

SM1814

MAXIMUM RATING:

- Operating temperature range: -40 °C to +85 °C
- Storage temperature range: -55 °C to +125 °C
- Tx Input power : 29dBm (Ta=+50°C,50000h) 3.1Rx Input power : 15dBm (Ta=+50°C,50kh,CW)
- Maximum DC Voltage: +/-3 V
- Moisture Sensitivity Level: Level 1 (MSL 1)
- ESD 100V(MM) 200V(HBM)
- AEC-Q200 Qualified

ELECTRICAL CHARACTERISTICS:

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

Terminating impedance (Rx Port): 50 Ω (Single-ended)

Terminating impedance (Ant Port): 50//12nH Ω (Single-ended)

Tx to ANT (f_{T0}=707.5 MHz)

| Parameters Description | | Unit | Min | Typ | Max | Remarks |
|------------------------|------------|------------|-----|------|------|---------|
| Insertion Loss(*1) | 699~716MHz | dB | - | 1.65 | 2.35 | |
| Amplitude ripple | 699~716MHz | dB | - | 0.8 | 1.5 | |
| VSWR | ANT | 699~716MHz | - | 1.8 | 2.1 | |
| | Tx | 699~716MHz | - | 1.9 | 2.2 | |
| Attenuation: | | | | | | |
| 729 ~ 746 MHz | | dB | 45 | 54 | - | |
| 746 ~ 768 MHz | | dB | 30 | 46 | - | |
| 768 ~ 805 MHz | | dB | 25 | 41 | - | |
| 869 ~ 894 MHz | | dB | 35 | 44 | - | |
| 1398 ~ 1432 MHz | | dB | 30 | 46 | - | |
| 1559 ~ 1606 MHz | | dB | 40 | 46 | - | |
| 2097 ~ 2155 MHz | | dB | 35 | 43 | - | |
| 2400 ~ 2484 MHz | | dB | 30 | 55 | - | |
| 2796 ~ 2864 MHz | | dB | 15 | 41 | - | |
| 4900 ~ 5850 MHz | | dB | 5 | 12 | - | |

ANT to Rx (f_{T0}=737.5 MHz)

| Parameters Description | | Unit | Min | Typ | Max | Remarks |
|------------------------|---------------|------|-----|------|------|---------|
| Insertion Loss | 729 ~ 746 MHz | dB | - | 1.65 | 2.35 | |
| Amplitude ripple | 729 ~ 746 MHz | dB | - | 0.5 | 1.5 | |
| VSWR | ANT | - | | 1.6 | 2.0 | |
| | Rx | | | 1.9 | 2.2 | |
| Attenuation: | | | | | | |
| 699 ~ 716 MHz | | dB | 55 | 62 | - | |
| 776 ~ 805 MHz | | dB | 35 | 40 | - | |
| 814 ~ 960 MHz | | dB | 40 | 55 | | |
| 1710 ~ 1755 MHz | | dB | 40 | 54 | | |
| 1850 ~ 1920 MHz | | dB | 40 | 52 | - | |
| 2187 ~ 2238 MHz | | dB | 40 | 51 | - | |
| 2400 ~ 2500 MHz | | dB | 40 | 49 | | |
| 4900 ~ 5950 MHz | | dB | 35 | 46 | | |

Tx to Rx

| | | | | | | |
|-----------|---------------|----|----|----|---|--|
| Isolation | 699 ~ 716 MHz | dB | 60 | 63 | - | |
| | 729 ~ 746 MHz | dB | 55 | 58 | - | |

