

**SAW Duplexer 1733 / 2133MHz**  
**Part No: MP07403**

**Model: TF0122A**  
**Rev. No: 2**

**A. MAXIMUM RATING:**

Electrostatic Sensitive Device (ESD)

1. Operating temperature range: -20°C to +85°C
2. Storage temperature range: -20°C to +85°C
3. Input power: 29dBm (Ta = +50°C, 50kh, CW)
4. Maximum DC Voltage: ±3V
5. Moisture Sensitivity Level: Level 1

**B. ELECTRICAL CHARACTERISTICS:**

1. Terminating impedance (Tx Port): 50//9.1nH Ω (Single-ended)
2. Terminating impedance (Rx Port): 50Ω (Single-ended)
3. Terminating impedance (Ant Port): 50//4.3nH Ω (Single-ended)

**Tx to ANT (f<sub>T0</sub>=1733MHz)**

| Parameters Description |              | Unit         | Min | Typ | Max | Remarks |
|------------------------|--------------|--------------|-----|-----|-----|---------|
| Insertion Loss         | 1710~1755MHz | dB(*1)       | -   | 1.5 | 2.0 |         |
| Amplitude ripple       | 1710~1755MHz | dB           | -   | 0.6 | 1.2 |         |
| VSWR                   | Tx           | 1710~1755MHz | -   | -   | 1.6 | 2.0     |
|                        | ANT          |              | -   | -   | 1.6 | 2.0     |
| Attenuation:           |              |              |     |     |     |         |
| 1559~1585.42MHz        |              | dB           | 40  | 43  | -   |         |
| 2110~2155MHz           |              | dB           | 44  | 52  | -   |         |
| 2400~2500MHz           |              | dB           | 36  | 42  | -   |         |
| 3420~3510MHz           |              | dB           | 29  | 35  | -   |         |
| 5130~5265MHz           |              | dB           | 21  | 28  | -   |         |

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**ANT to Rx (f<sub>T0</sub>=2133 MHz)**

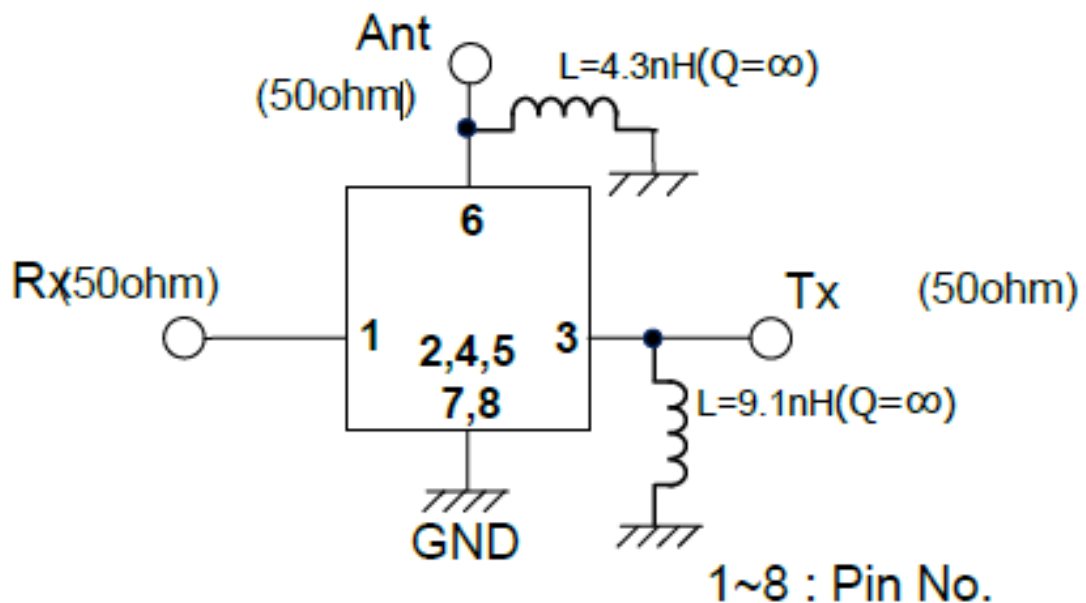
| Parameters Description |              | Unit   | Min | Typ | Max | Remarks |
|------------------------|--------------|--------|-----|-----|-----|---------|
| Insertion Loss         | 2110~2155MHz | dB(*1) | -   | 1.7 | 2.2 |         |
| Amplitude ripple       | 2110~2155MHz | dB     | -   | 0.4 | 1.0 |         |
| VSWR                   | ANT          | -      |     | 1.5 | 2.0 |         |
|                        | Rx           | -      |     | 1.6 | 2.0 |         |
| Attenuation:           |              |        |     |     |     |         |
| 1710~1755MHz           |              | dB     | 44  | 50  | -   |         |
| 2400~2500MHz           |              | dB     | 35  | 41  | -   |         |
| 3820~3910MHz           |              | dB     | 36  | 43  | -   |         |

**Tx to Rx**

|           |              |    |    |    |   |  |
|-----------|--------------|----|----|----|---|--|
| Isolation | 1710~1755MHz | dB | 52 | 57 | - |  |
|           | 2110~2155MHz | dB | 50 | 55 | - |  |

