# Datasheet of SAW Device

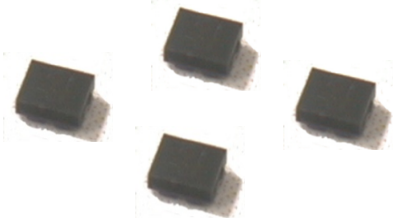
## SAW Duplexer

for Band7 / Unbalanced / LR /1814

Murata PN: SAYEY2G53BC0F0A

## ■ Feature

- LTE-A
- High WiFi Attenuation
- Low Insertion Loss



Note : Murata SAW Component is applicable for Cellular /Cordless phone (Terminal) relevant market only.
Please also read caution at the end of this document.

# SAYEY2G53BC0F0A ( Band7 / Unbalanced / LR / 1814 )

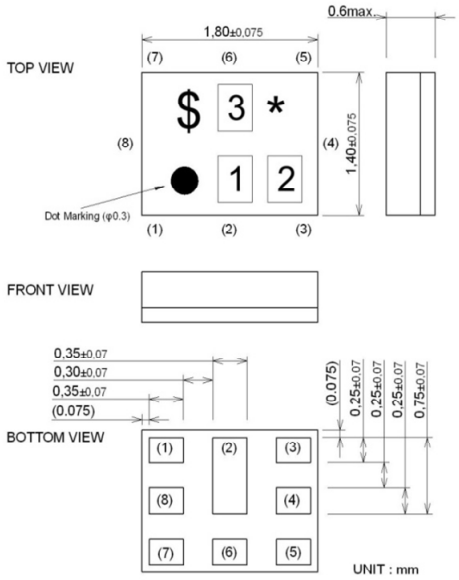
| Revision Number | Date | Description |
|---|---|---|
| SAYEY2G53BC0F0A_rev. A | Feb-19-2015 | ■ Initial Release |
| SAYEY2G53BC0F0A_rev. B | Apr-01-2015 | ■ Updated for MP |
| SAYEY2G53BC0F0A_rev. C | Sep-02-2015 | ■ Updated Feature |
| SAYEY2G53BC0F0A_rev. D | Sep-14-2015 | ■ Updated Feature |
| SAYEY2G53BC0F0A_rev. E | Sep-15-2016 | ■ Updated General Information |
| SAYEY2G53BC0F0A_rev. F | Feb-06-2017 | ■ Updated Matching Circuit |
| SAYEY2G53BC0F0A_rev. G | Jul-14-2017 | ■ Updated SPEC |
| SAYEY2G53BC0F0A_rev. H | Jul-24-2017 | ■ Updated General Information |

- Operating temperature : -20 to +85 deg.C
- Storage temperature : -40 to +85 deg.C
- Input Power : +29 dBm 5000 h +50 deg.C
- D.C. Volatage between the terminals : 3V (25+/-2 deg.C)
- Minimum Resistance between the terminals : 10M ohm
- RoHS compliance : Yes
- ESD (ElectroStatic Discharge) sensitive device

# Package Dimensions & Recommended Land Pattern

unit: mm

## Dimensions

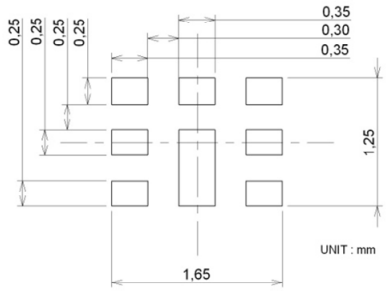



Marking : Laser Printing
* : Month code(Refer to the table A)
$ : Date code(Refer to the table B)
1 : 7
2 : T
3 : A

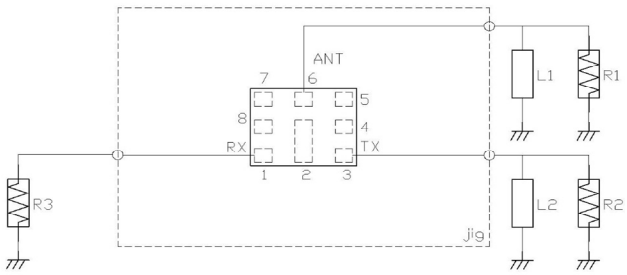
Terminal Number
(6) : Ant
(3) : TX
(1) : RX
Others : GND

Notice) Please refer to Measurement Circuit for Port information in detail.

