

SAW Duplexer 1950.0 / 2140.0MHz

Model: TF0126A

Part No: MP07407

Rev. No: 1

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 (0.8W) (Ta = +50°C, >50000h, CW)
4. Maximum DC Voltage: ±3 V
5. Moisture Sensitivity Level: Level 1

B. ELECTRICAL CHARACTERISTICS:

1. Terminating impedance (Tx Port): 50 // 22nH Ω (Single-ended)
2. Terminating impedance (Rx Port): 100 // 8.2nH Ω (Balanced)
3. Terminating impedance (Ant Port): 50 // 2.7nH Ω (Single-ended)

Tx to ANT (f_{T0}=1950MHz)

| Parameters Description | | Unit | Min | Typ | Max | Remarks |
|------------------------|--------------|--------------|-----|-----|-----|-------------|
| Insertion Loss | 1950~1980MHz | dB(*1) | - | 1.7 | 2.2 | |
| Amplitude ripple | 1950~1980MHz | dB | - | 0.8 | 1.2 | |
| VSWR | ANT | 1920~1980MHz | - | - | 1.6 | 2.0 |
| | Tx | | - | - | 1.4 | 2.0 |
| Attenuation: | | | | | | |
| 1574~1577MHz | | dB | 32 | 39 | | |
| 1805~1880MHz | | dB | 15 | 40 | | |
| 2010~2025MHz | | dB | 10 | 26 | | Ta=+15~85°C |
| 2110~2170MHz | | dB | 40 | 49 | | |
| 2400~2500MHz | | dB | 30 | 50 | | |
| 3840~3960MHz | | dB | 30 | 38 | | |

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ANT to Rx (f_{T0}=2140 MHz)

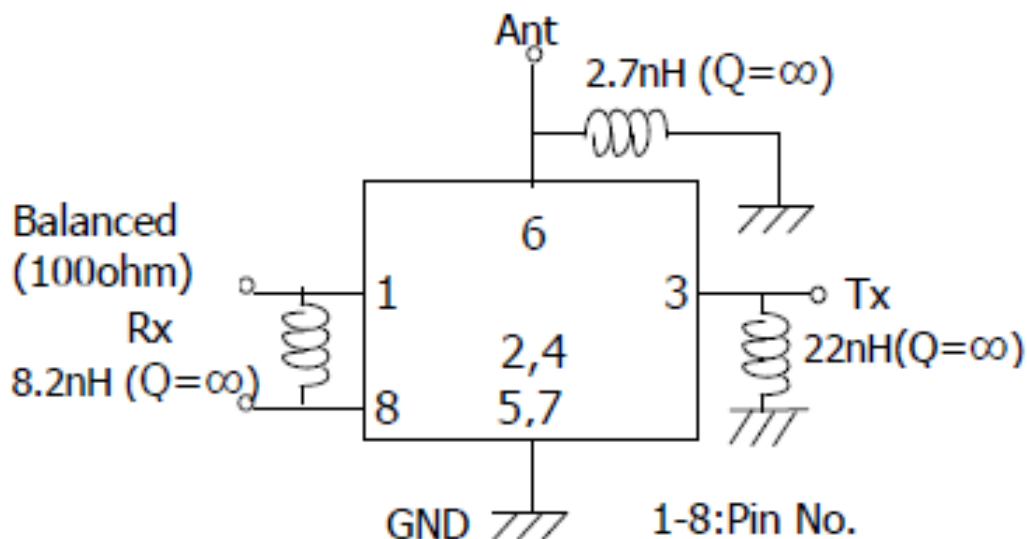
| Parameters Description | | Unit | Min | Typ | Max | Remarks |
|------------------------|--------------|--------|------|-----------|------|---------|
| Insertion Loss | 2110~2170MHz | dB(*1) | - | 1.8 | 2.2 | |
| Amplitude ripple | 2110~2170MHz | dB | - | 0.7 | 1.2 | |
| Phase balance | 2110~2170MHz | Deg | -12 | -8/+1 | +12 | |
| Amplitude balance | 2110~2170MHz | dB | -1.2 | -0.2/+0.7 | +1.2 | |
| VSWR | ANT | - | | 1.4 | 2.0 | |
| | Rx | | | 1.7 | 2.1 | |
| Attenuation: | | | | | | |
| 1920~1980MHz | | dB | 45 | 49 | - | |
| 1980~2025MHz | | dB | 20 | 41 | - | |
| 2400~2500MHz | | dB | 30 | 40 | | |

Tx to Rx

| | | | | | | |
|-----------|--------------|----|----|----|---|--|
| Isolation | 1920~1980MHz | dB | 53 | 57 | - | |
| | 2110~2170MHz | dB | 47 | 51 | - | |