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

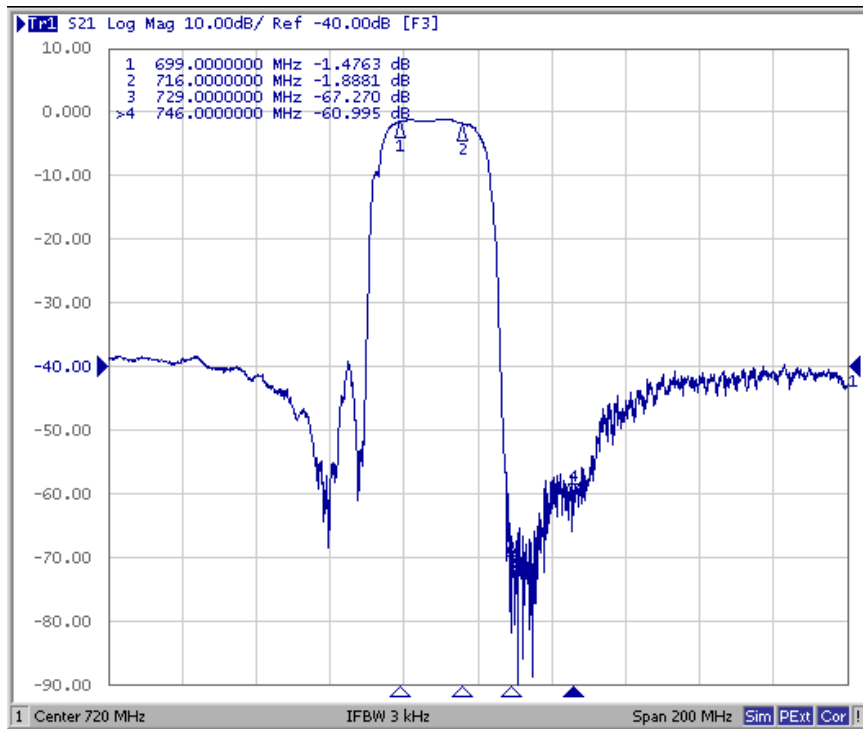


CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

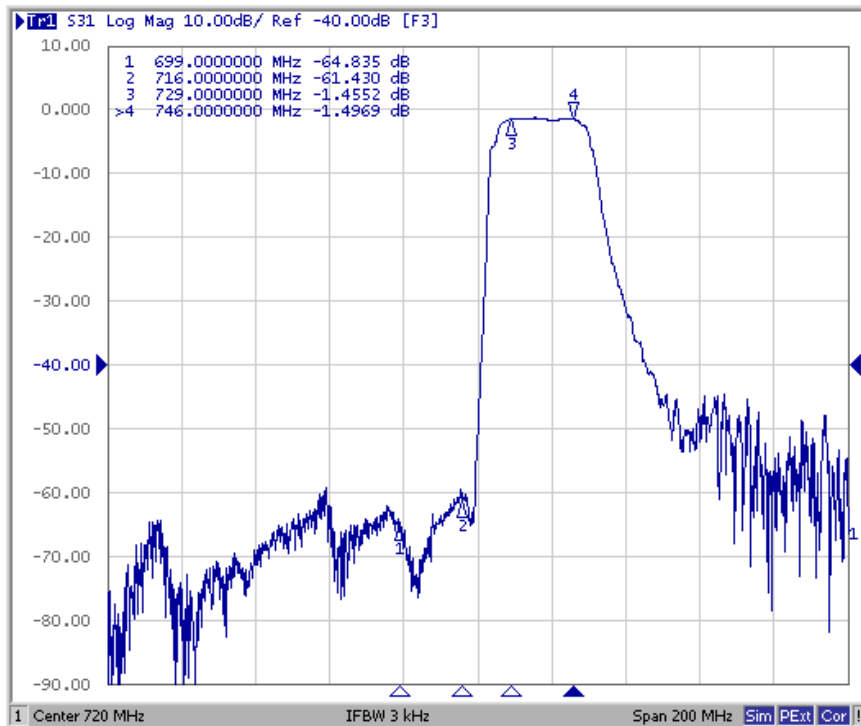
NOTES:

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.