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

**C. EVALUATION CIRCUIT:**

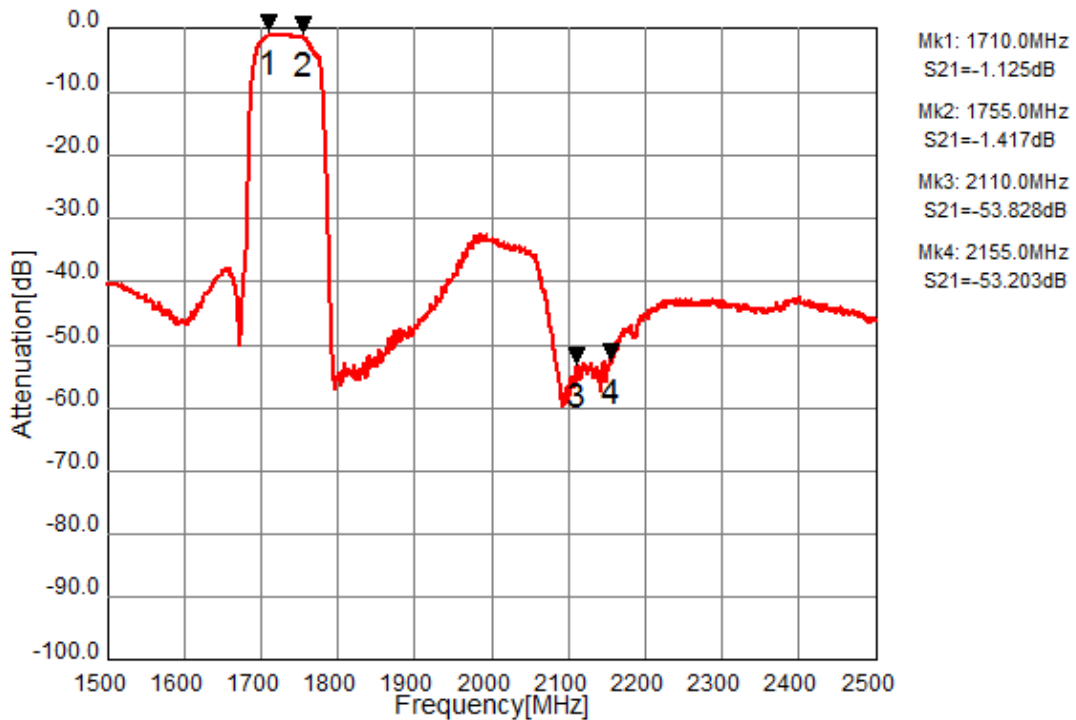


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**D. FREQUENCY CHARACTERISTICS:**

Tx to Ant



Ant to Rx

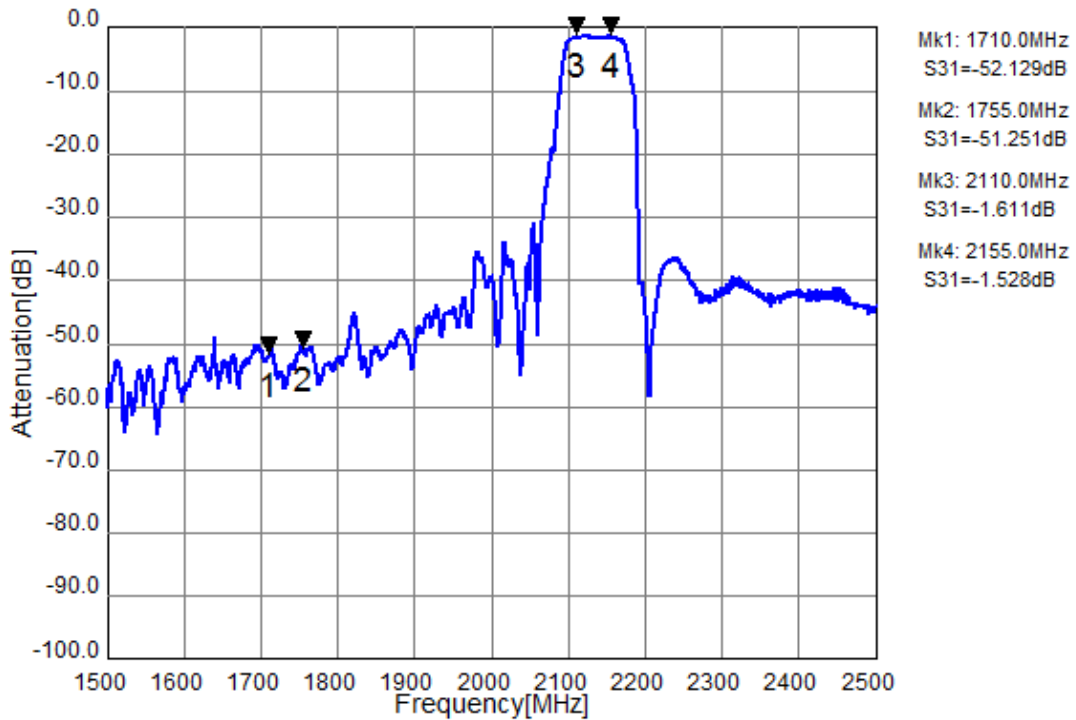
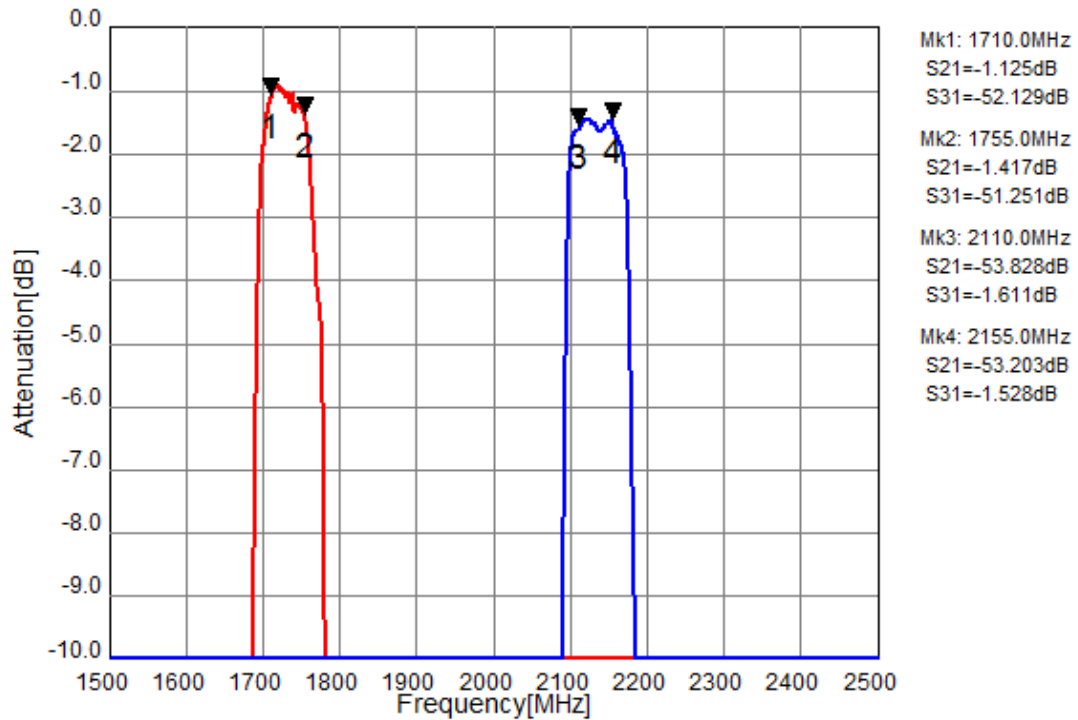