(*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

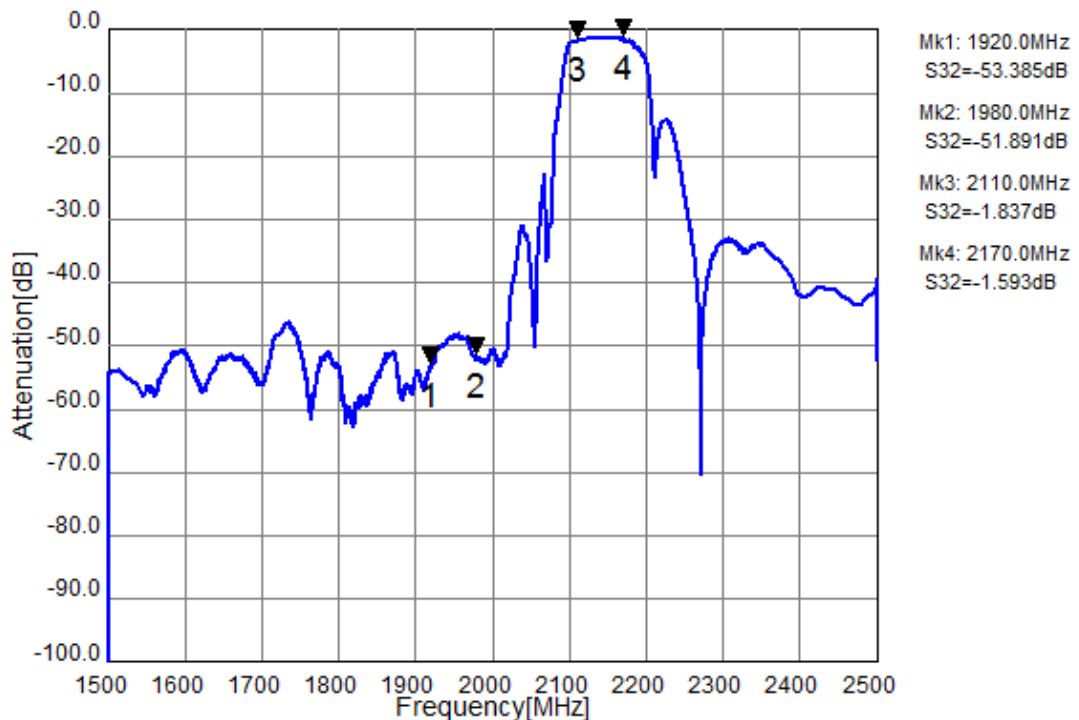
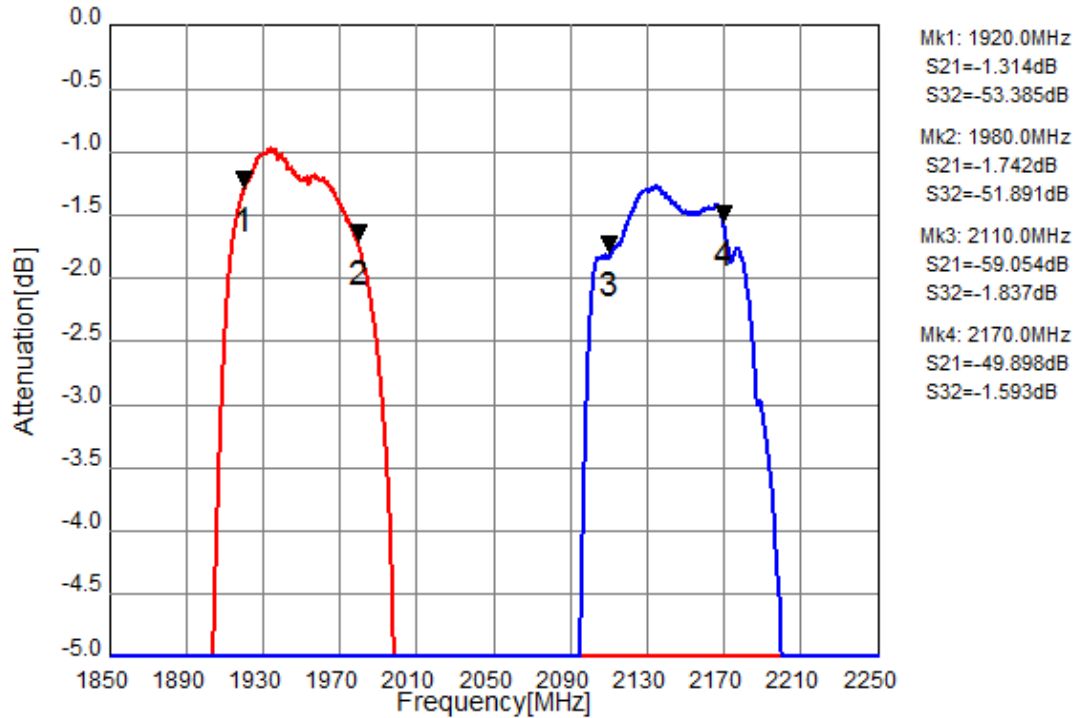


Figure 3 - 1. Electrical Characteristics. These data exclude loss that comes from the test board.