FREQUENCY CHARACTERISTICS: Tx to Ant

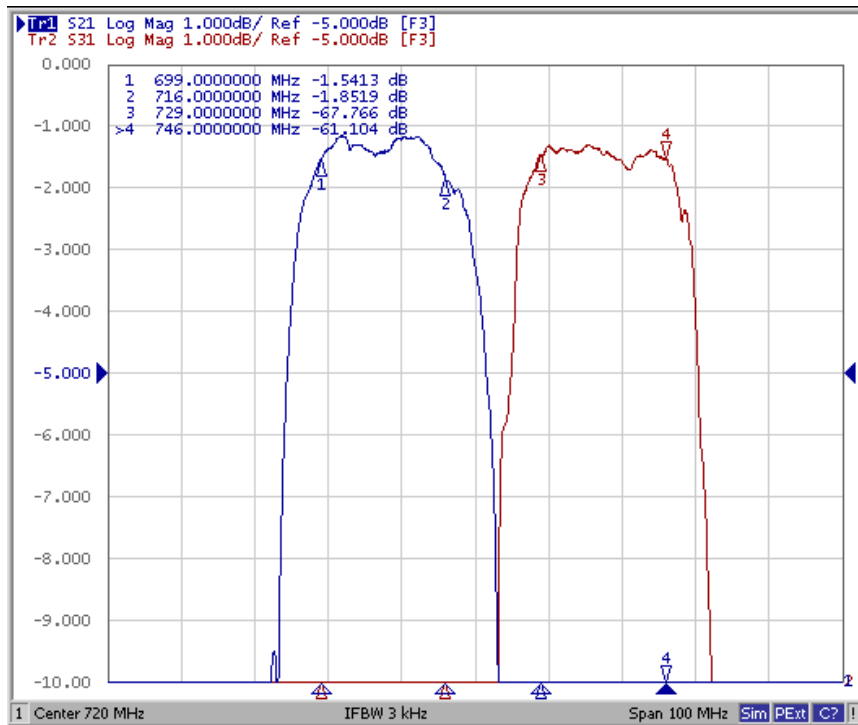


Ant to Rx

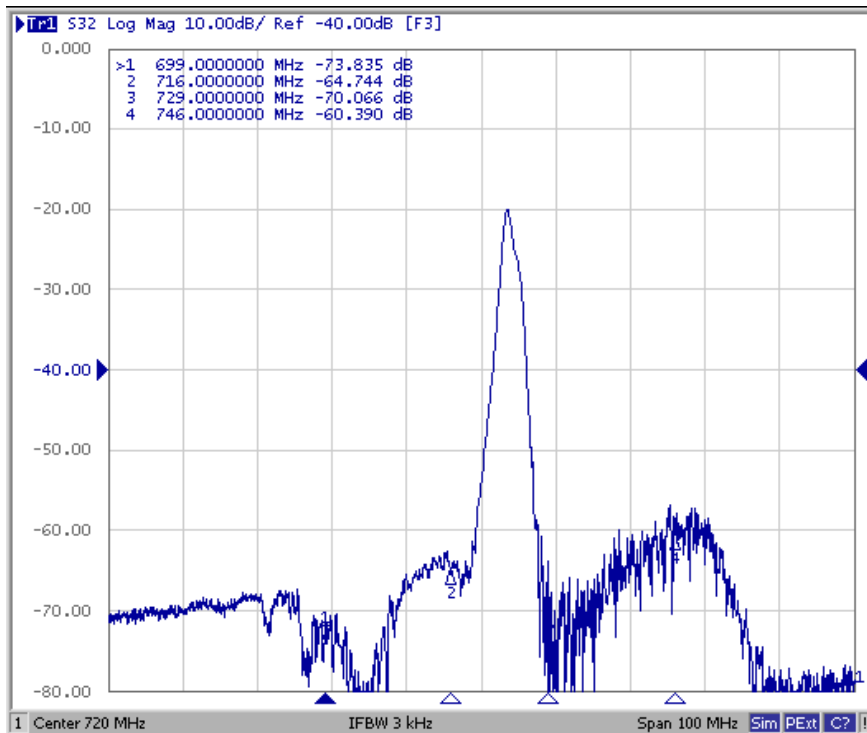


These data exclude loss that comes from the test board

Tx to Ant, Ant to Rx

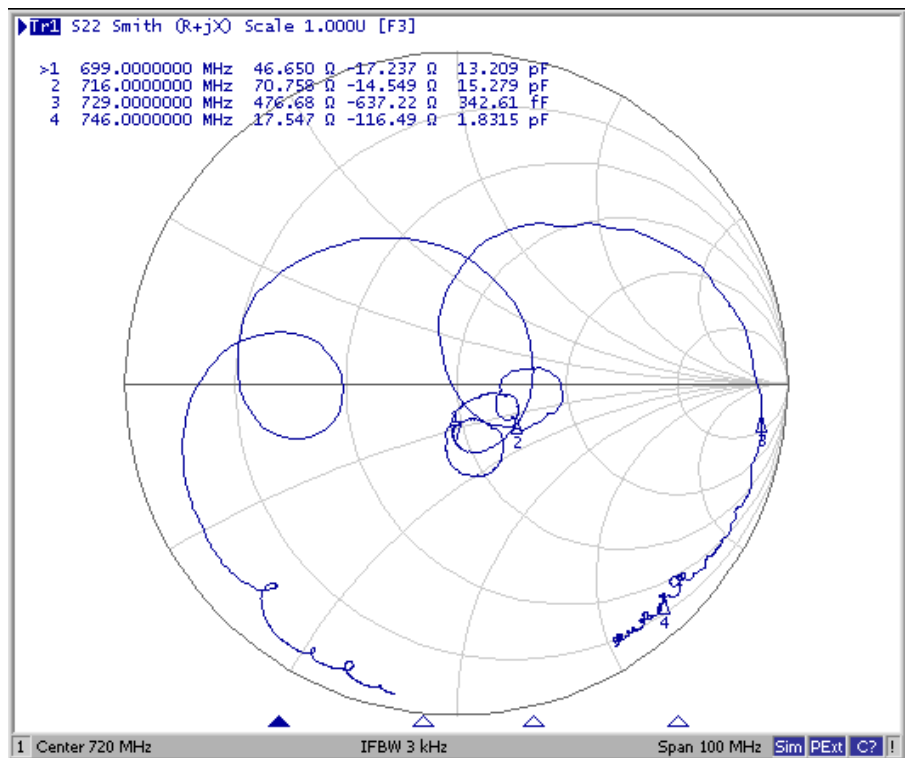
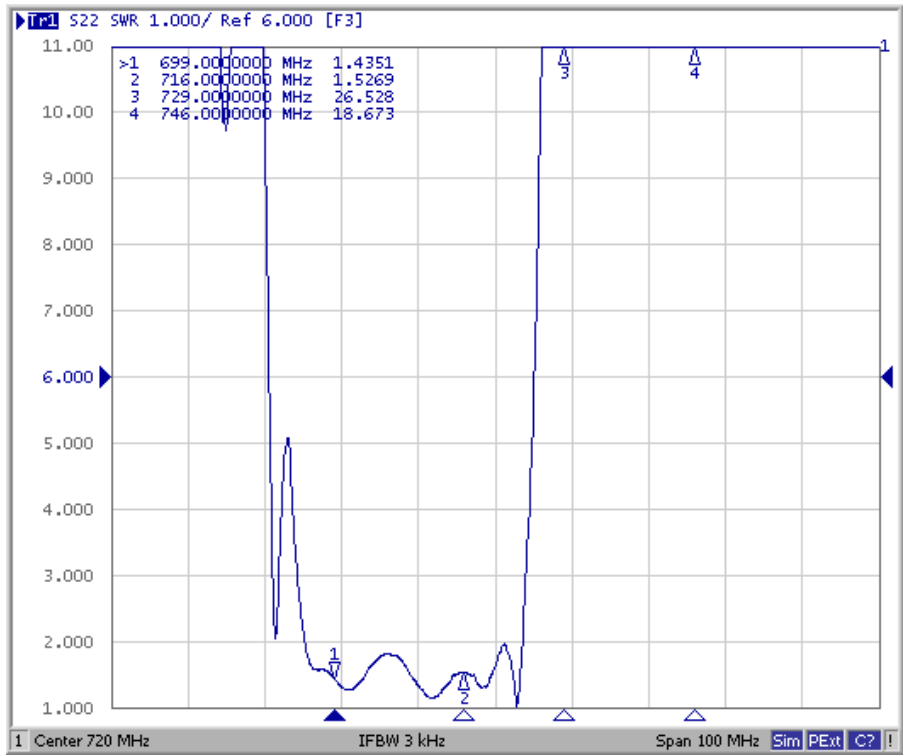


