



# TAI-SAW TECHNOLOGY CO., LTD.

No. 3, Industrial 2nd Rd., Ping-Chen Industrial District,  
Taoyuan, 324, Taiwan, R.O.C.

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## Product Specifications Approval Sheet

Product Name: SAW Duplexer 1880/1960MHz 60MHz BW SMD 3.8×3.8 mm

TST Parts No.: TF0068A

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

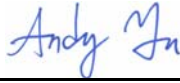
Customer signature required

Company: \_\_\_\_\_

Division: \_\_\_\_\_

Approved by : \_\_\_\_\_

Date: \_\_\_\_\_

Checked by: \_\_\_\_\_ Andy Yu 

Approved by: \_\_\_\_\_ Bob Chau 

Date: \_\_\_\_\_ 2013, 11, 25

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 Duplexer 1880/1960MHz 60MHz BW SMD 3.8×3.8 mm

MODEL NO.: TF0068A

REV. No.: 1.0

### A. MAXIMUM RATING:

1. Maximum Input Power: 1.0 W
2. DC voltage: 0 V
3. Operating Temperature: -30°C to +85°C
4. Storage Temperature: -40°C to +85°C

RoHS Compliant

Lead-free soldering

### B. ELECTRICAL CHARACTERISTICS:

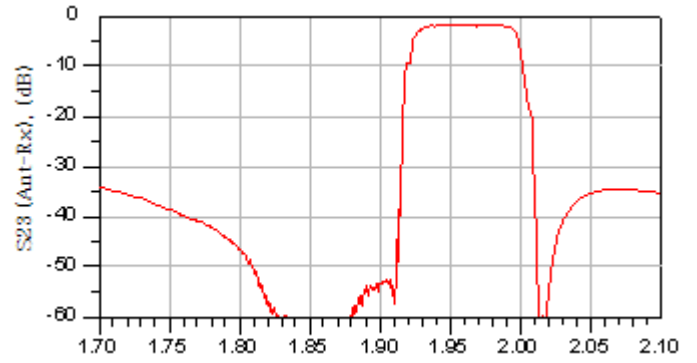
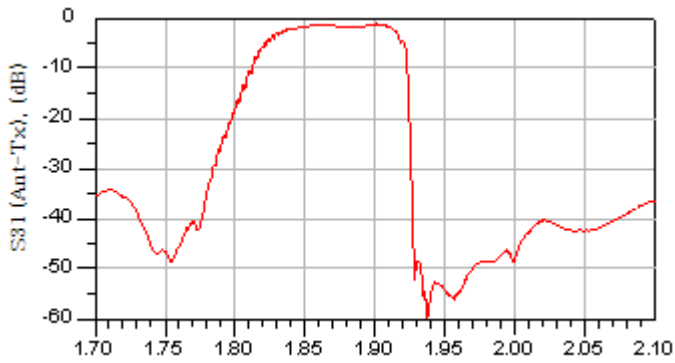
| Tx → Ant               |                 | Specifications (+25°C) |         |         |         |
|------------------------|-----------------|------------------------|---------|---------|---------|
| Parameters Description | Condition [MHz] | Unit                   | Minimum | Typical | Maximum |
| Insertion Loss         | 1850.6 ~ 1909.4 | dB                     | -       | 1.5     | 3.0     |
| Passband Ripple        | 1850.6 ~ 1909.4 | dB                     | -       | 1.0     | 2.0     |
| Return Loss            | 1850.6 ~ 1909.4 | dB                     | 9.5     | 14      | -       |
| Attenuation            | 1930.6 ~ 1989.4 | dB                     | 43      | 48      | -       |
| Ant → Rx               |                 | Specifications         |         |         |         |
| Parameters Description | Condition [MHz] | Unit                   | Minimum | Typical | Maximum |
| Insertion Loss         | 1930.6 ~ 1989.4 | dB                     | -       | 2.0     | 3.5     |
| Passband Ripple        | 1930.6 ~ 1989.4 | dB                     | -       | 1.1     | 2.6     |
| Return Loss            | 1930.6 ~ 1989.4 | dB                     | 9.5     | 16      | -       |
| Attenuation            | 1850.6 ~ 1909.4 | dB                     | 50      | 55      | -       |
| Tx → Rx                |                 | Specifications         |         |         |         |
| Parameters Description | Condition [MHz] | Unit                   | Minimum | Typical | Maximum |
| Isolation              | 1850.6 ~ 1909.4 | dB                     | 54      | 57      | -       |
|                        | 1930.6 ~ 1989.4 | dB                     | 45      | 50      | -       |