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Tx to Ant ,Ant to Rx



Tx to Rx Isolation

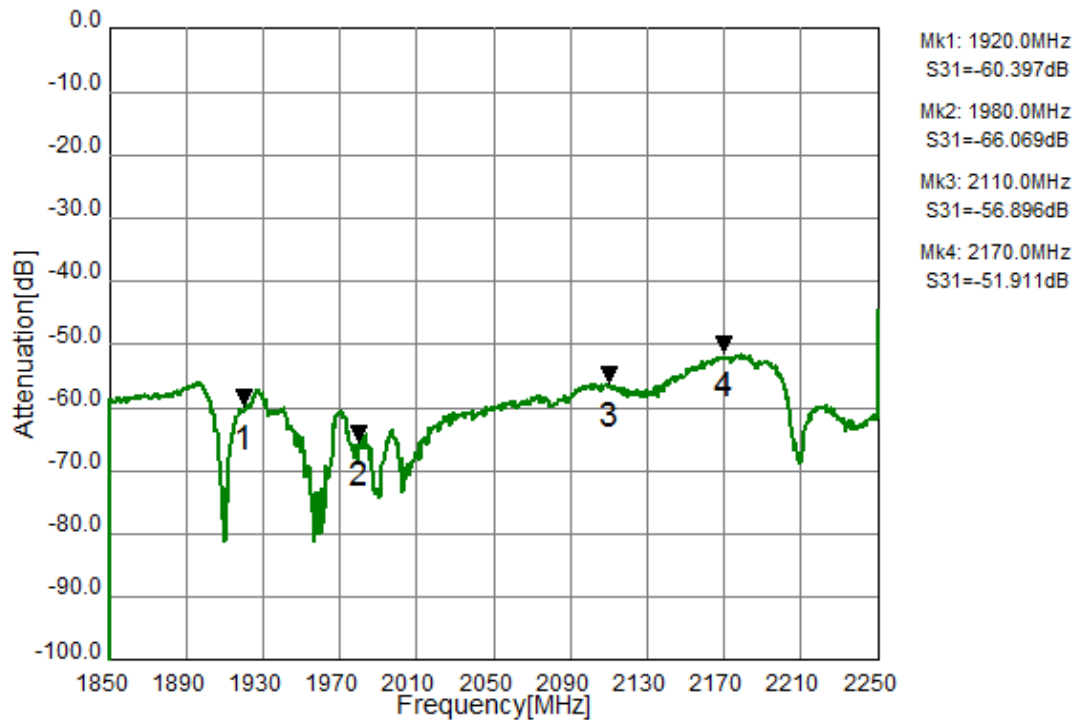


Figure 3 - 2. Electrical Characteristics. These data exclude loss that comes from the test board.

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Tx Port

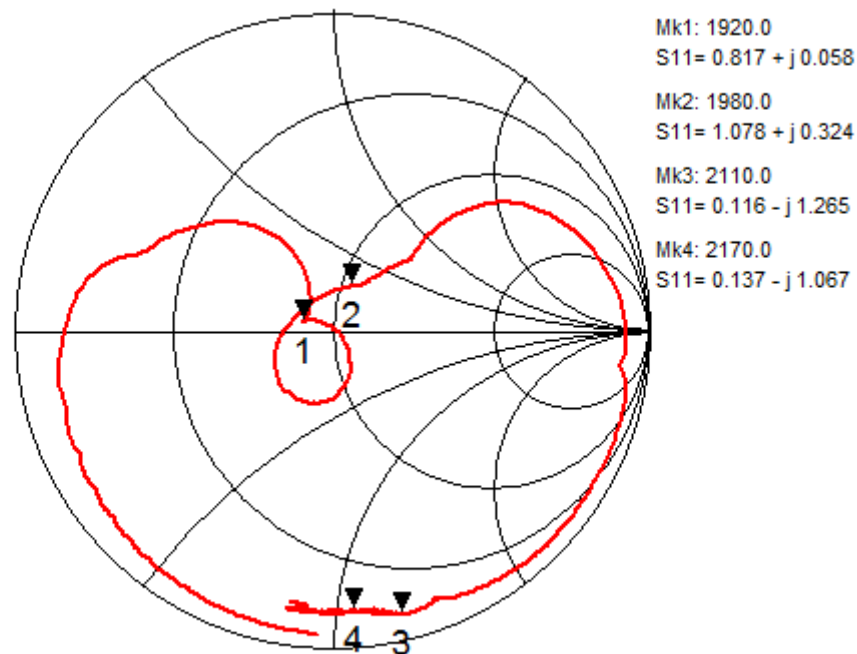
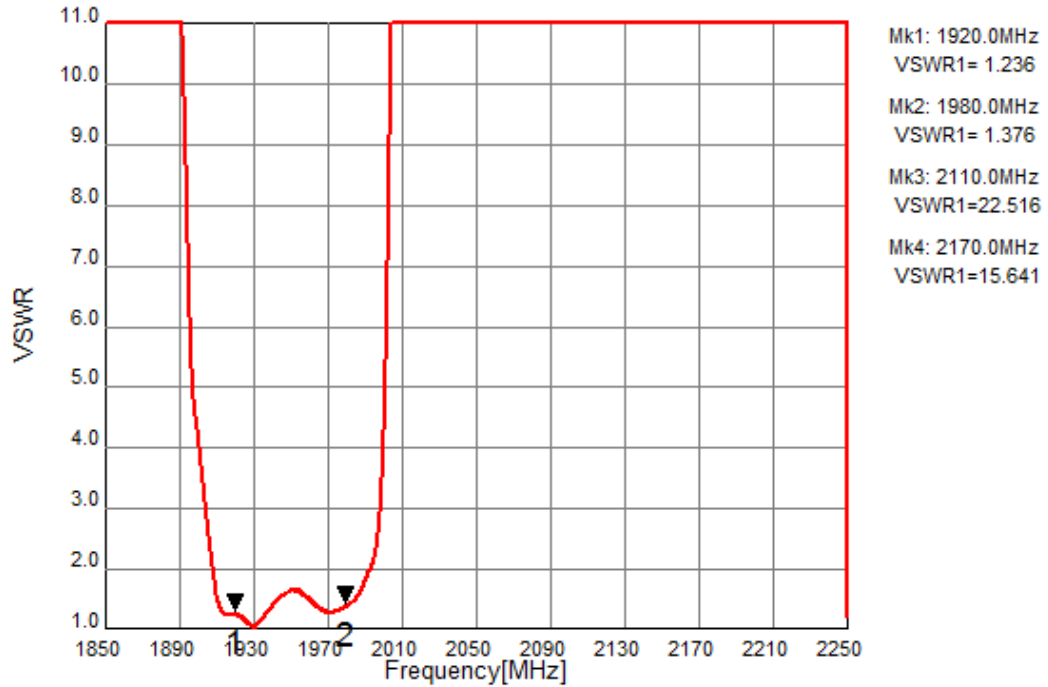


Figure 3 - 3. Electrical Characteristics.

