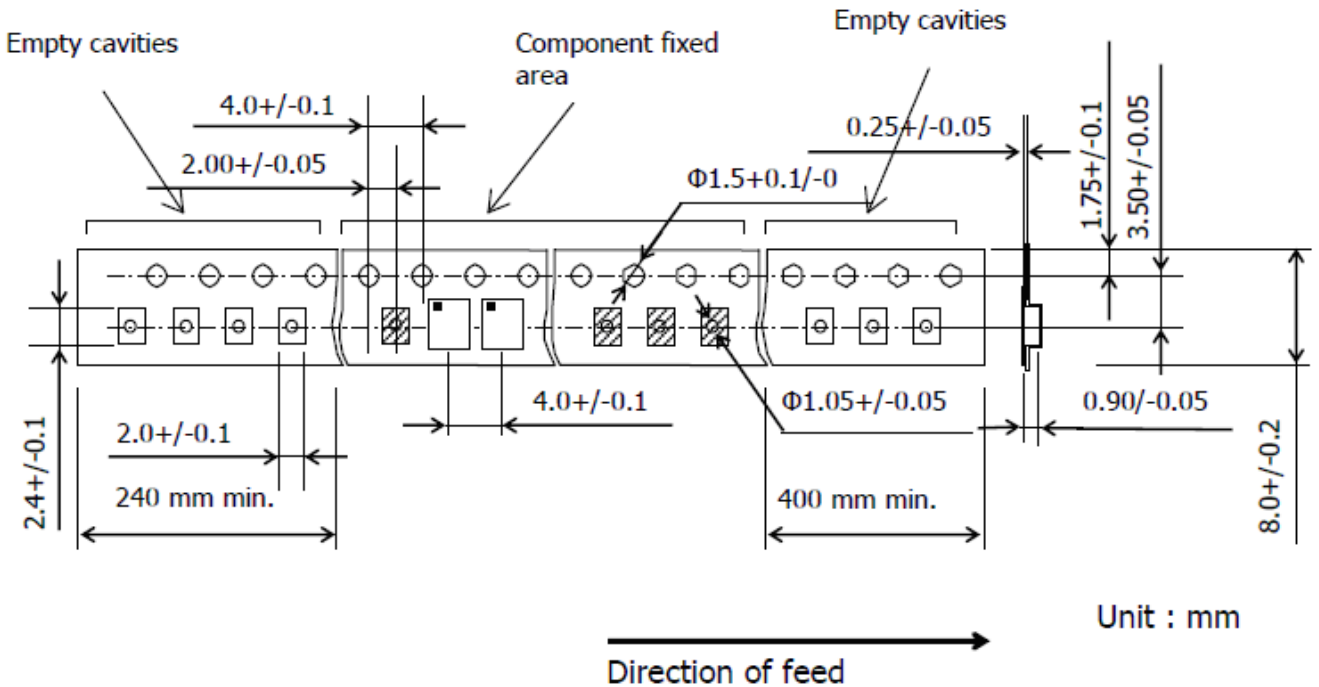
**G. PACKING:** (Ref: WI-75M03)

**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°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.