Figure 3 - 1. Electrical Characteristics. These data exclude loss that comes from the test board.

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Tx to Ant ,Ant to Rx



Tx to Rx Isolation

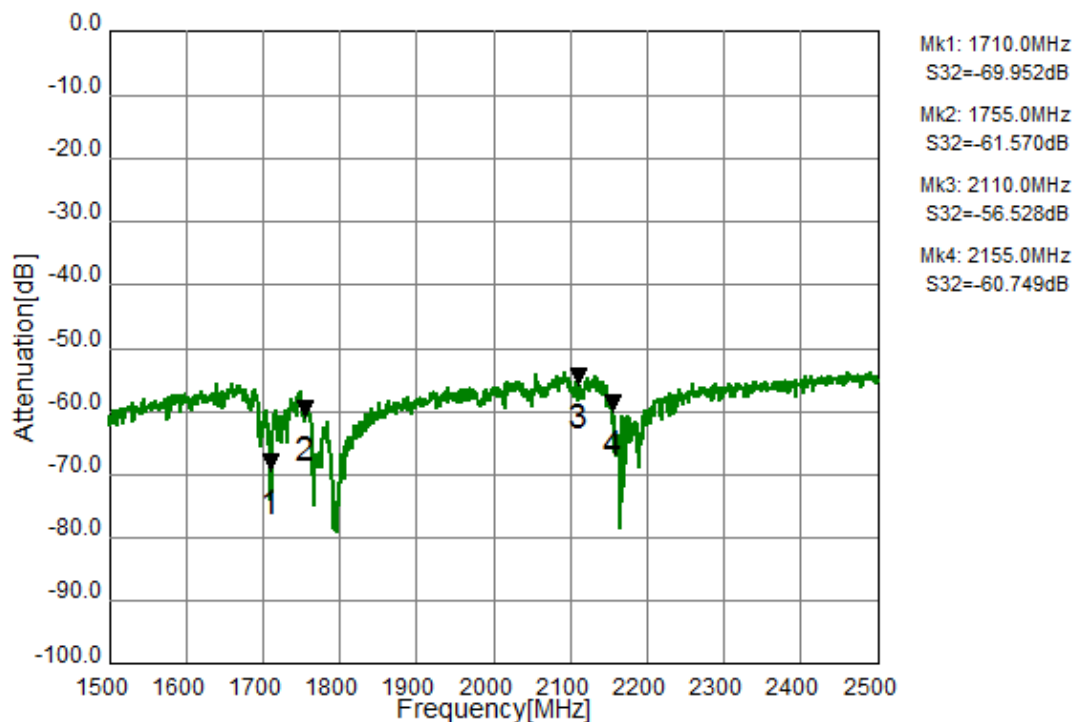


Figure 3 - 2. Electrical Characteristics. These data exclude loss that comes from the test board.