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Rx Port

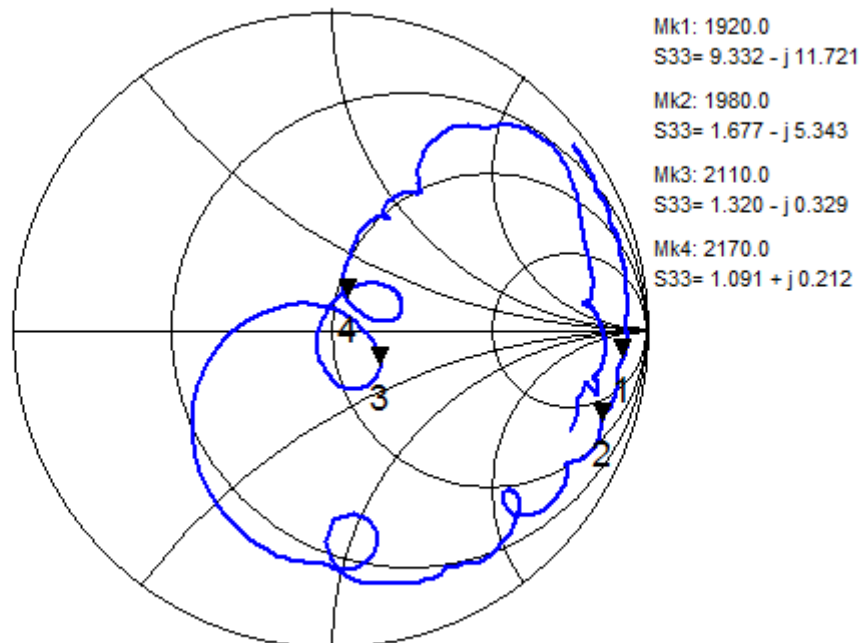
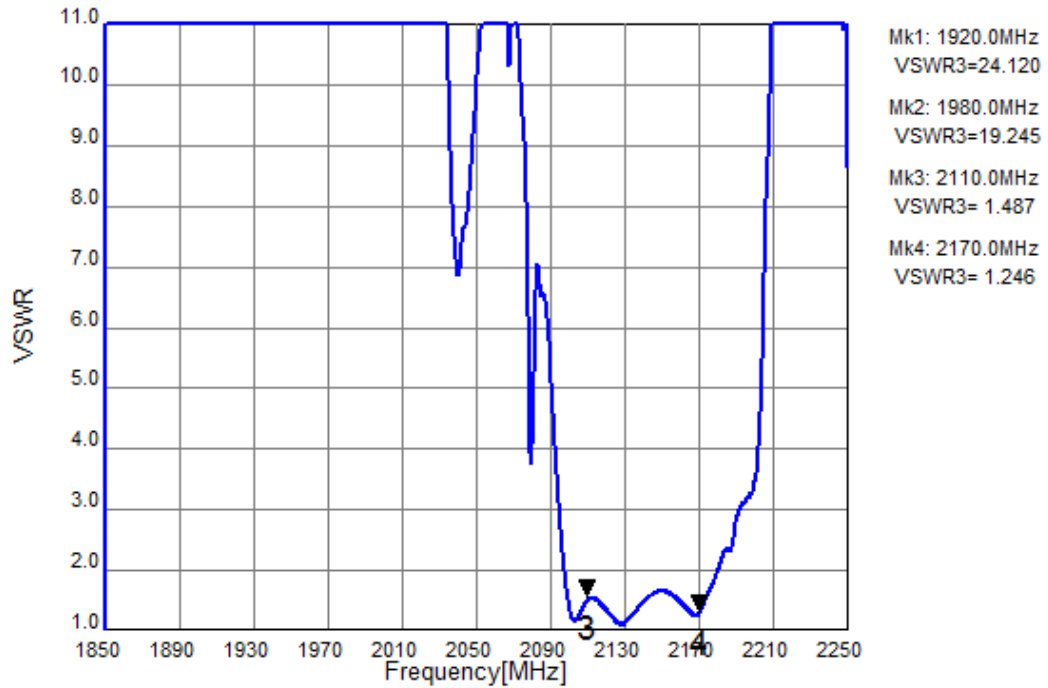


Figure 3 - 4. Electrical Characteristics.