| Tx → Ant               |                 | Specifications (-30 ~ +85°C) |         |         |         |
|------------------------|-----------------|------------------------------|---------|---------|---------|
| Parameters Description | Condition [MHz] | Unit                         | Minimum | Typical | Maximum |
| Insertion Loss         | 1850.6 ~ 1909.4 | dB                           | -       | -       | 3.5     |
| Passband Ripple        | 1850.6 ~ 1909.4 | dB                           | -       | -       | 2.8     |
| Return Loss            | 1850.6 ~ 1909.4 | dB                           | 9.5     | -       | -       |
| Attenuation            | 1930.6 ~ 1989.4 | dB                           | 43      | -       | -       |
| Ant → Rx               |                 | Specifications               |         |         |         |
| Parameters Description | Condition [MHz] | Unit                         | Minimum | Typical | Maximum |
| Insertion Loss         | 1930.6 ~ 1989.4 | dB                           | -       | -       | 3.8     |
| Passband Ripple        | 1930.6 ~ 1989.4 | dB                           | -       | -       | 3.0     |
| Return Loss            | 1930.6 ~ 1989.4 | dB                           | 9.5     | -       | -       |
| Attenuation            | 1850.6 ~ 1909.4 | dB                           | 50      | -       | -       |

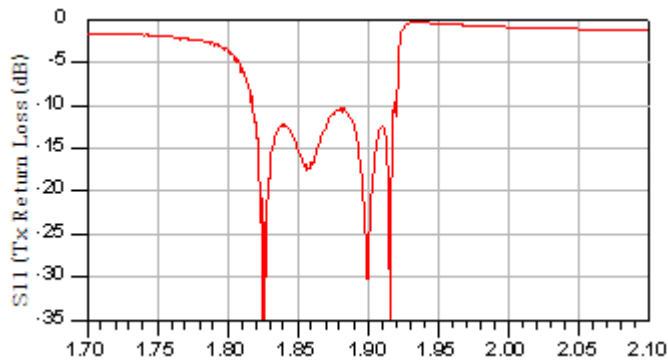
| Tx → Rx                |                 | Specifications |         |         |         |
|------------------------|-----------------|----------------|---------|---------|---------|
| Parameters Description | Condition [MHz] | Unit           | Minimum | Typical | Maximum |
| Isolation              | 1850.6 ~ 1909.4 | dB             | 54      | -       | -       |
|                        | 1930.6 ~ 1989.4 | dB             | 45      | -       | -       |