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Tx Port

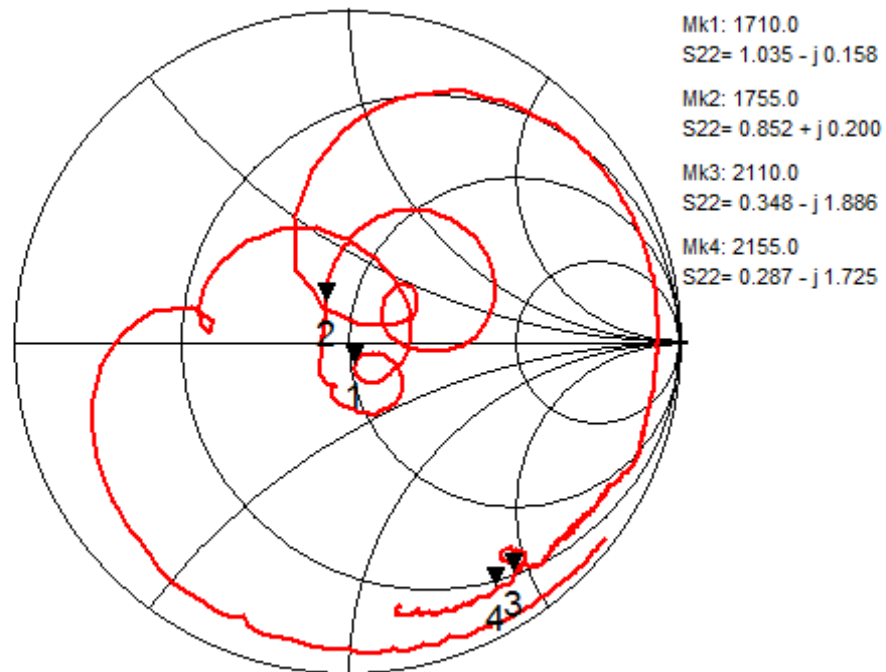
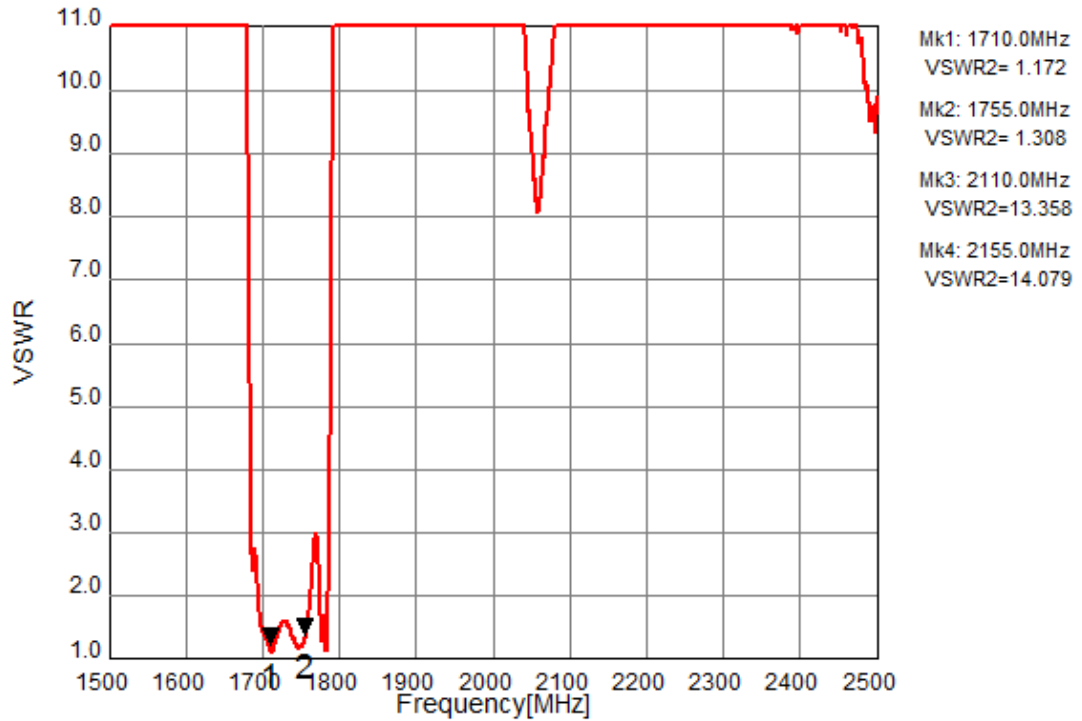


Figure 3 - 3. Electrical Characteristics.