Tx to Rx Isolation

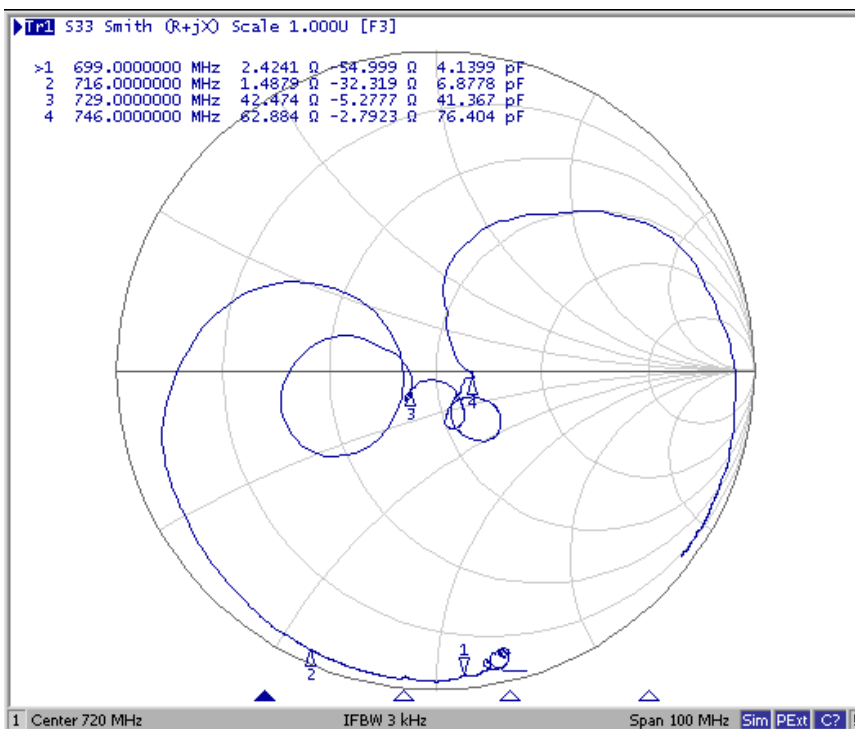
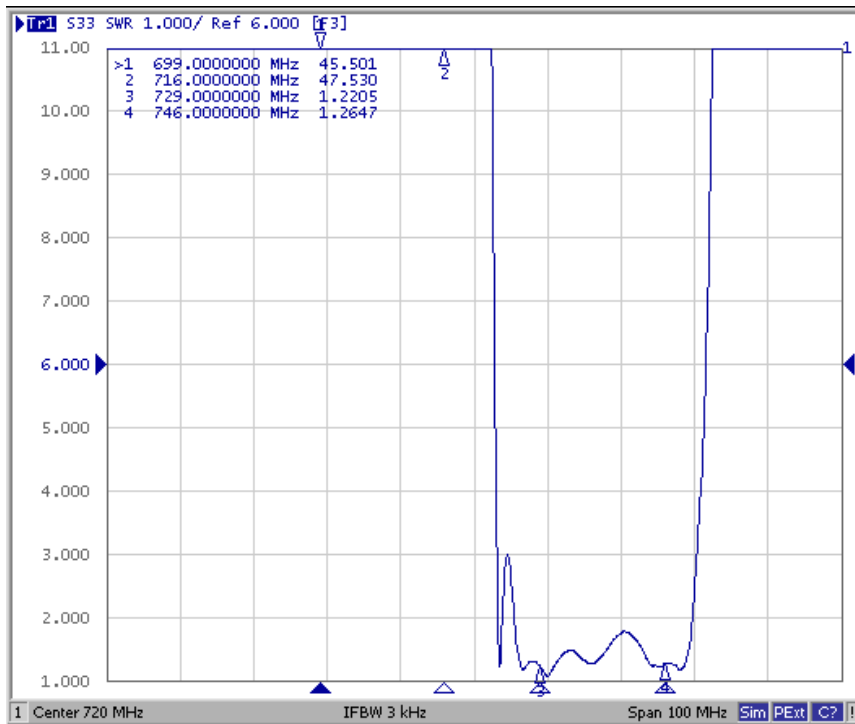


These data exclude loss that comes from the test board.

