

SM1814

MAXIMUM RATING:

- Operating temperature range: -30 °C to +85 °C
- Storage temperature range: -30 °C to +85 °C
- Input power : 29dBm (0.8W)(Ta=+50°C,>50000h,CW)
- Maximum DC Voltage: +/-3 V
- Moisture Sensitivity Level: Level 1
- ESD 50V(MM) 100V(HBM)

ELECTRICAL CHARACTERISTICS:

Terminating impedance (Tx Port): 50//22nH Ω(Single-ended)

Terminating impedance (Rx Port): 100//8.2nH Ω (Balanced)

Terminating impedance (Ant Port): 50//2.7nH Ω (Single-ended)

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

| 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 | - | - | 1.6 | 2.0 | |
| | Tx | - | - | 1.4 | 2.0 | |
| Attenuation: | | | | | | |
| 1574~1577 MHz | | dB | 32 | 39 | | |
| 1805~1880 MHz | | dB | 15 | 40 | | |
| 2010~2025 MHz | | dB | 10 | 26 | | Ta=+15~85 °C |
| 2110~2170 MHz | | dB | 40 | 49 | | |
| 2400~2500 MHz | | dB | 30 | 50 | | |
| 3840~3960 MHz | | dB | 30 | 38 | | |



CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

NOTES:

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

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

| Parameters Description | | Unit | Min | Typ | Max | Remarks |
|------------------------|---------------|---------------|------|-----------|------|---------|
| Insertion Loss | 2110~2170 MHz | dB(*1) | - | 1.8 | 2.2 | |
| Amplitude ripple | 2110~2170 MHz | dB | - | 0.7 | 1.2 | |
| Phase balance | 2110~2170 MHz | Deg | -12 | -8/+1 | +12 | |
| Amplitude balance | 2110~2170 MHz | dB | -1.2 | -0.2/+0.7 | +1.2 | |
| VSWR | ANT | 2110~2170 MHz | - | 1.4 | 2.0 | |
| | Rx | | - | 1.7 | 2.1 | |

Attenuation:

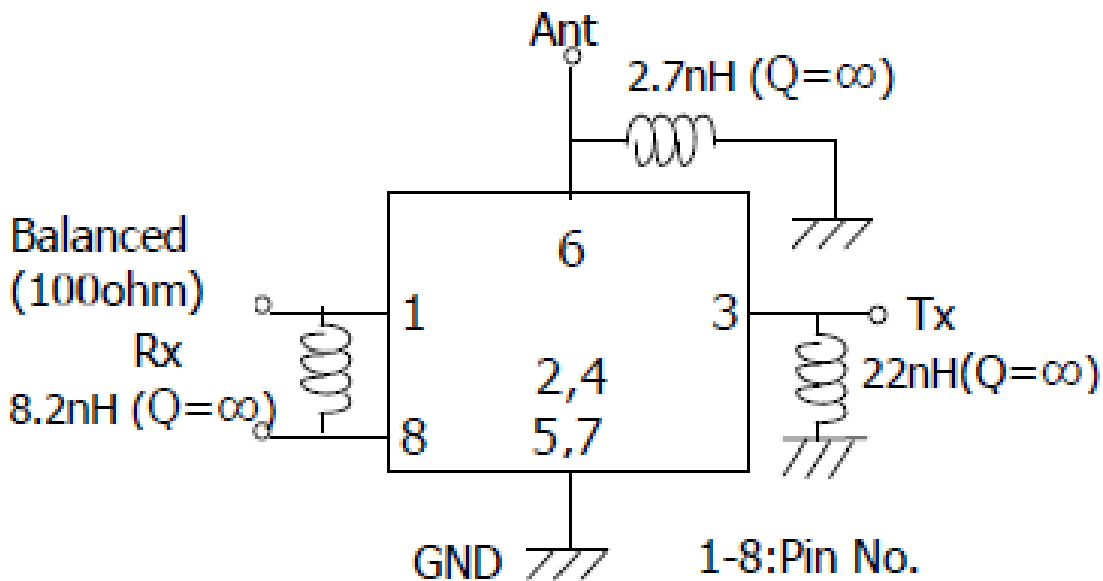
| | | | | | |
|---------------|----|----|----|---|--|
| 1920~1980 MHz | dB | 45 | 49 | - | |
| 1980~2025 MHz | dB | 20 | 41 | - | |
| 2400~2500 MHz | dB | 30 | 40 | | |

Tx to Rx

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

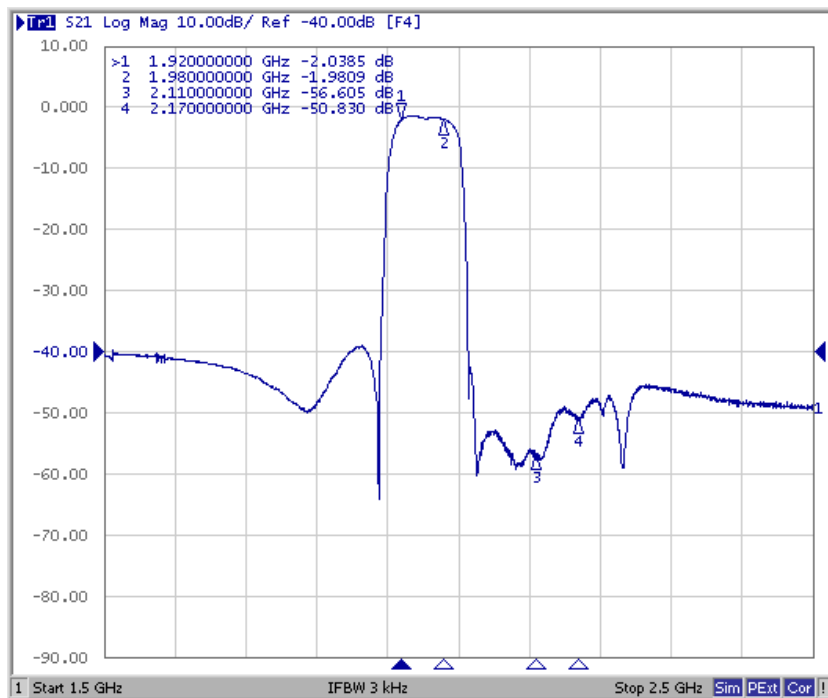
(*1) Specification of insertion loss excludes loss that comes from the test board