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Rx Port

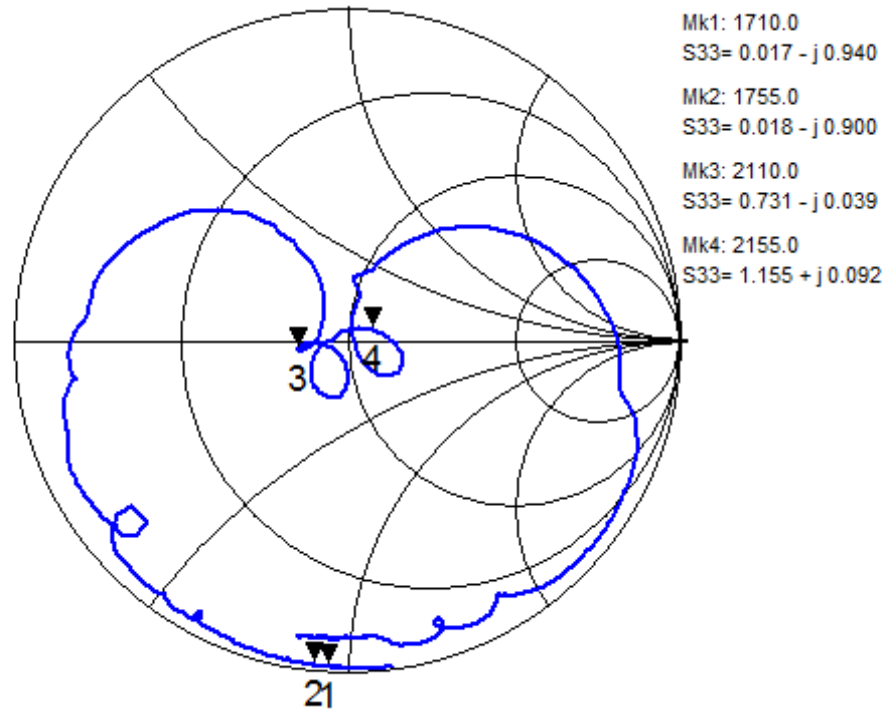
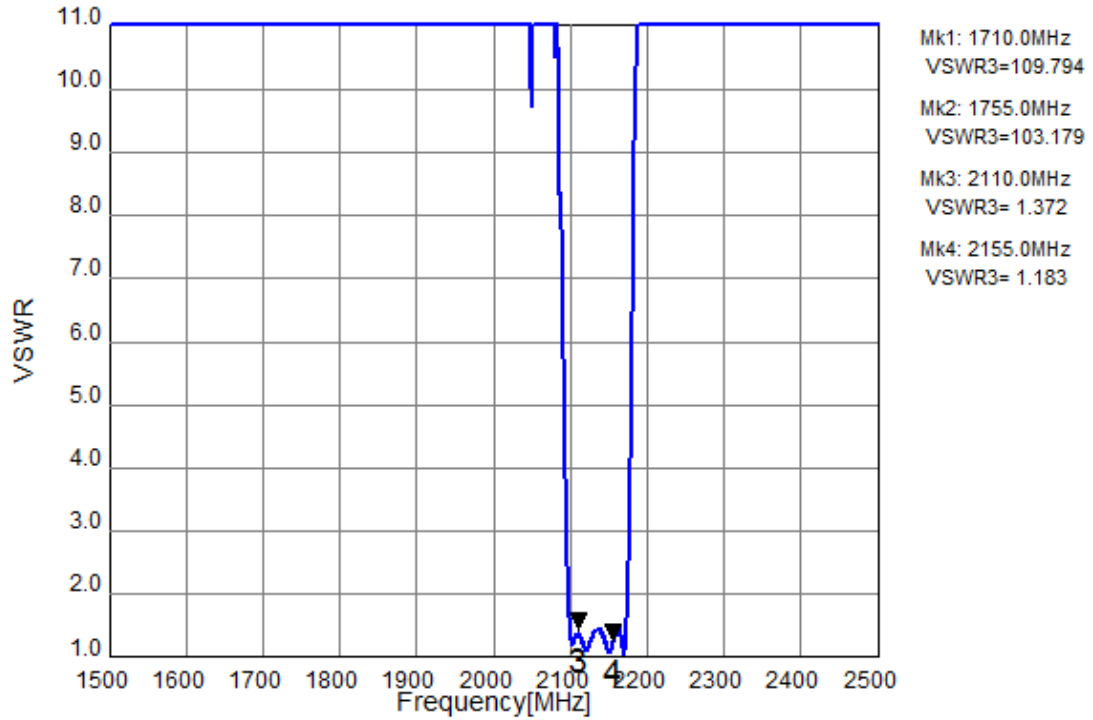


Figure 3 - 4. Electrical Characteristics.