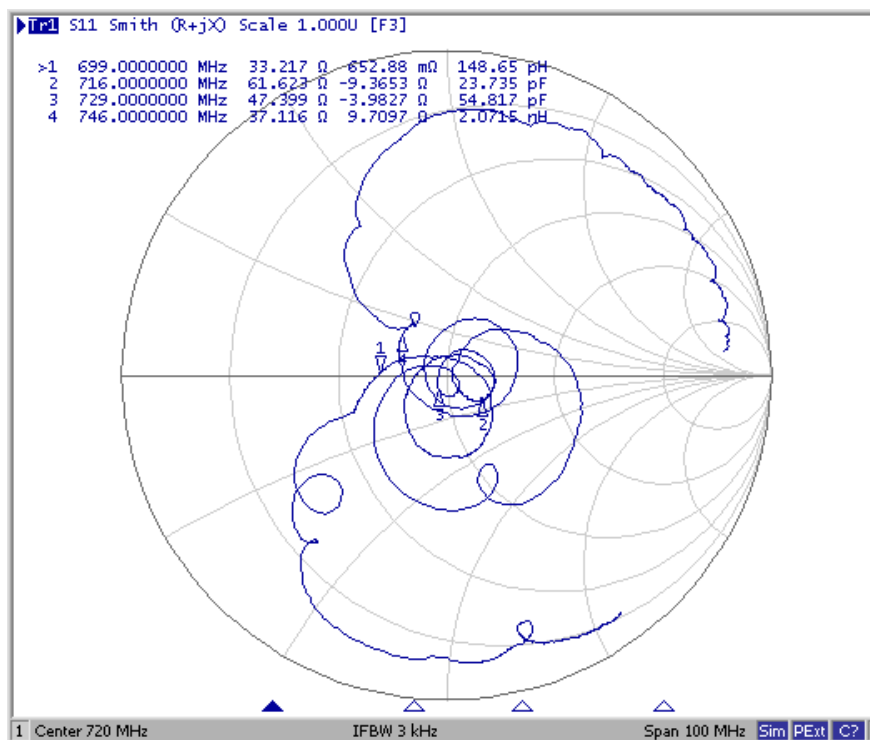
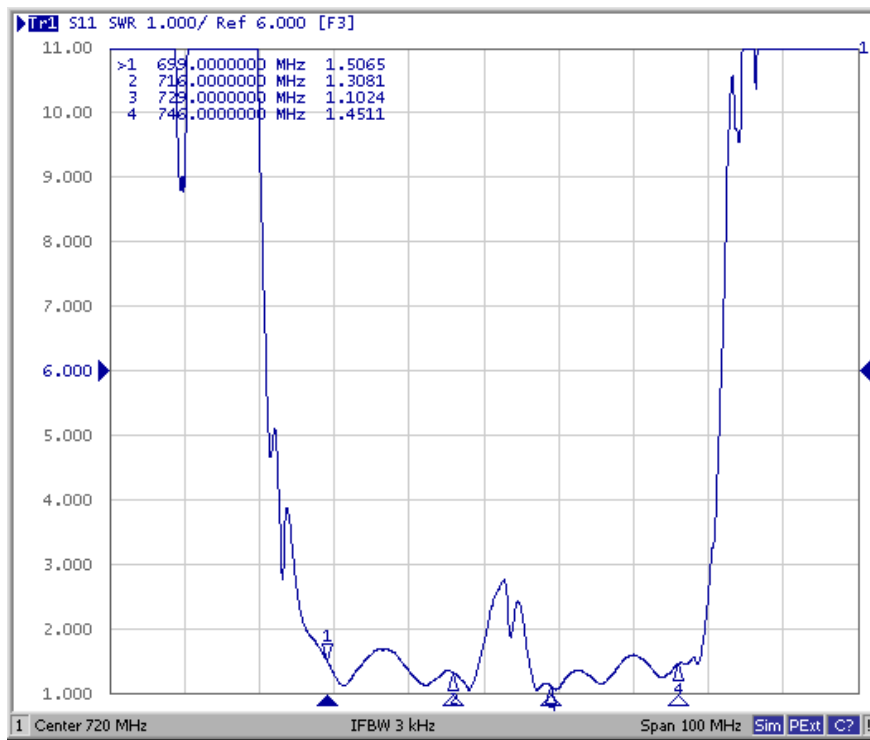
Tx Port