Evaluation Circuit

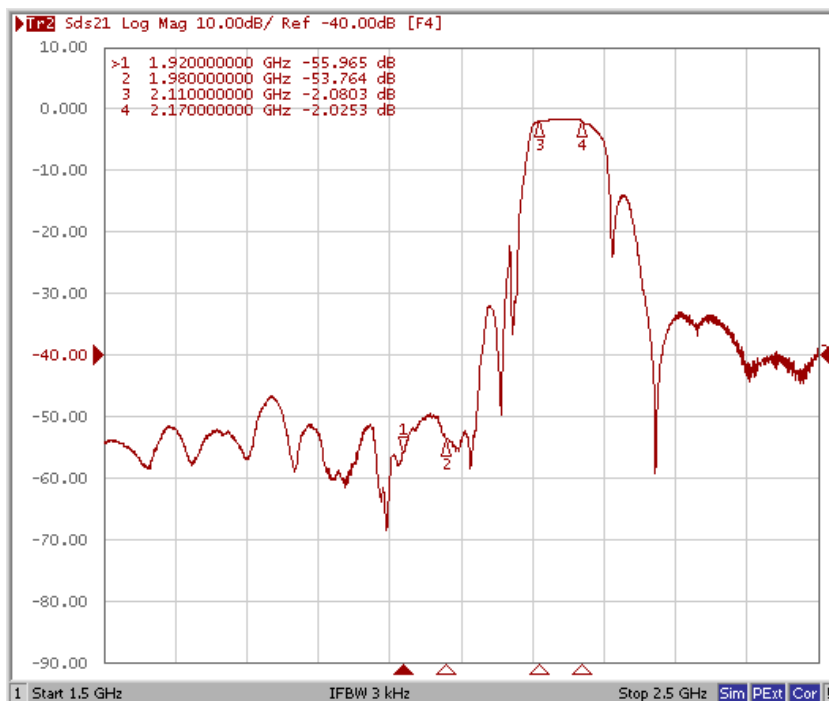


FREQUENCY CHARACTERISTICS:

Tx to Ant

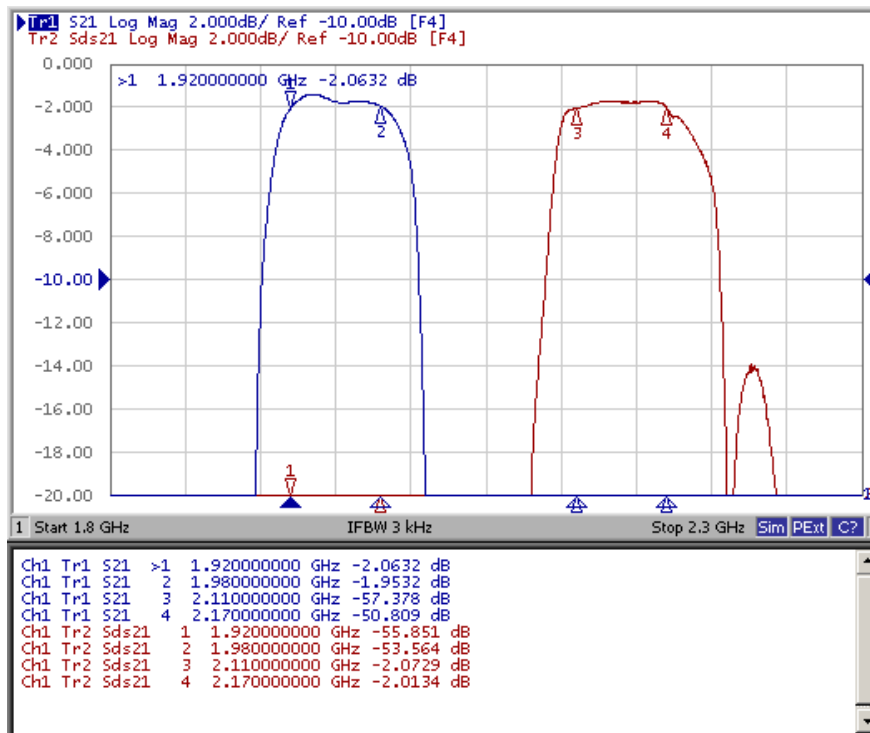


Ant to Rx

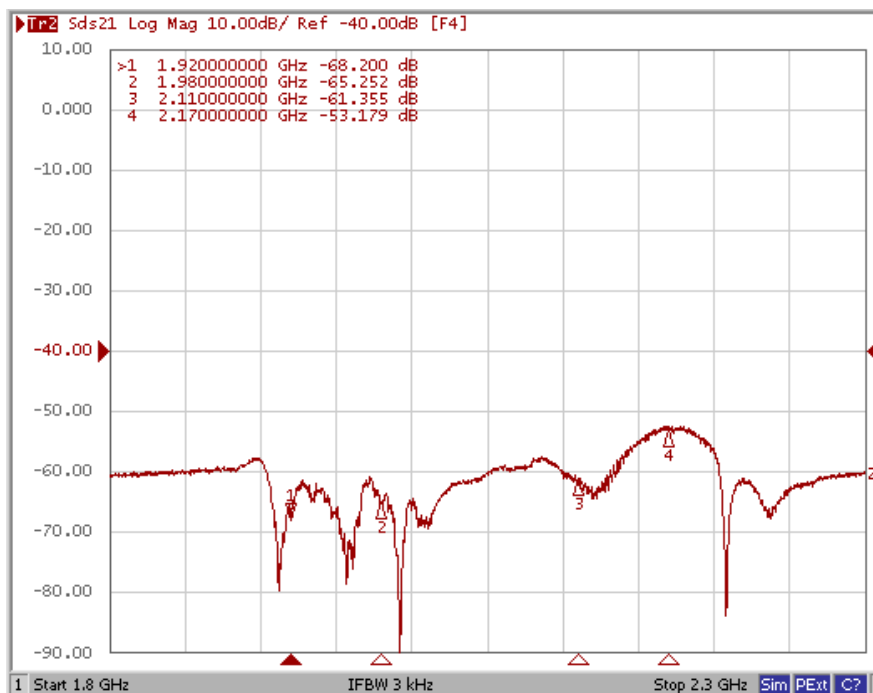


These data exclude loss that comes from the test board.

Tx to Ant ,Ant to Rx

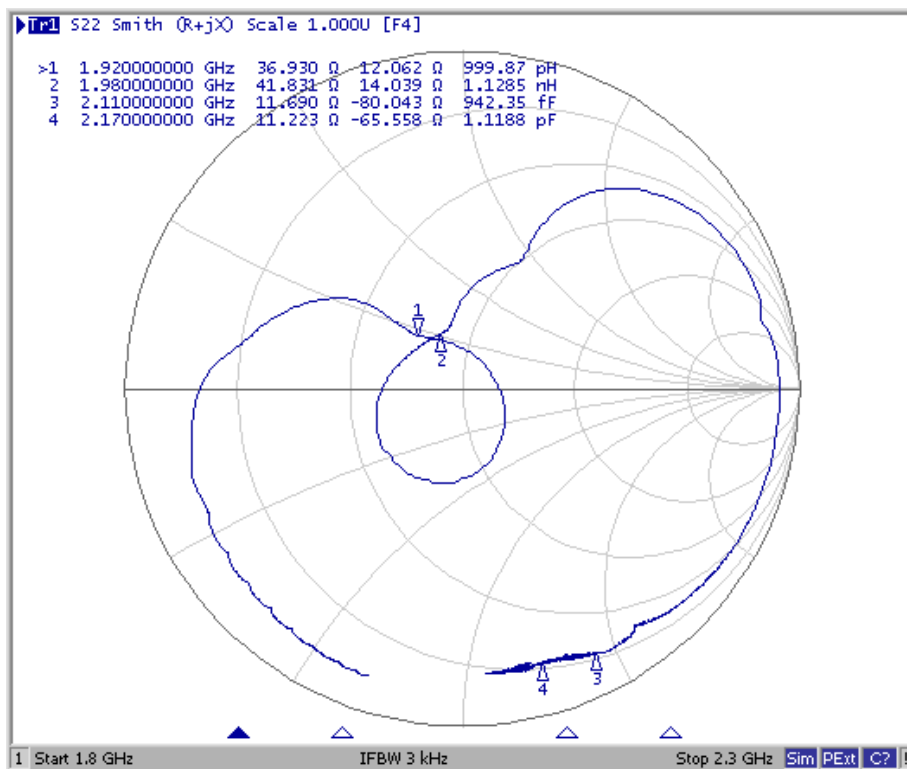
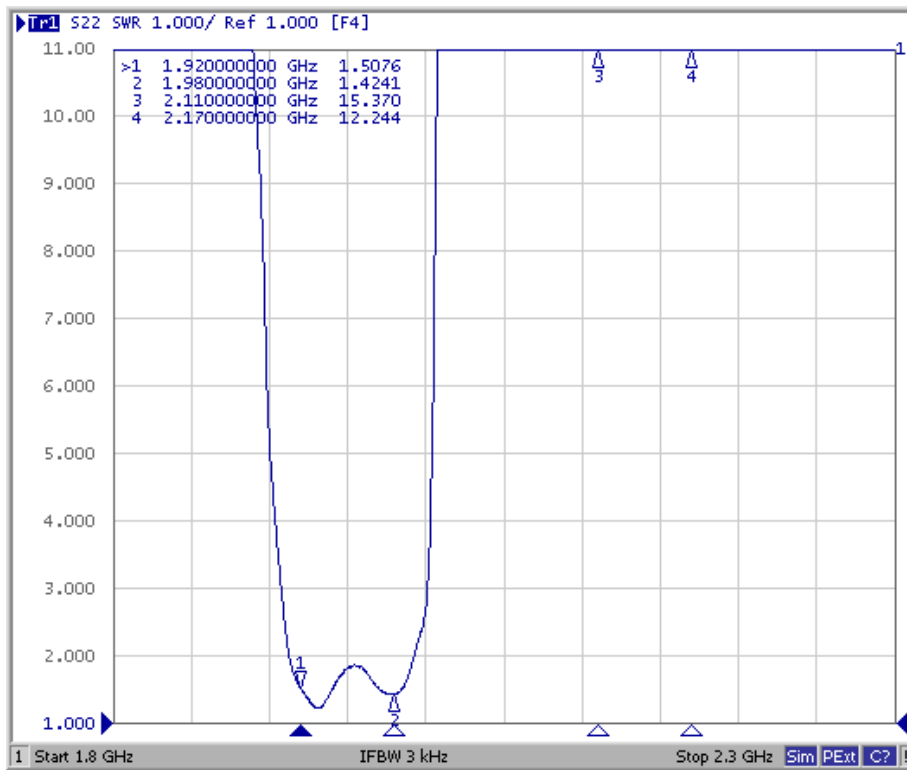