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Ant Port

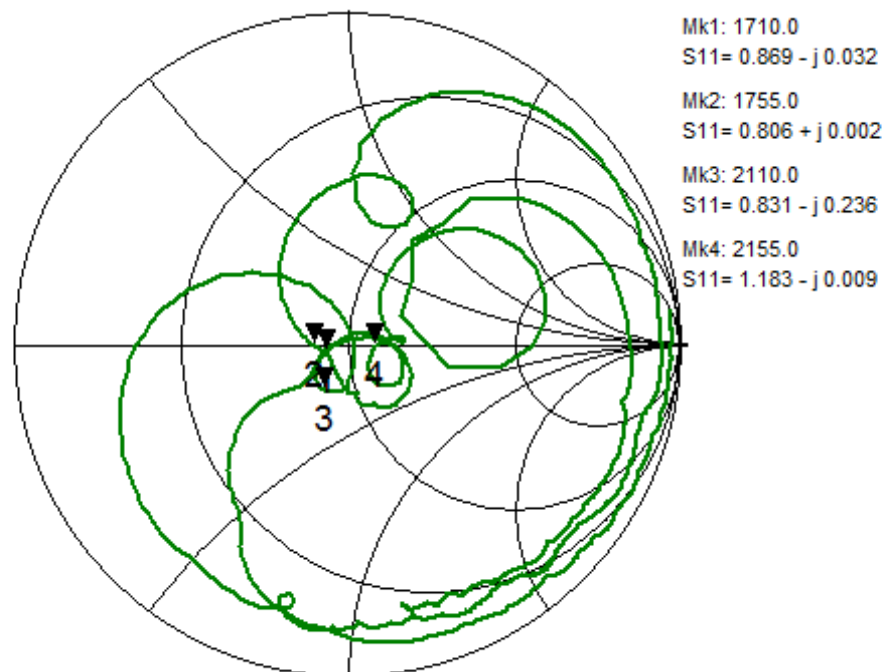
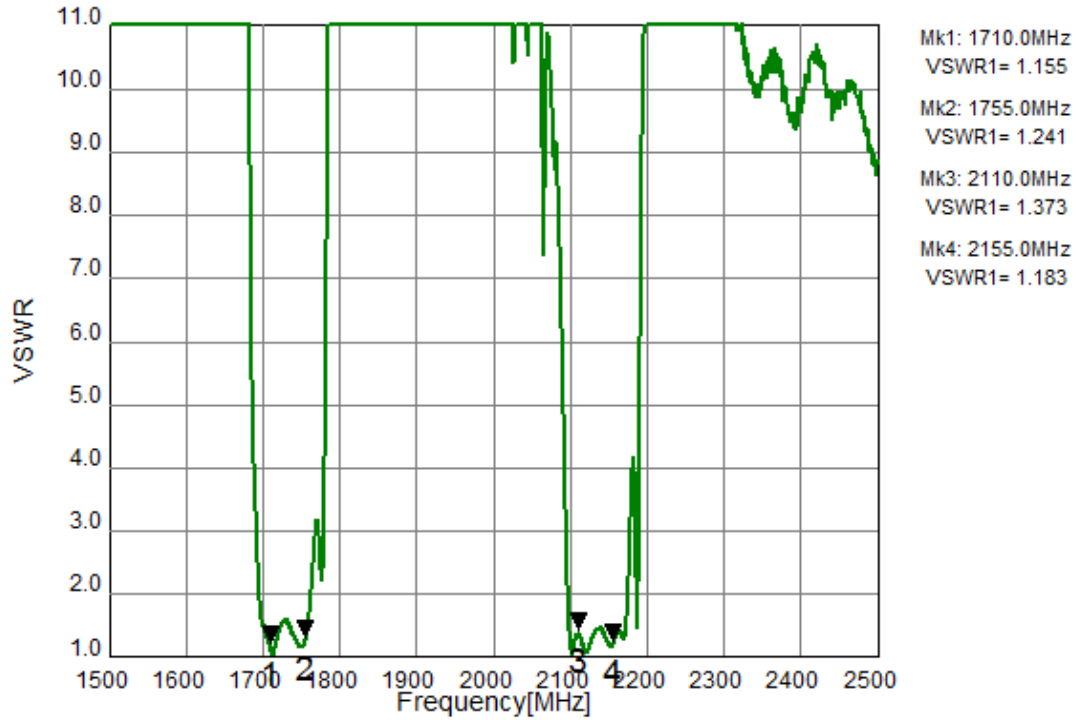
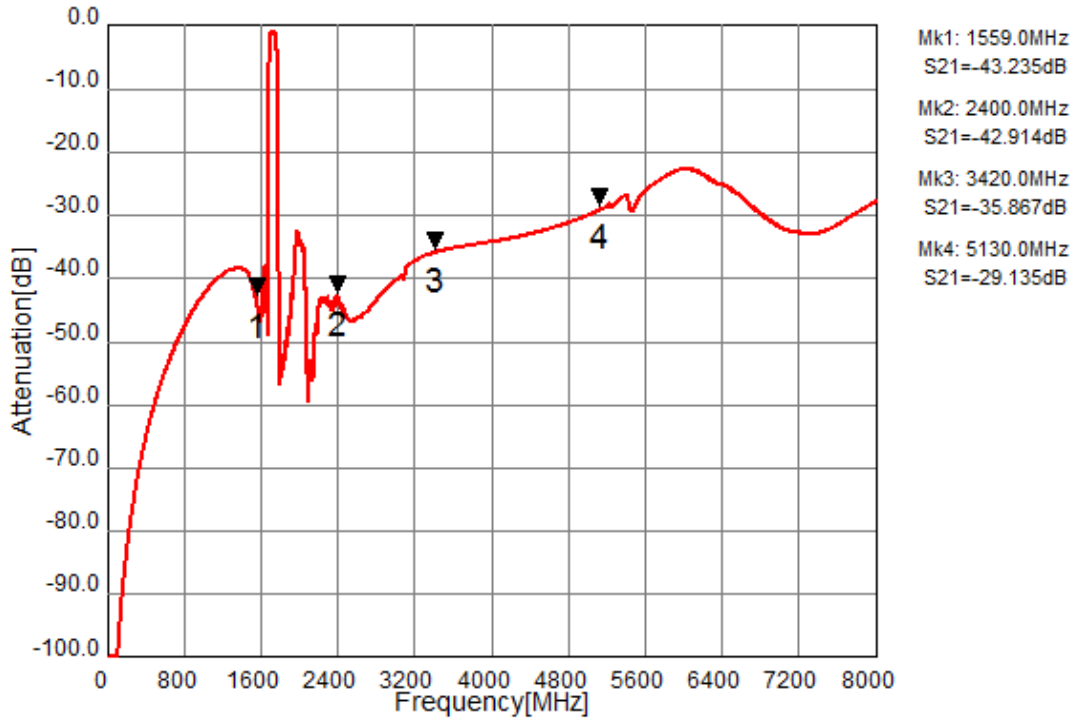


Figure 3 - 5. Electrical Characteristics.

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Tx to Ant (Wide span)



Ant to Rx (Wide span)