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Ant Port

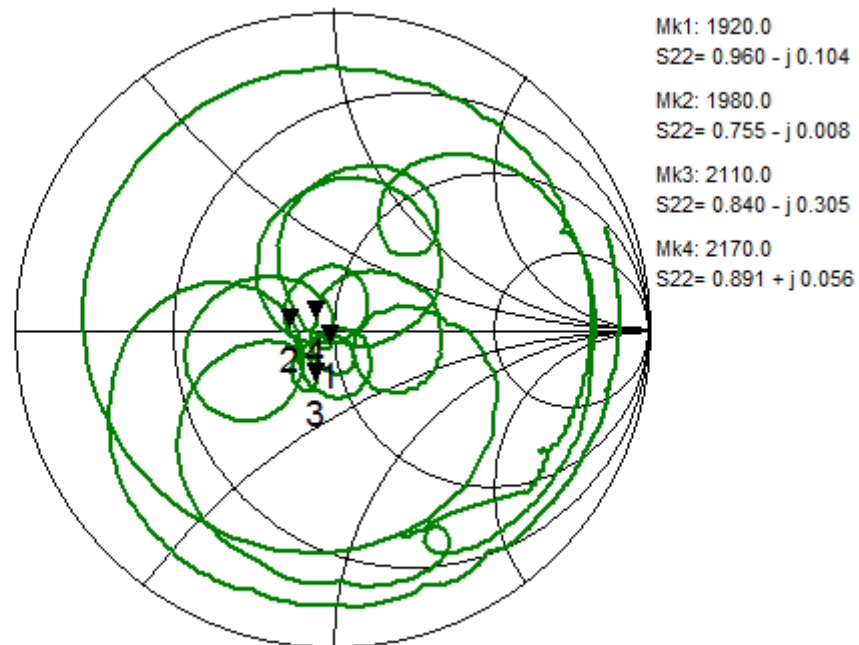
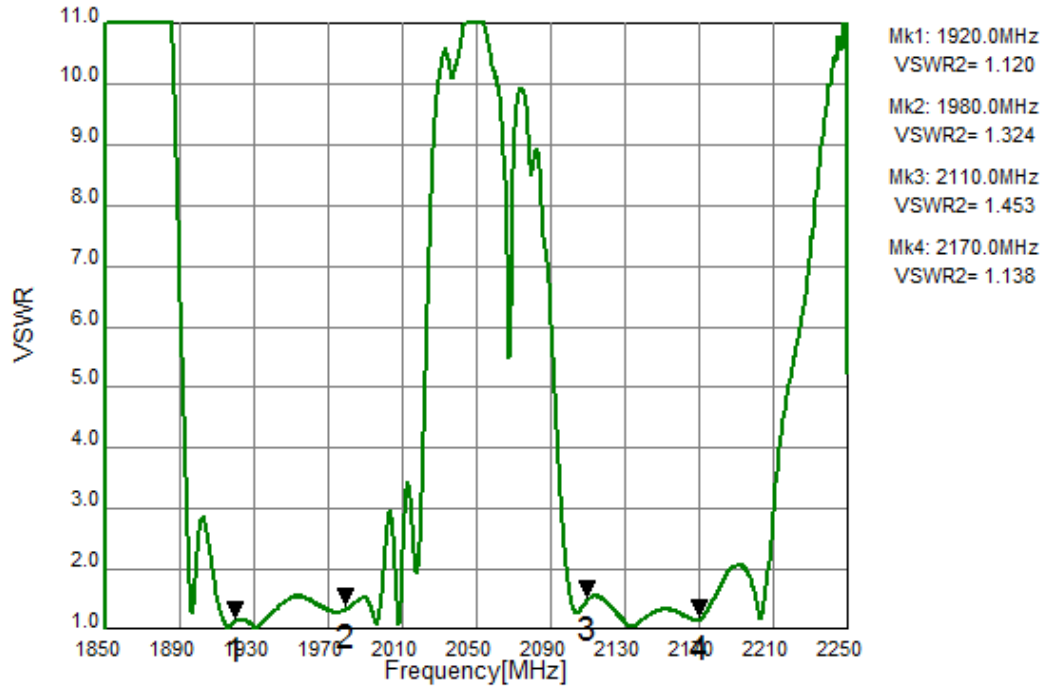
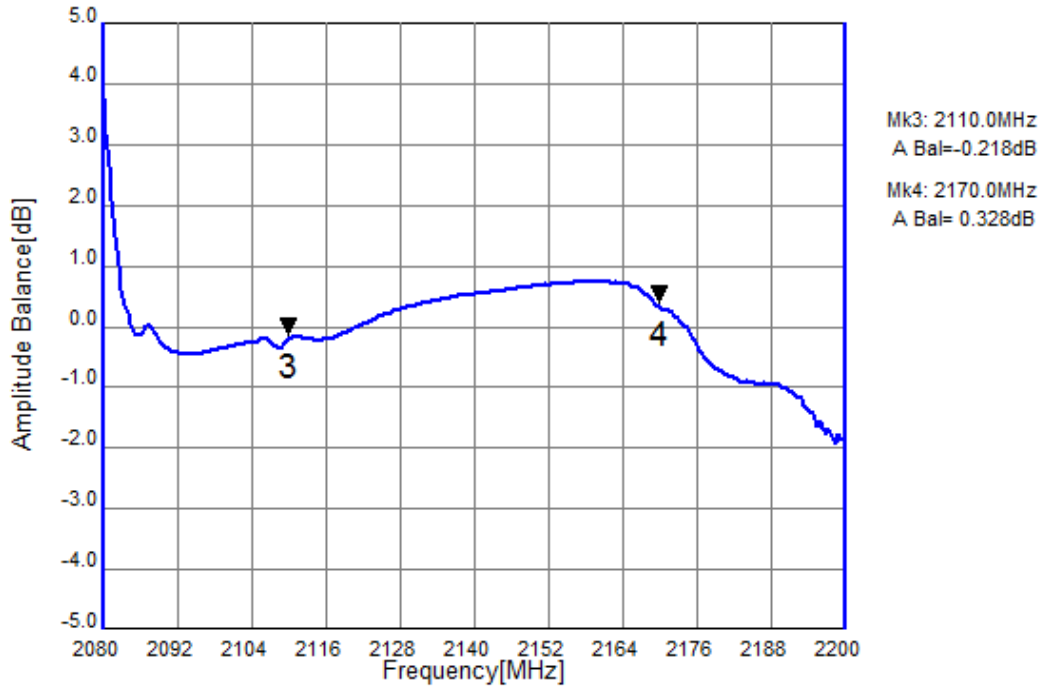


Figure 3-5. Electrical Characteristics.