Tx to Rx Isolation

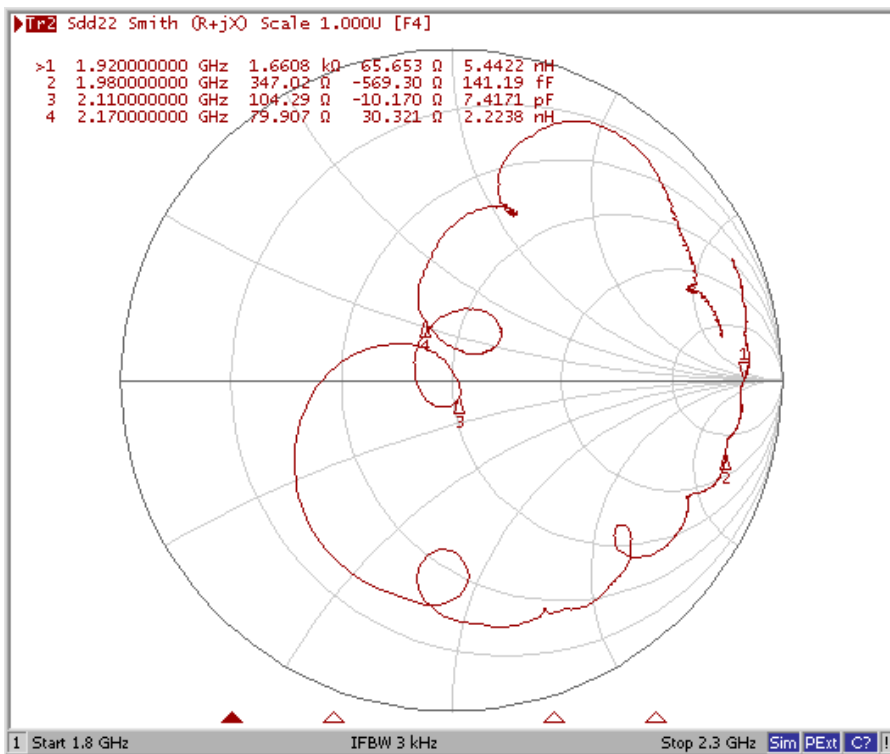
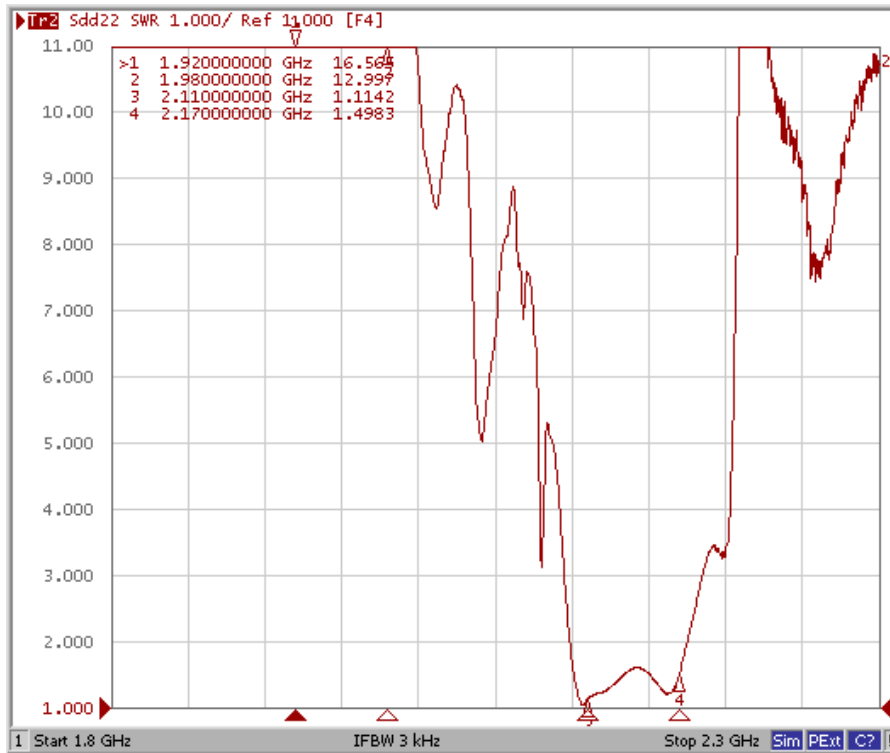


These data exclude loss that comes from the test board.