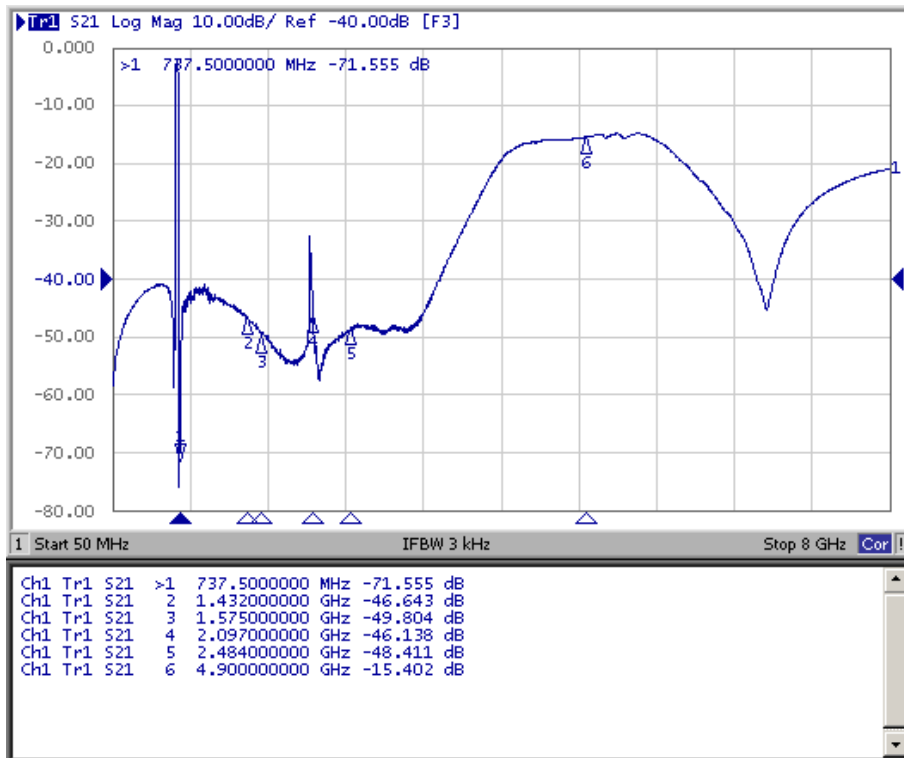
Rx Port



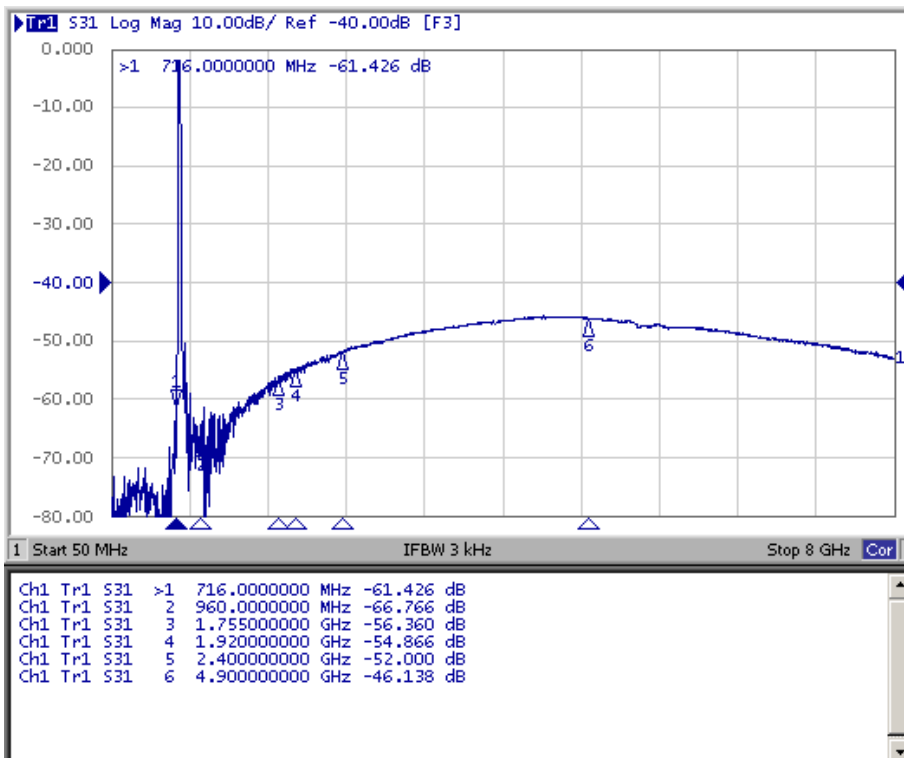
Ant Port



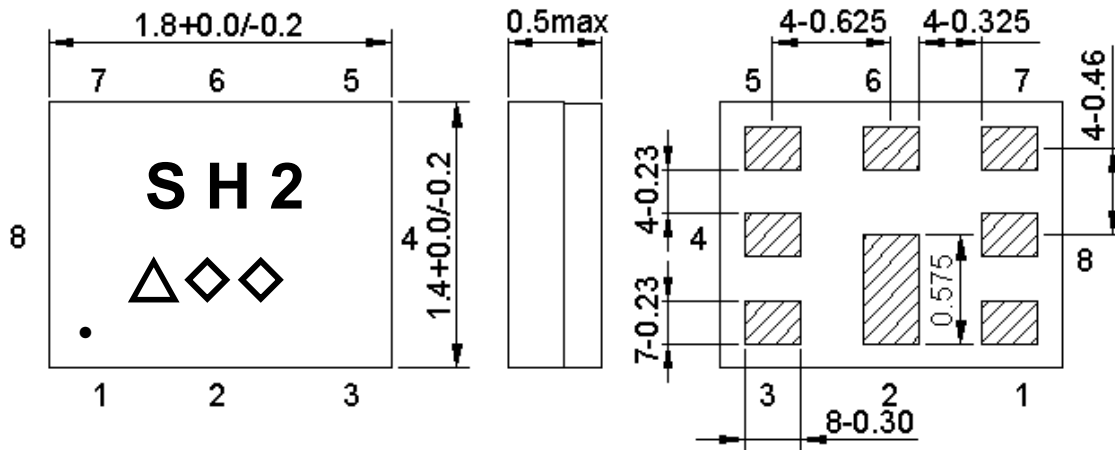
Tx to Ant (Wide Span)



Ant to Rx (Wide Span)



OUTLINE DRAWING (Mass Production):



Not Specified Tolerance : ± 0.05 mm

Coplanarity : 0.1 mm max.