## C. Frequency Characteristics :

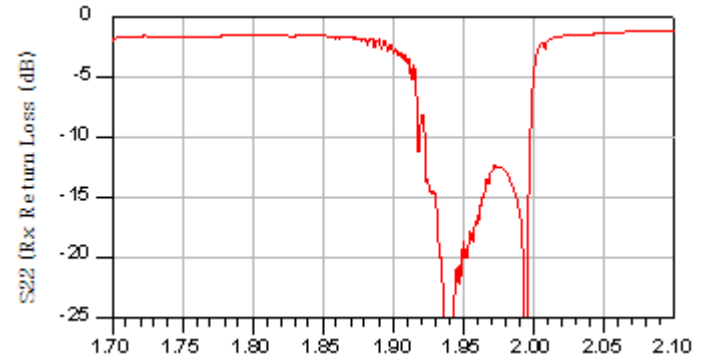
**Tx to Ant, Ant to Rx**



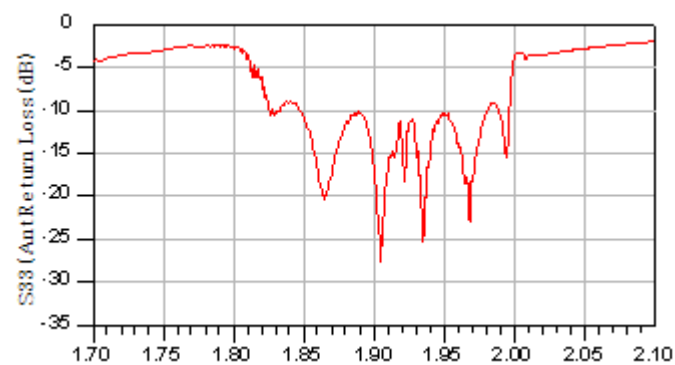
**Return Loss TX**



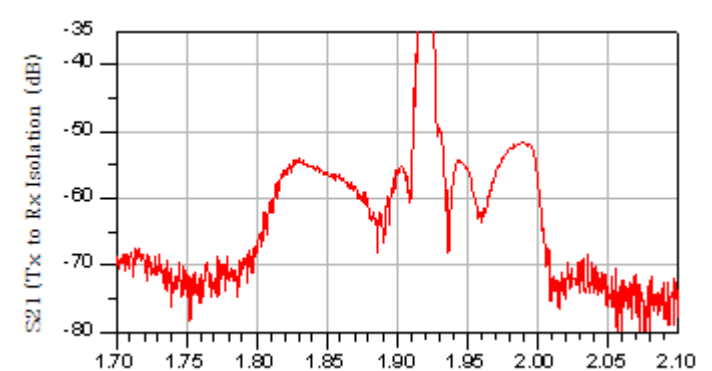
**Return Loss RX**



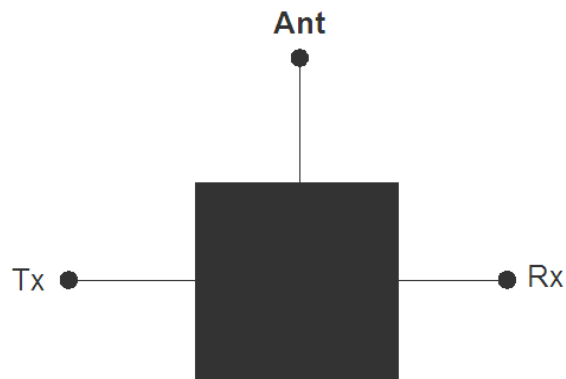
**Return Loss Ant**



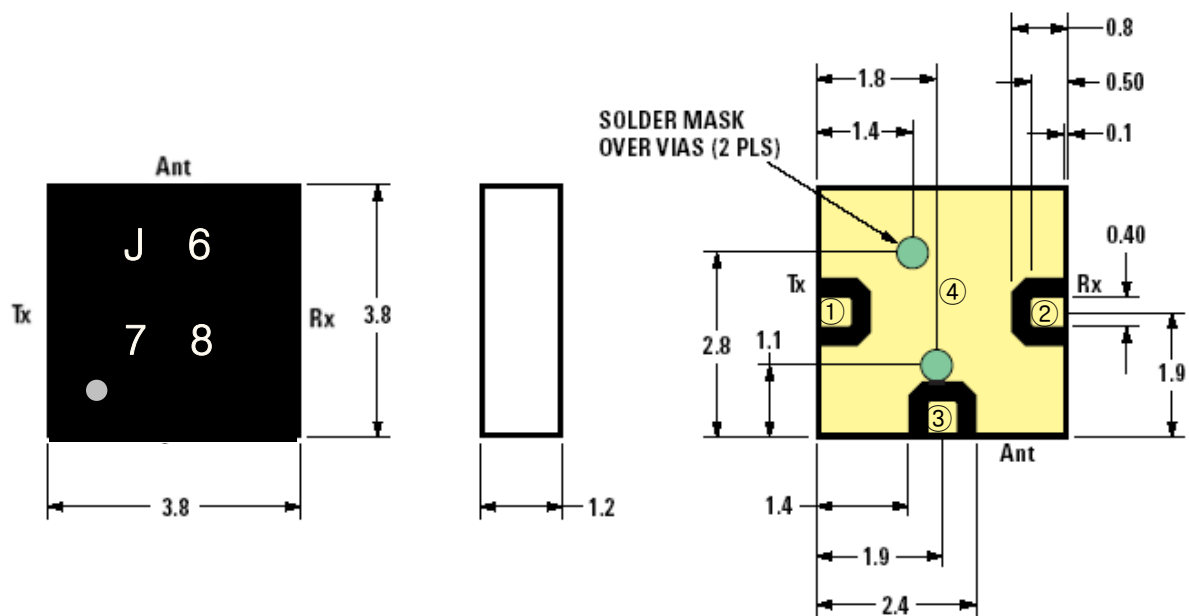
**Tx to Rx Isolation**



#### D. MEASUREMENT CIRCUIT:



### E.OUTLINE DRAWING:

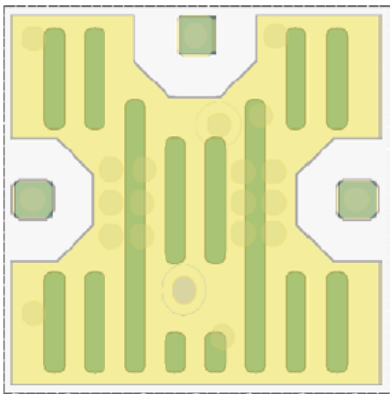
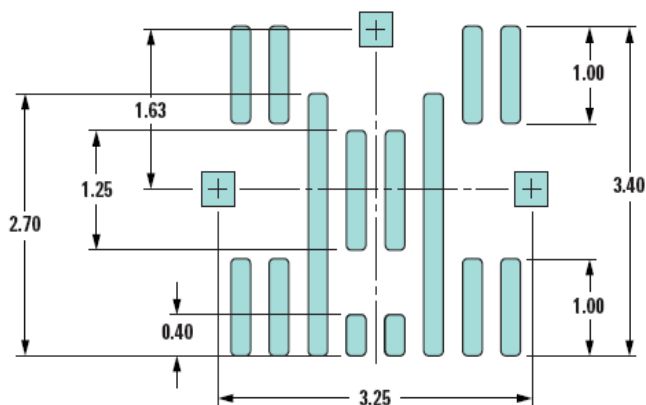