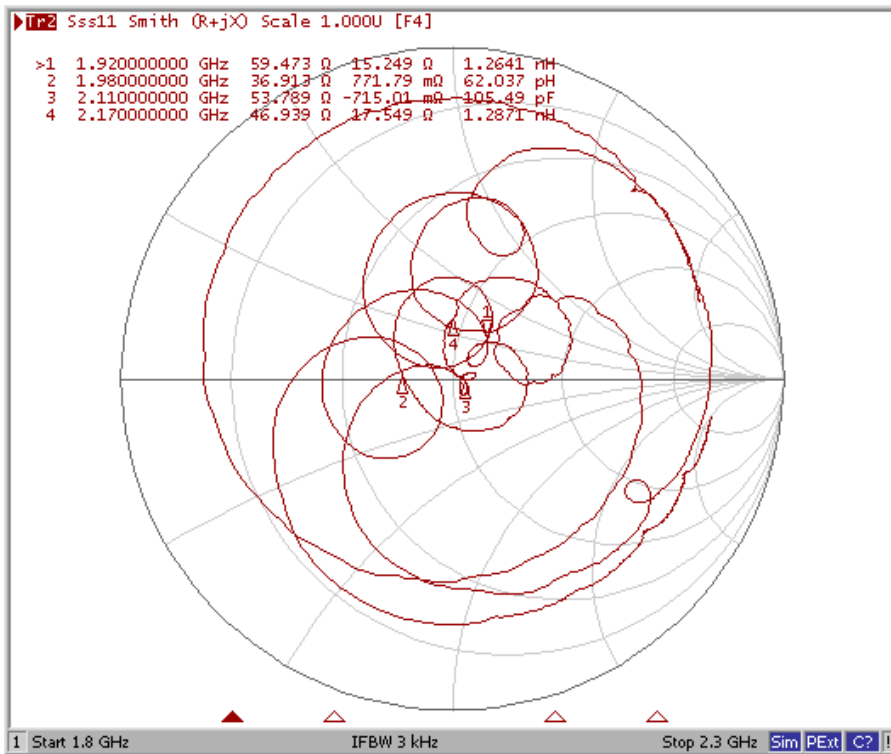
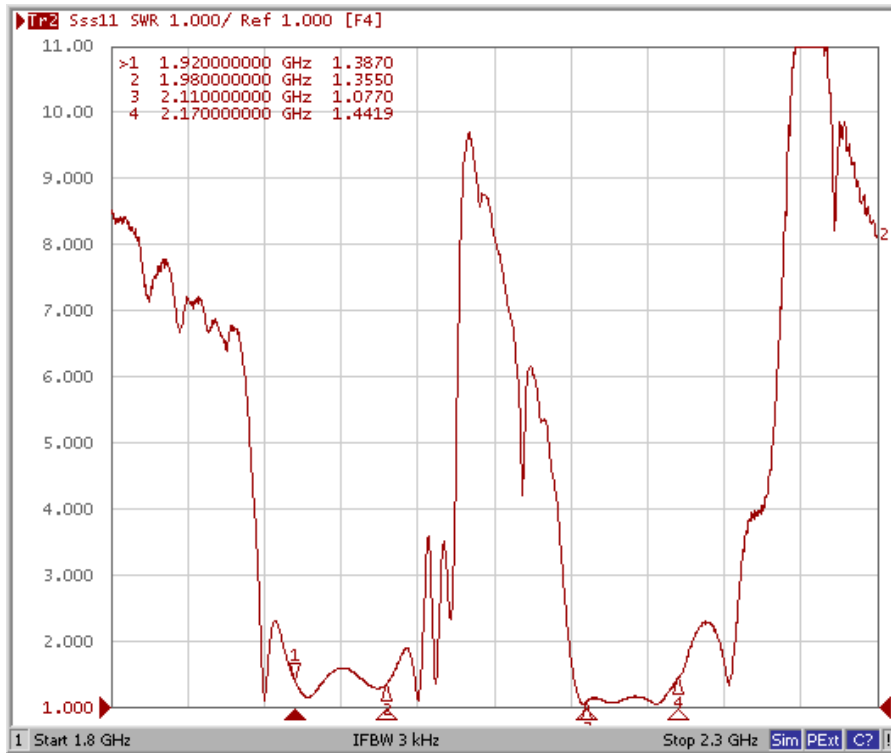
Tx Port