1 to 8 : Pin No.

Unit : mm

Marking name : **SH2**

Δ : Date code(2016 May \rightarrow s ,....., 2019 Dec \rightarrow m.)

$\diamond\diamond$: Lot Code.

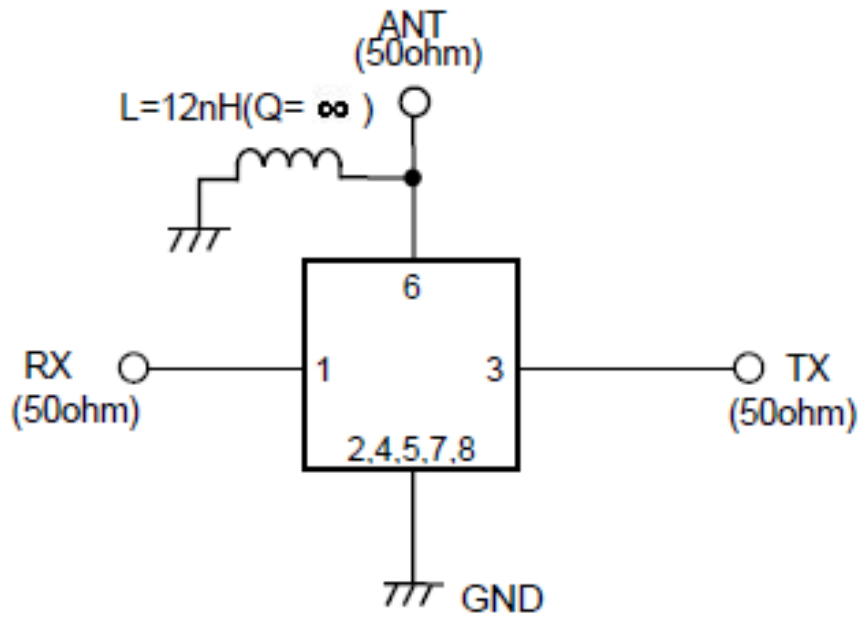
Product Date Code. Follow below table.

| 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 |

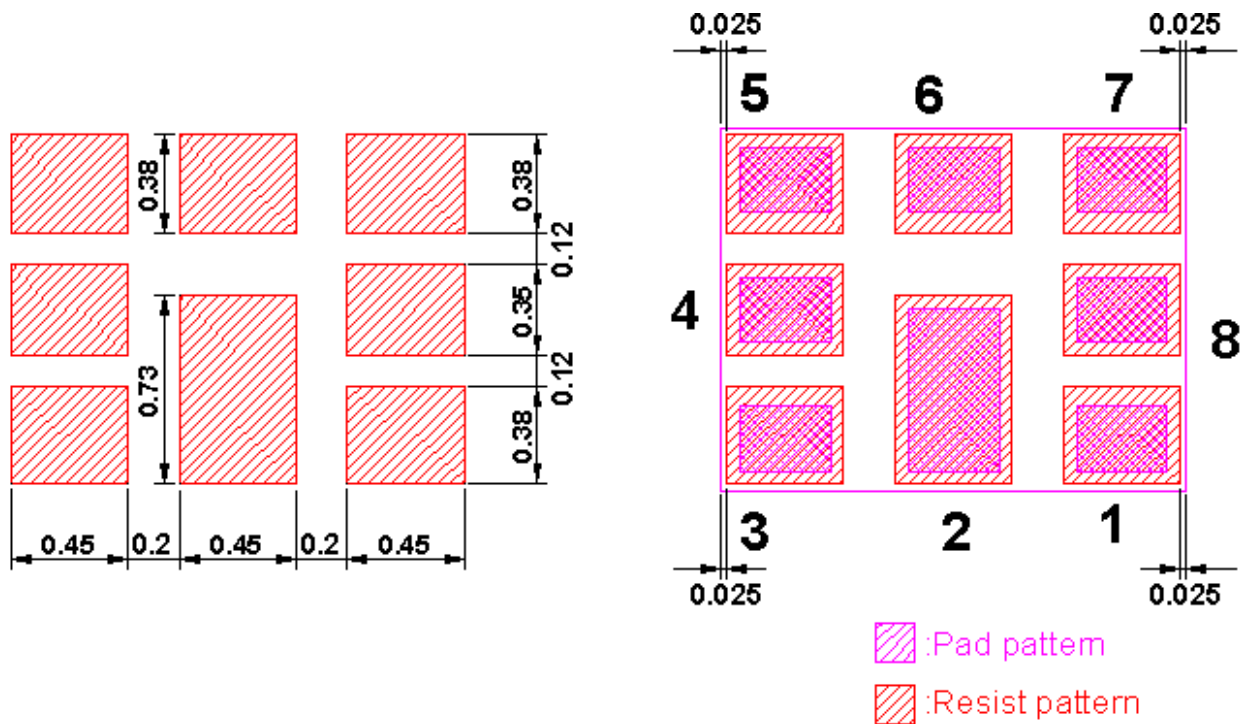
Pin Configuration:

| Pin No. | Pin Name | Description |
|---------|----------|-----------------|
| 1 | Rx | Receive 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 |