1. Tolerance:  $XX \pm 0.1$ ,  $X, XX \pm 0.05$
2. Package Height: 1.4mm Max
3. Contact areas are Gold plated

, , : Exposed ports  
: Exposed ground plane

| PIN NO. | FUNCTION     |
|---------|--------------|
| ①       | Tx (1880MHz) |
| ②       | Rx (1960MHz) |
| ③       | Antenna      |
| ④       | GND          |

**F. PCB Footprint:**



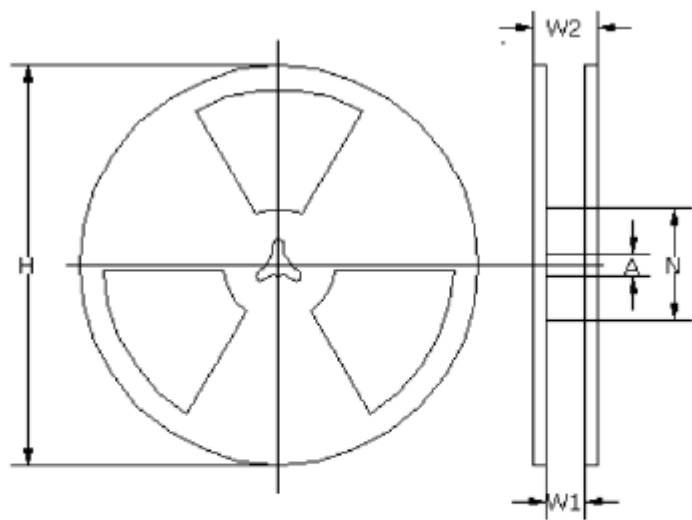
Duplexer superposed on solder stencil

※ Notes:

- ✓ Dimensions in millimeters (mm)
- ✓ Solder stripes (14pls) are 0.20wide, pitch
- ✓ Solder pads for I/O are 0.35x0.35
- ✓ Stencil pattern is centered on duplexer

**G. PACKING:**

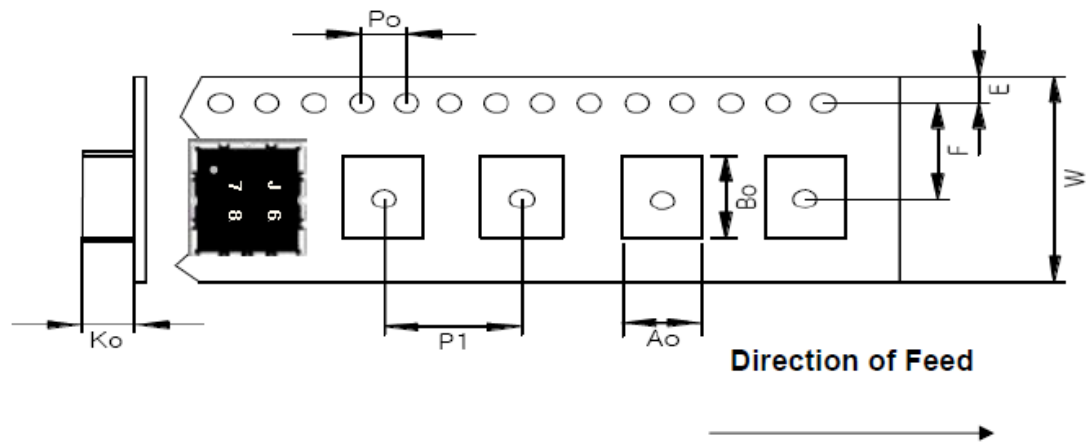
1. REEL DIMENSION



(Unit : mm)

| A       | N        | H          | W1       | W2       |
|---------|----------|------------|----------|----------|
| Φ13±0.5 | Φ62 ±1.0 | Φ330.0±1.0 | 12.0±1.0 | 16.0±1.0 |

## 2. TAPE DIMENSION



| A       | B       | K0      | W        | E        | F       | P0      | P1      |
|---------|---------|---------|----------|----------|---------|---------|---------|
| 3.4±0.1 | 3.4±0.1 | 1.4±0.1 | 12.0±0.3 | 1.75±0.1 | 5.5±0.1 | 4.0±0.1 | 8.0±0.1 |

## H. RECOMMENDED REFLOW PROFILE :