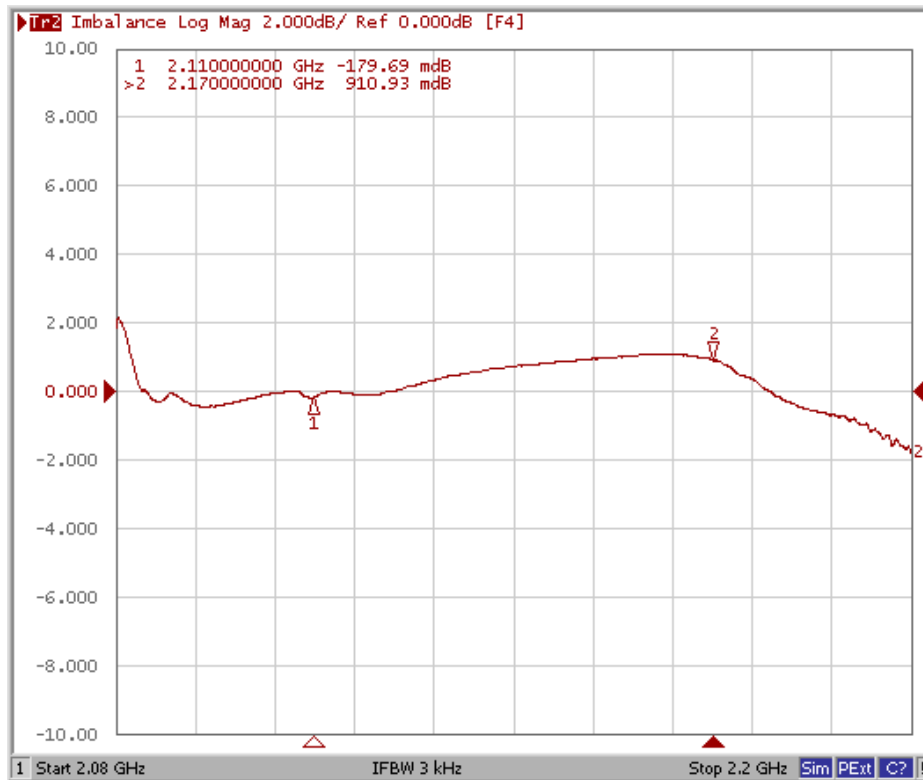
Rx Port



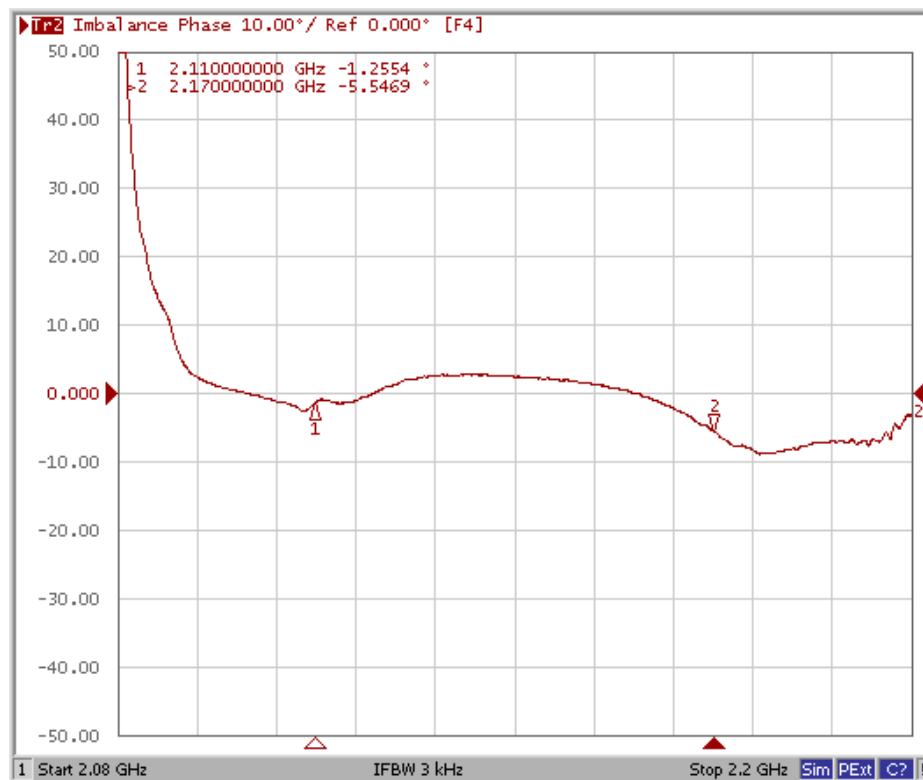
Ant Port



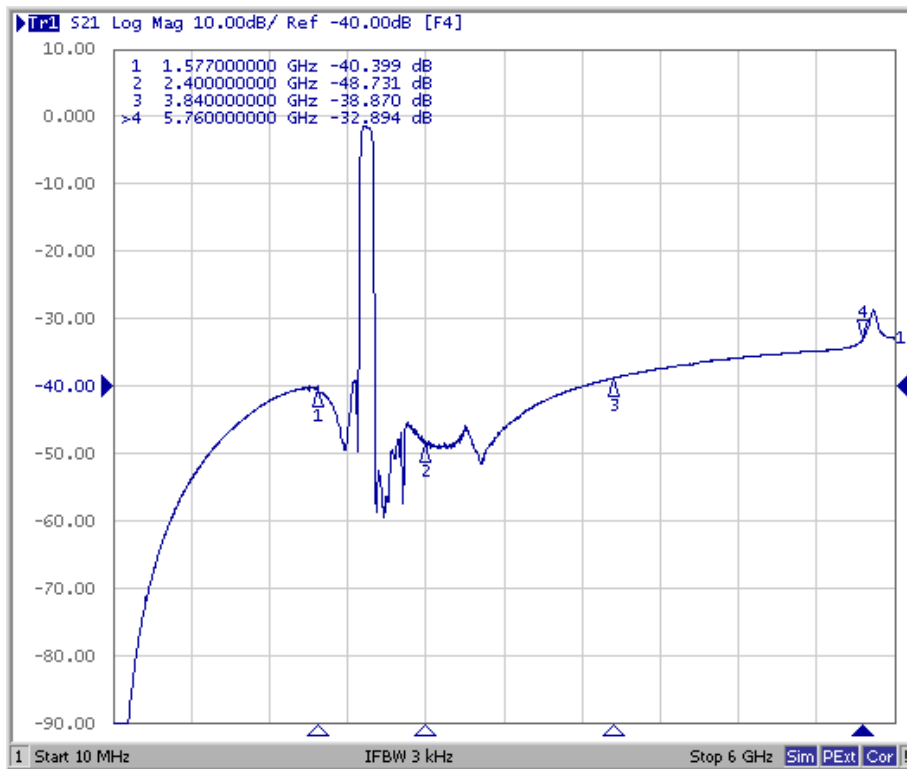
Ant to Rx (Amplitude balance)



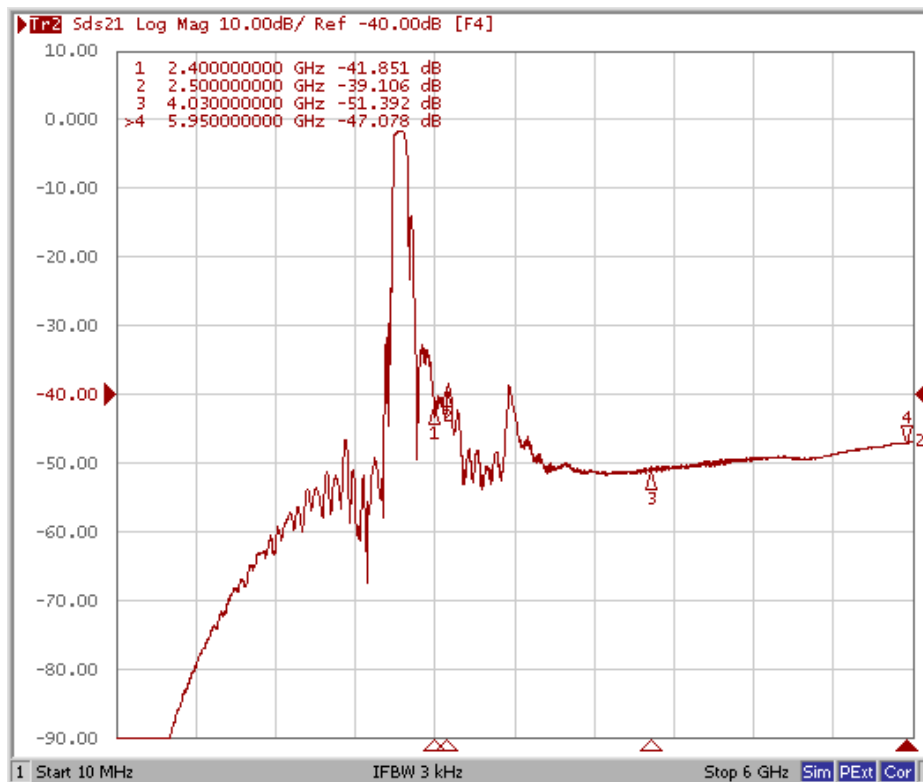
Ant to Rx (Phase balance)