Evaluation Circuit

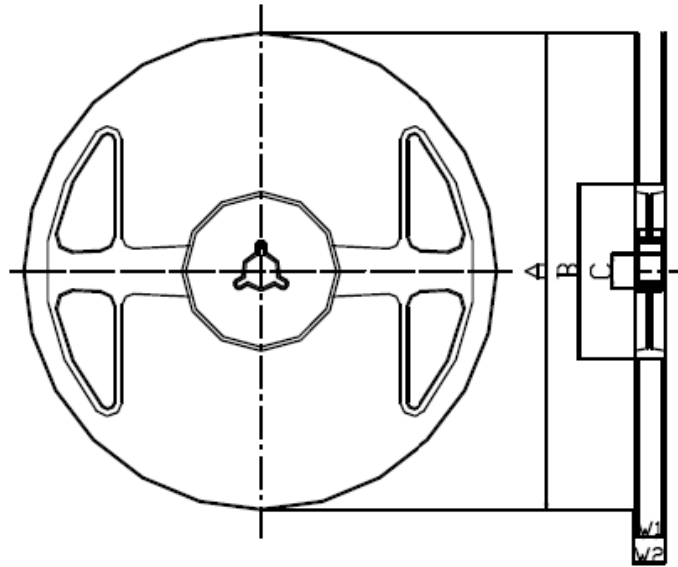


FOOTPRINT:



PACKING:
REEL DIMENSION

Reel Count:
7" = 3000
13" = 10,000



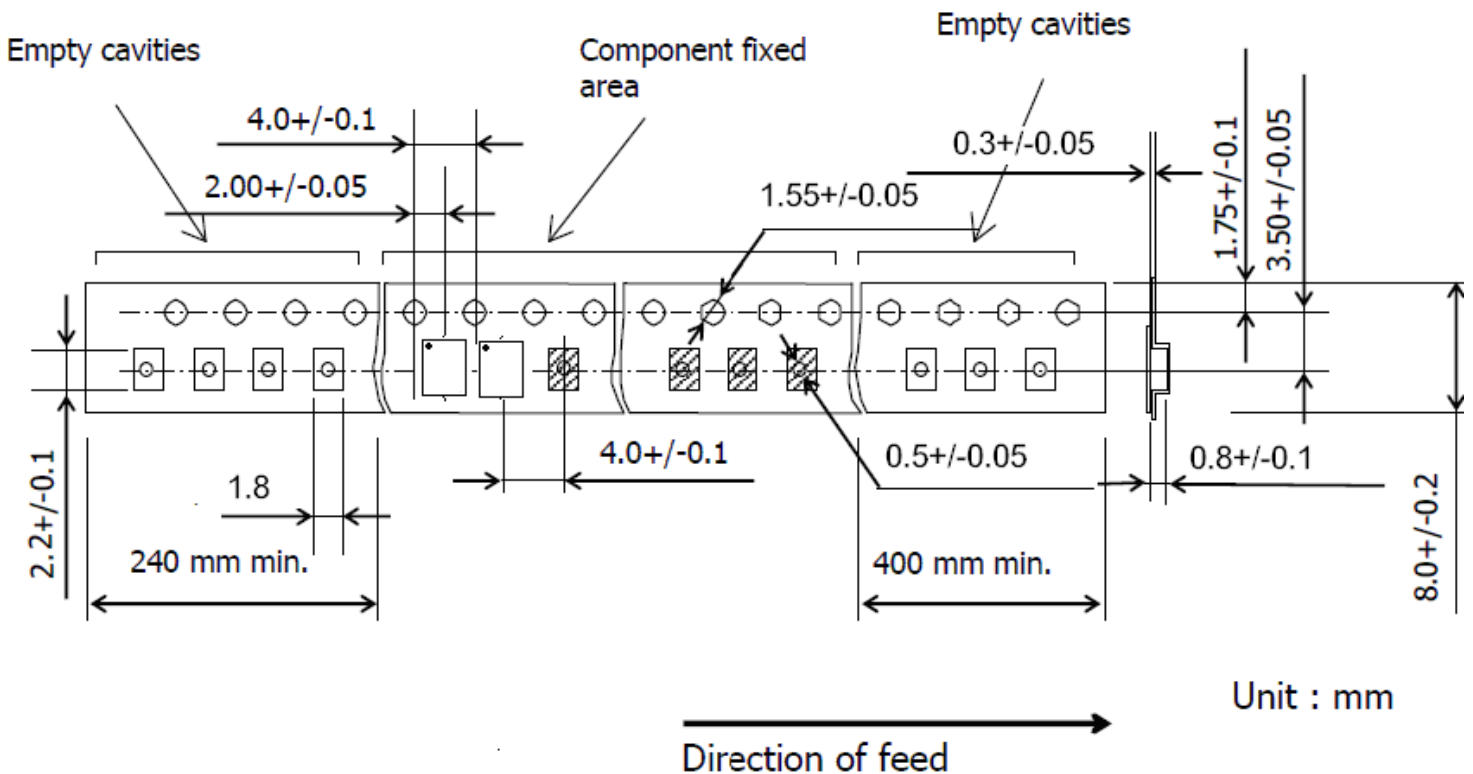
Materials of Reel

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.