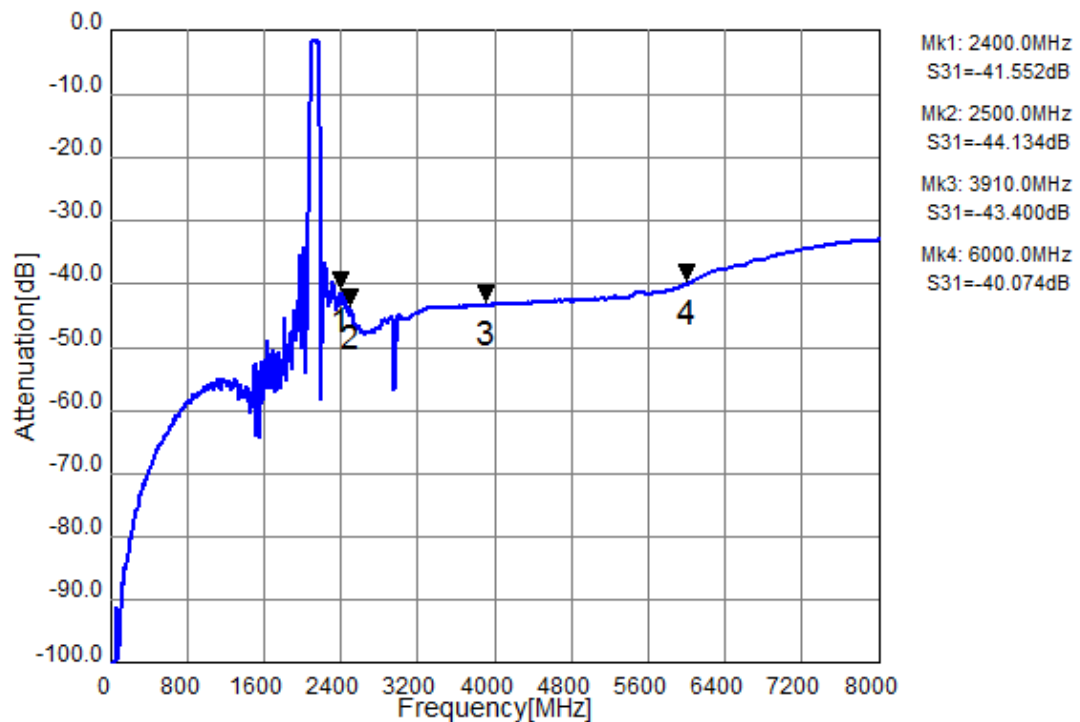


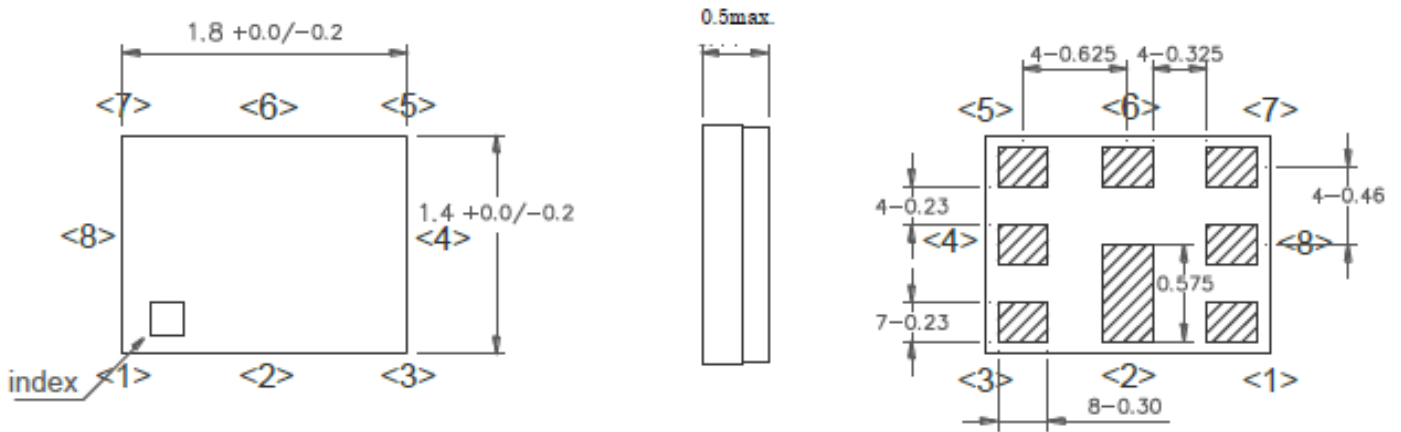
Figure 3 - 6. Electrical Characteristics.



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**E. OUTLINE DRAWING:**



**Pin Configuration**

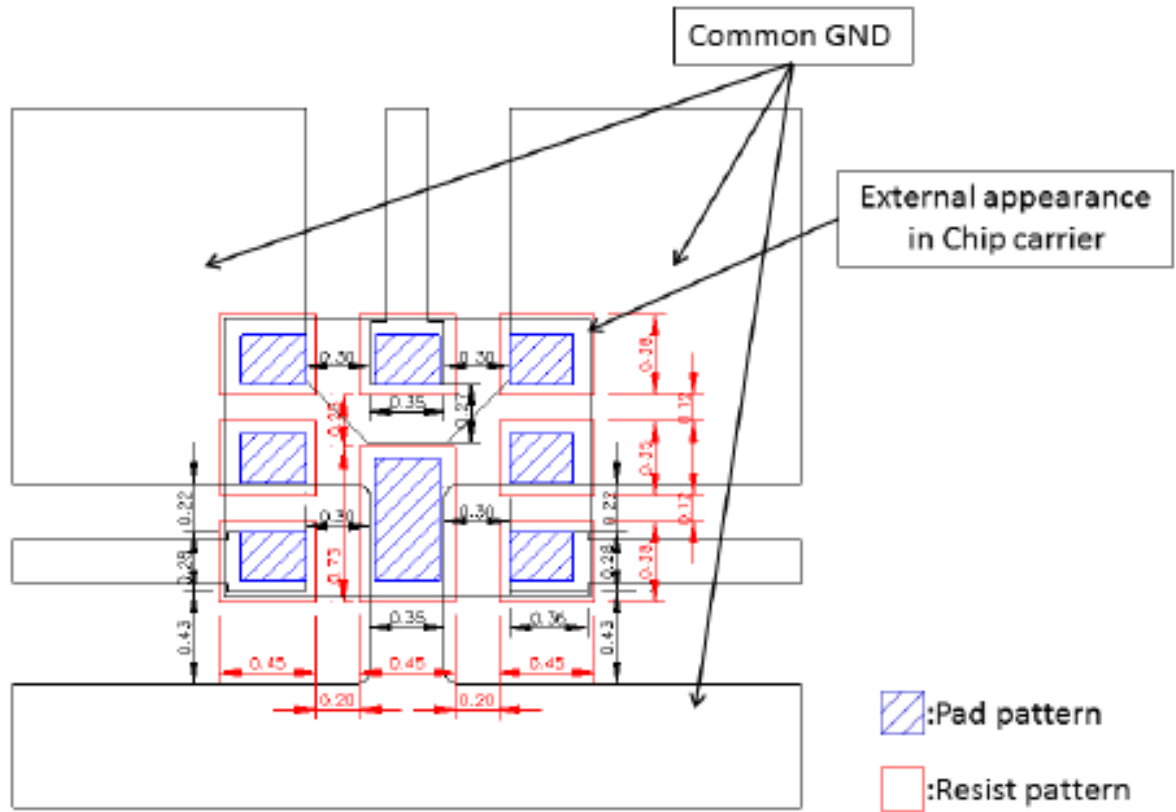
| Pin No. | Pin name | Description     |
|---------|----------|-----------------|
| 1       | Rx       | Receiver Pin    |
| 2       | GND      | Ground Pin      |
| 3       | Tx       | Transmitter Pin |
| 4       | GND      | Ground Pin      |
| 5       | GND      | Ground Pin      |
| 6       | ANT      | Antenna Pin     |
| 7       | GND      | Ground Pin      |
| 8       | GND      | Ground Pin      |