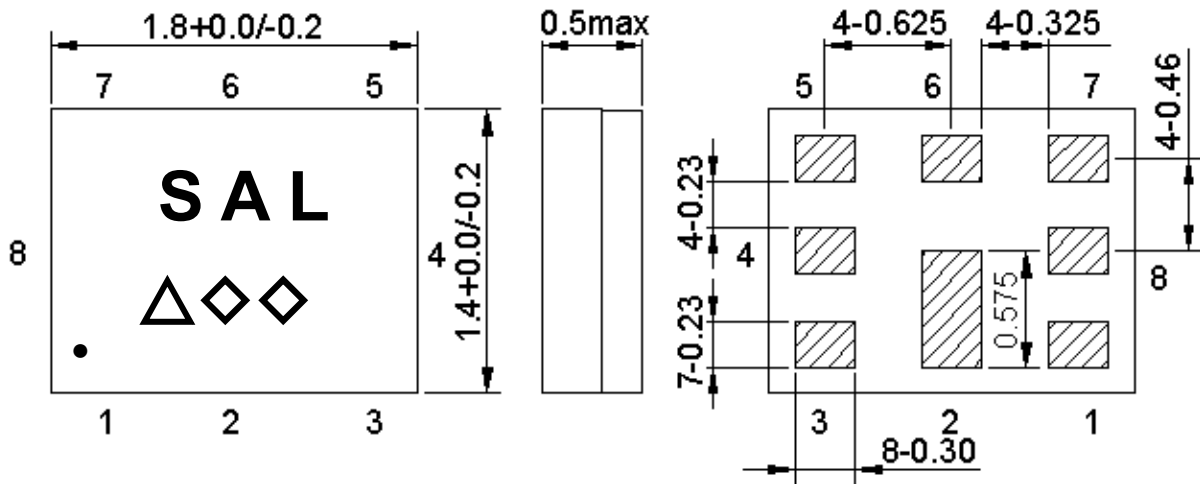
Tx to Ant (Wide span)



Ant to Rx (Wide span)



OUTLINE DRAWIN; :



Marking name : SAL

△: Date code(2016 May → s ,....., 2019 Dec→m.)

◇◇: Lot Code.

Product Date Code. Follow below table.

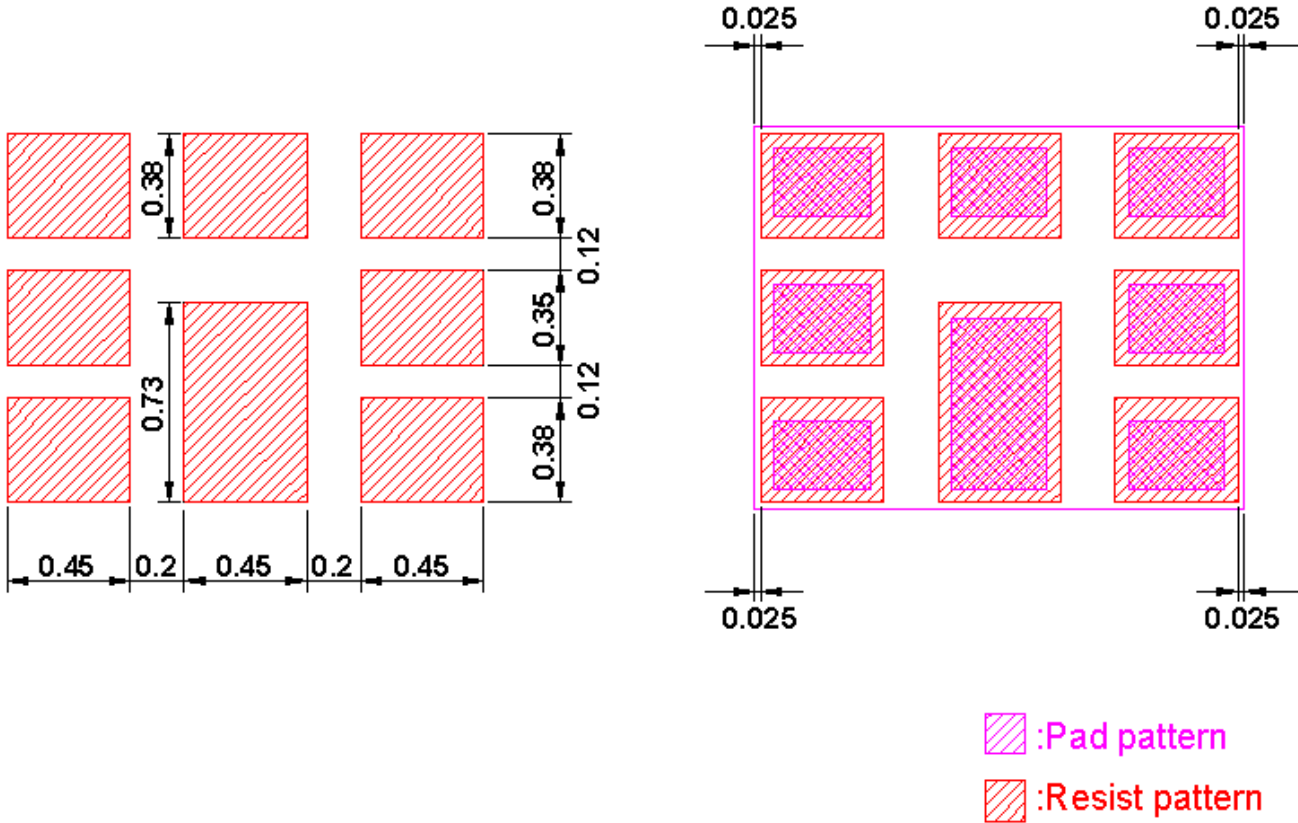
| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2016 | n | p | q | r | s | t | u | v | w | x | y | z |
| 2017 | A | B | C | D | E | F | G | H | J | K | L | M |
| 2018 | N | P | Q | R | S | T | U | V | W | X | Y | Z |
| 2019 | a | b | c | d | e | f | g | h | j | k | l | m |