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Ant to Rx (Amplitude balance)



Ant to Rx (Phase balance)

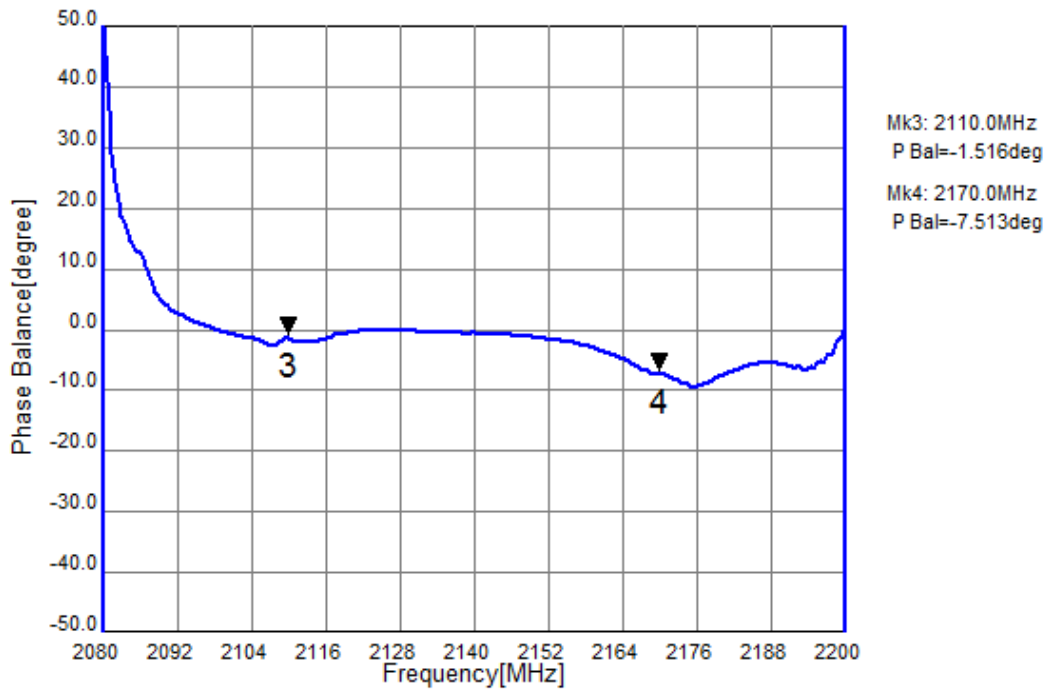
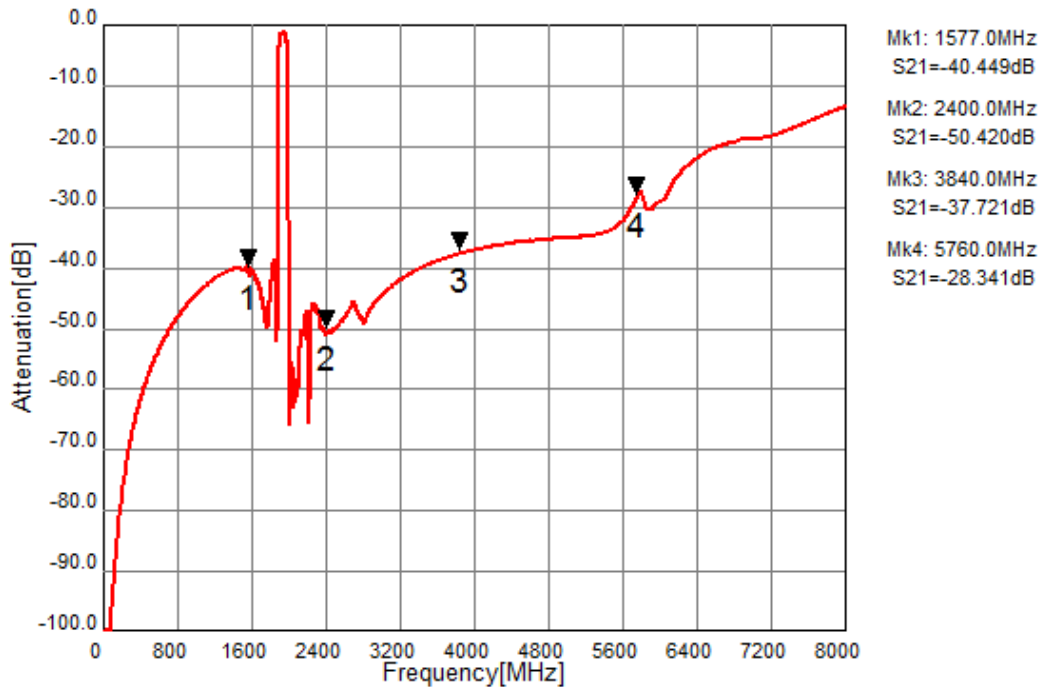


Figure 3 - 6. Electrical Characteristics.

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Tx to Ant (Wide span)



Ant to Rx (Wide span)