**Figure 1. Dimensions and Pin assignment**

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**F. FOOTPRINT:**



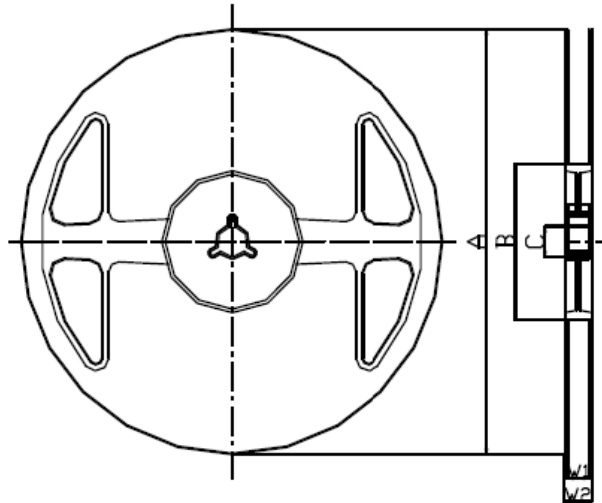
**Figure 2. Recommended foot print pattern**

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**G. PACKING:**

1. Reel Dimension



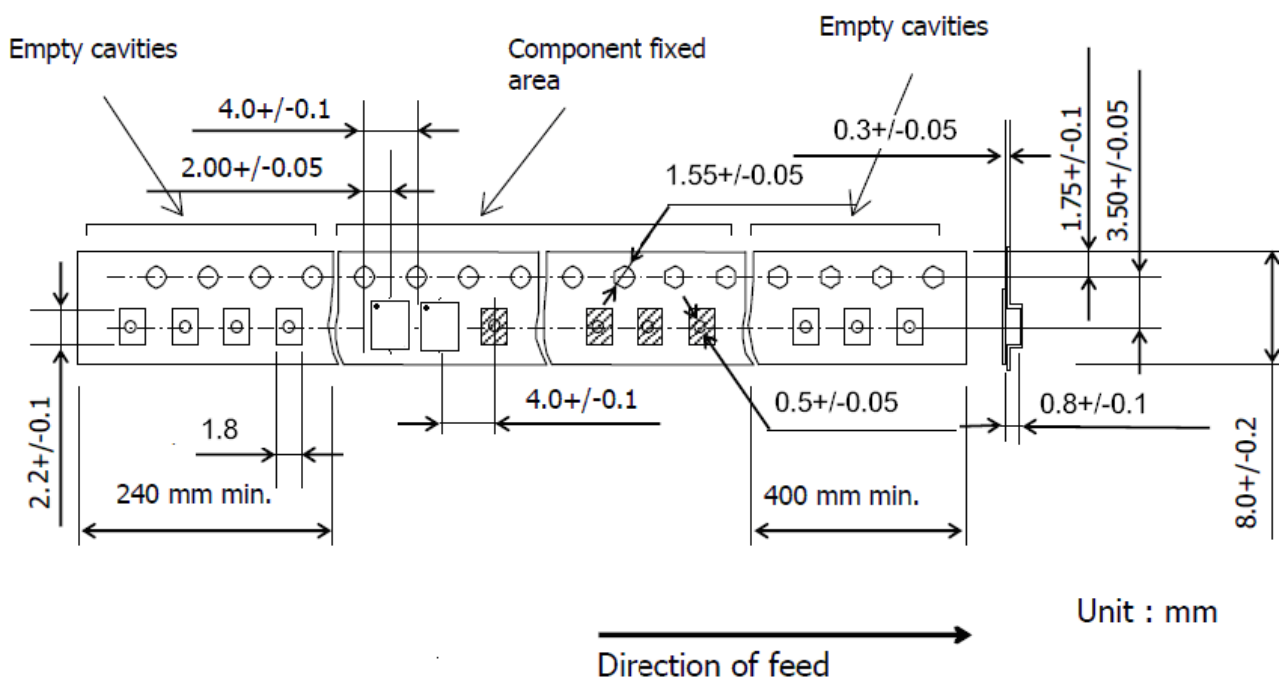
**Materials of Reel**

Material : Polystyrene + Carbon  
 Characteristics : Conforms to EIAJ-ET-7200A  
 Color : Black  
 Surface resistance (reference value) :  $10^9\Omega/\text{sq Max.}$

Unit : mm

| Code | Quantity  | A                      | B                  | C                  | W1              | W2            |
|------|-----------|------------------------|--------------------|--------------------|-----------------|---------------|
| Z    | 3,000 pcs | $\phi 180.0 +0.0/-1.5$ | $\phi 66.0 +/-0.5$ | $\phi 13.0 +/-0.2$ | $9.0 +1.0/-0.0$ | $11.4 +/-1.0$ |

2. Tape Dimension



Unit : mm

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**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 245 ~ 260°C peak (min. 10 sec).
4. Time: 2 times.