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

FOOTPRINT:



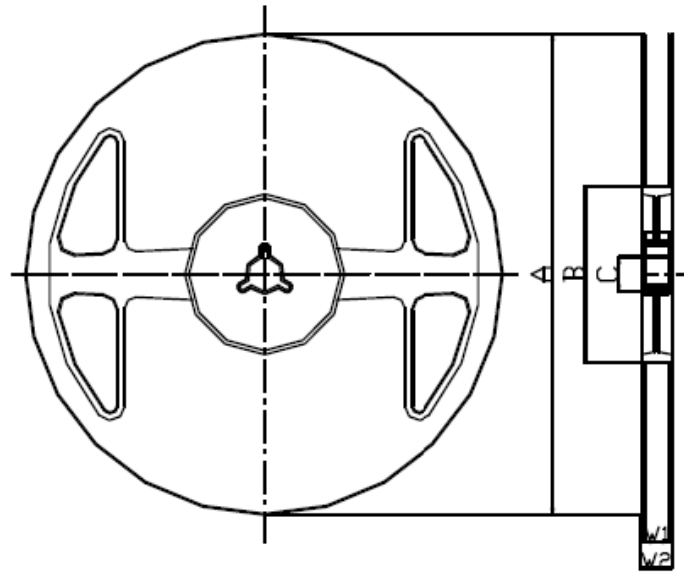
PACKING:

Reel Count:

7" = 3000

13" = 10,000

REEL DIMENSION



Materials of Reel

Material : Polystyrene + Carbon

Characteristics : Conforms to EIAJ-ET-7200A

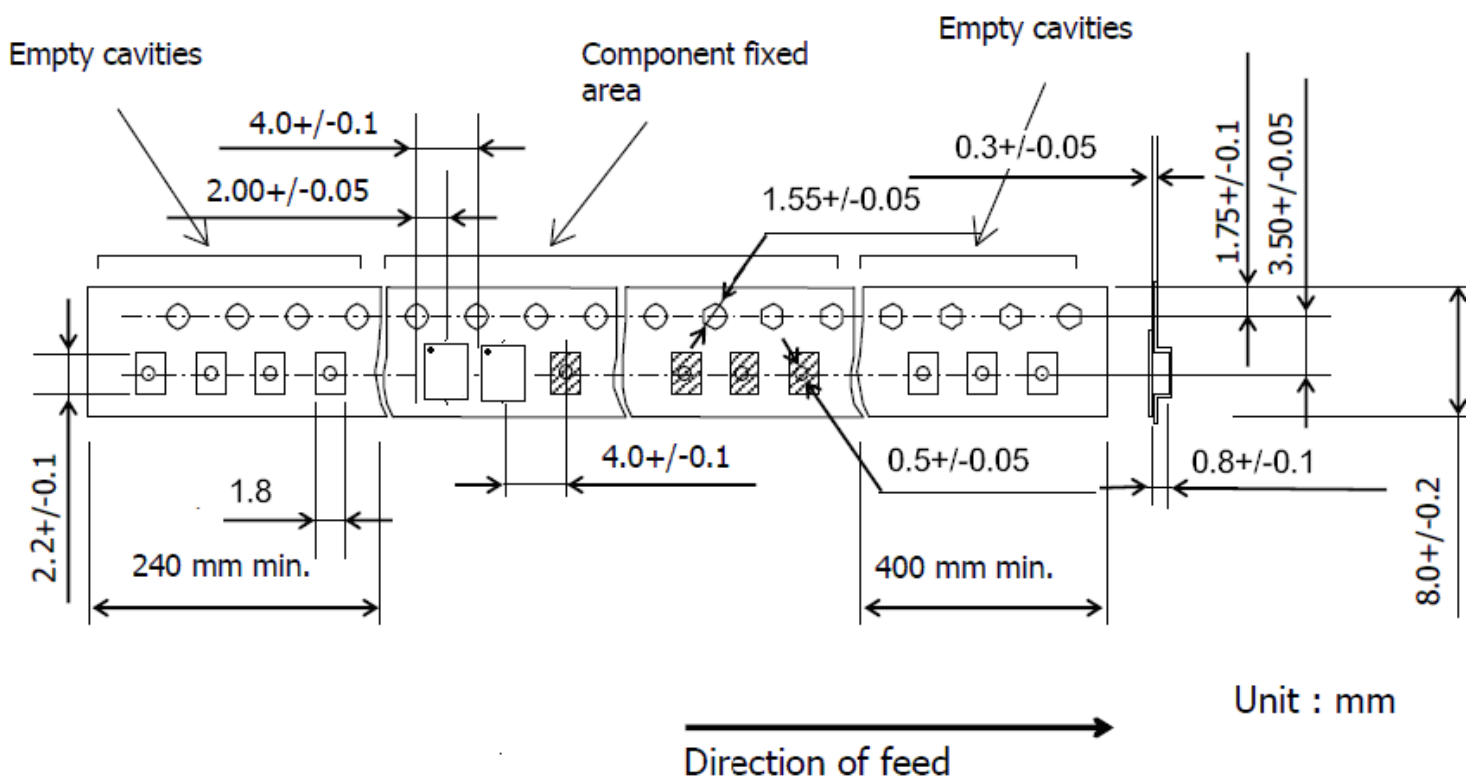
Color : Black

Surface resistance (reference value) : $10^9\Omega/\text{sq}$ Max.

Unit : mm

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

TAPE DIMENSION



Unit : mm

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. 10sec).
4. Time : 2 times.