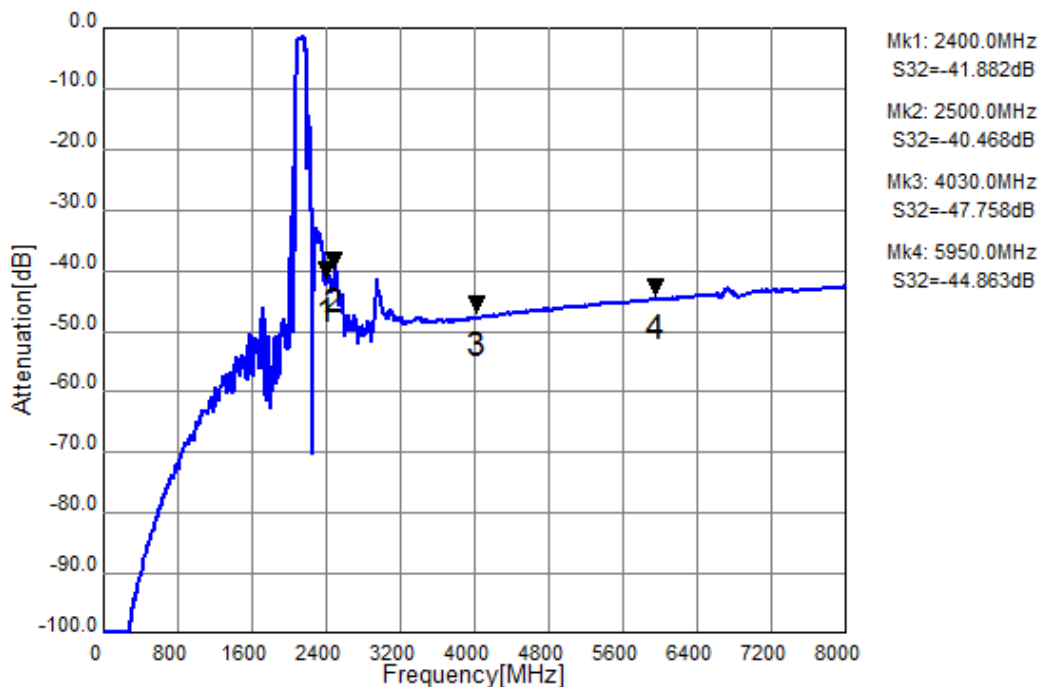


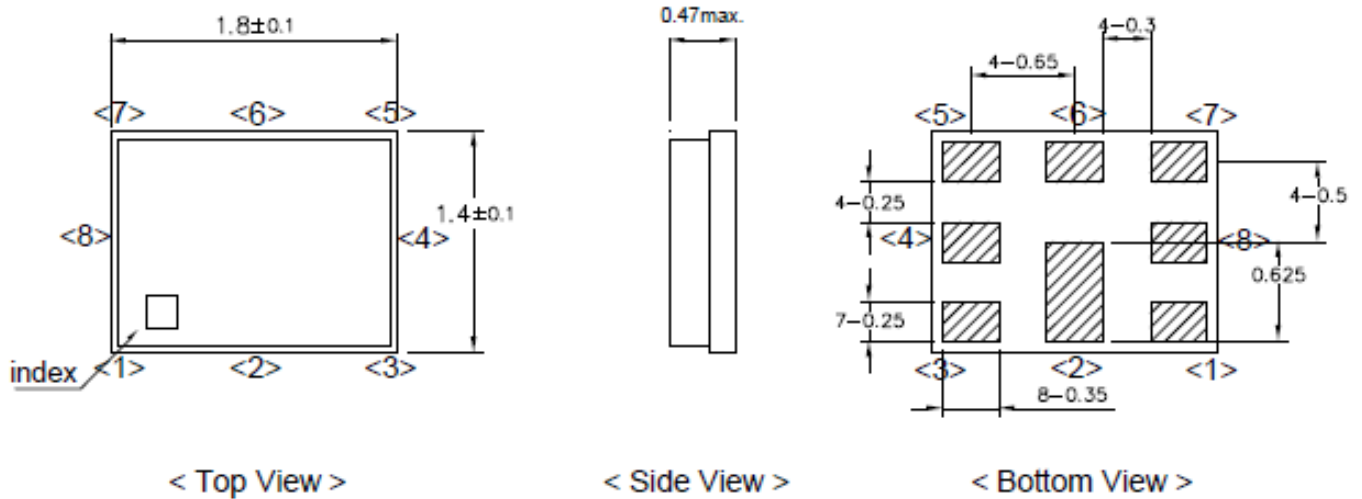
Figure 3-7. Electrical Characteristics.

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E. OUTLINE DRAWING:

Dimensions



Unit: mm

Pin Configuration

| Pin No. | Pin name | Description |
|---------|----------|-------------------------|
| 1 | Rx | Receiver Pin (balanced) |
| 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 | Rx | Receiver Pin (balanced) |

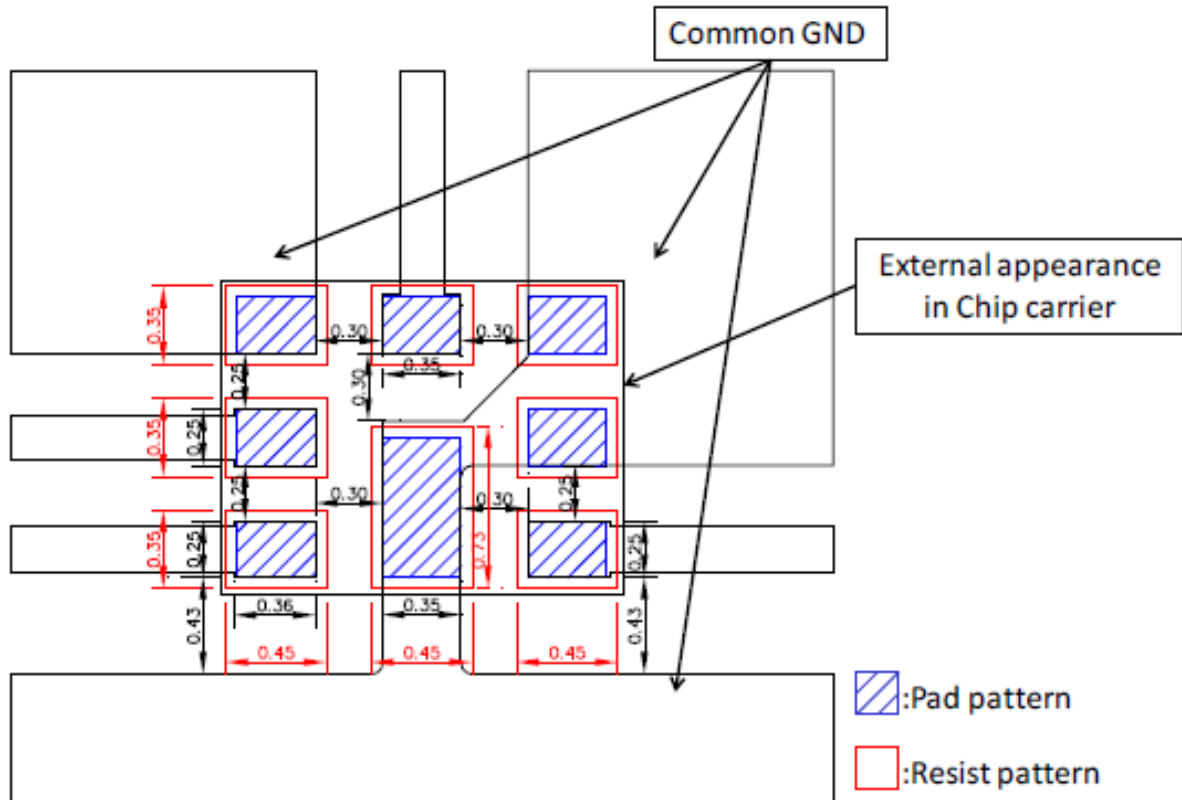
Figure 1. Dimensions and Pin assignment

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F. FOOTPRINT:

Recommended foot print pattern

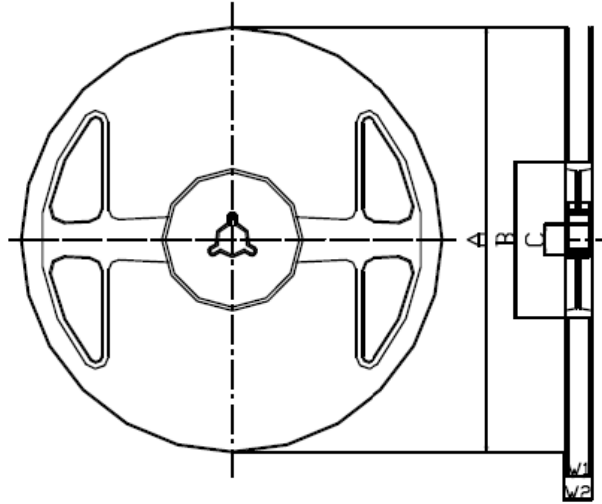


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G. PACKING:

1. Reel Dimension



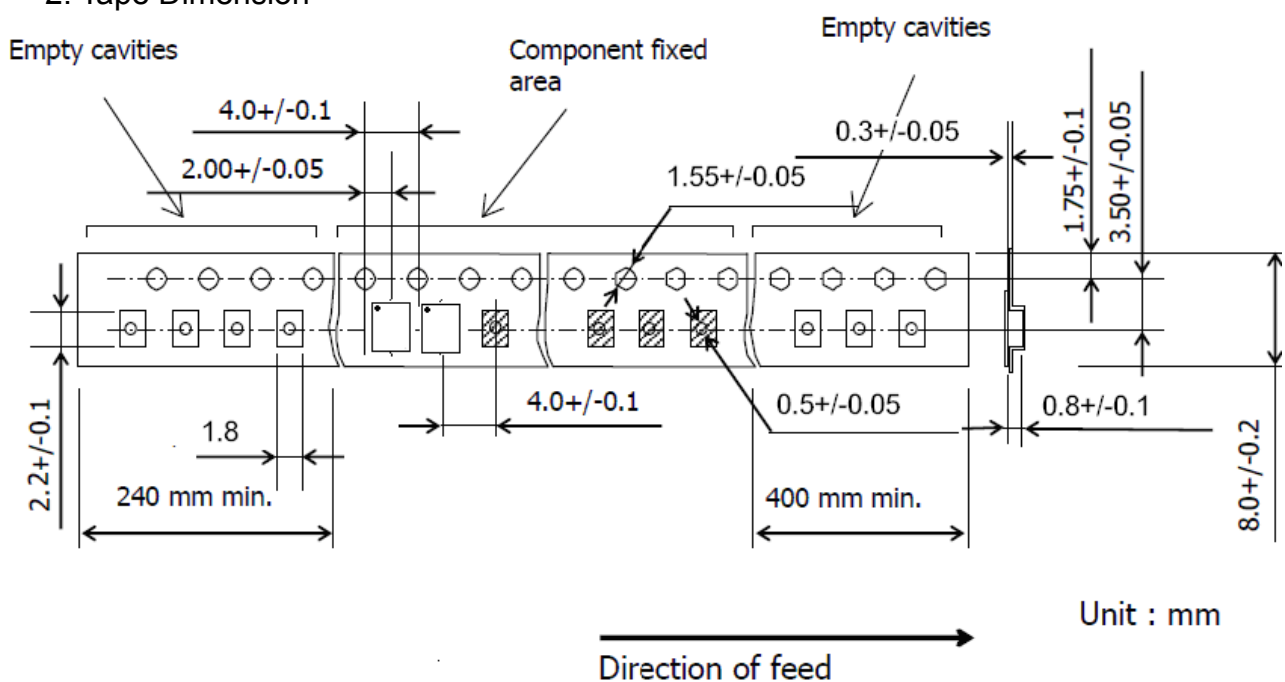
Materials of Reel

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.