## Land Pattern




## Measurement Circuit (Top Thru View)




| | |
|---|---|
| R1 : 50 ohm | L1 :2.7nH(Ideal inductor) |
| | :3nH(LQP03TN3N0)<br><Reference> |
| R2 : 50 ohm | L2 :12nH(Ideal inductor) |
| R3 : 50 ohm | |
| | |
| | |
| | |
| | |

# Electrical Characteristic < TX→ANT. >

| TX → ANT. | | | | Characteristics (-20 to +85 deg.C) | | | Unit | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | min. | typ.* | max. | | |
| Center Frequency | | | | | 2535 | | | |
| Insertion Loss | 2500.25 | to | 2569.75 MHz | | 2.2 | 2.9 | dB | |
| | 2502.5 | to | 2567.5 MHz | | 1.9 | 2.8 | $dB_{INT}$ | Any 4.5MHz |
| Ripple Deviation | 2500.25 | to | 2569.75 MHz | | 1.1 | 2.0 | dB | |
| | 2500.25 | to | 2569.75 MHz | | 0.5 | 1.1 | dB | Any 5MHz |
| VSWR | 2500.25 | to | 2569.75 MHz | | 1.5 | 2.1 | | TX |
| | 2500.25 | to | 2569.75 MHz | | 1.5 | 2.1 | | ANT. |
| Absolute Attenuation | 10. | to | 718. MHz | 30 | 59 | | dB | FM, 921-960MHz, etc |
| | 832. | to | 862. MHz | 30 | 55 | | dB | B20TX |
| | 1226. | to | 1250. MHz | 35 | 48 | | dB | GPS L2 |
| | 1559. | to | 1563. MHz | 38 | 45 | | dB | Compass |
| | 1565.42 | to | 1573.37 MHz | 38 | 44 | | dB | Wideband GPS, lower side-lobe |
| | 1573.37 | to | 1577.47 MHz | 38 | 44 | | dB | Regular GPS, main-lobe |
| | 1577.47 | to | 1585.42 MHz | 38 | 44 | | dB | Wideband GPS, upper side-lobe |
| | 1597.55 | to | 1605.89 MHz | 38 | 44 | | dB | GLONASS |
| | 1605.89 | to | 1680. MHz | 35 | 44 | | dB | |
| | 1710. | to | 1785. MHz | 32 | 44 | | dB | B3/4TX |
| | 1805. | to | 1880. MHz | 32 | 44 | | dB | B3RX |
| | 1900. | to | 1920. MHz | 32 | 44 | | dB | B33 |
| | 2010. | to | 2025. MHz | 32 | 44 | | dB | B34 |
| | 2110. | to | 2170. MHz | 32 | 46 | | dB | B1RX |
| | 2401. | to | 2468. MHz | 40 | 43 | | $dB_{INT}$ | WLAN ch1-10 18MHz-BW |
| | 2451. | to | 2473. MHz | 40 | 53 | | $dB_{INT}$ | WLAN ch11 18MHz-BW |
| | 2456. | to | 2478. MHz | 27 | 53 | | $dB_{INT}$ | WLAN ch12 18MHz-BW |
| | 2461. | to | 2483. MHz | 14 | 38 | | $dB_{INT}$ | WLAN ch13 18MHz-BW |
| | 2401. | to | 2468. MHz | 40 | 43 | | $dB_{INT}$ | +23 to +27deg.C, WLAN ch1-10 18MHz-BW |
| | 2451. | to | 2473. MHz | 40 | 53 | | $dB_{INT}$ | +23 to +27deg.C, WLAN ch11 18MHz-BW |
| | 2456. | to | 2478. MHz | 40 | 53 | | $dB_{INT}$ | +23 to +27deg.C, WLAN ch12 18MHz-BW |
| | 2461. | to | 2483. MHz | 23 | 38 | | $dB_{INT}$ | +23 to +27deg.C, WLAN ch13 18MHz-BW |
| | 2590. | to | 2595. MHz | 2.0 | 3.6 | | dB | B38 |
| | 2595. | to | 2620. MHz | 2.4 | 8.4 | | dB | B38 |
| | 2620. | to | 2690. MHz | 45 | 57 | | dB | B7RX |
| | 5000. | to | 5140. MHz | 25 | 39 | | dB | 2f |
| | 5100. | to | 5280. MHz | 20 | 39 | | dB | ISM5G |
| | 7500. | to | 7710. MHz | 20 | 33 | | dB | 3f |

* Typical value at 25±2deg.C

# SAYEY2G53BC0F0A ( Band7 / Unbalanced / LR / 1814 )

## Electrical Characteristic < ANT.→RX >

| Item | | | | Characteristics ( -20 to +85 deg.C ) | | | Unit | Note |
|---|---|---|---|---|---|---|---|---|
| | | | | min. | typ.* | max. | | |
| Center Frequency | | | | | 2655 | | MHz | |
| Insertion Loss | 2620.25 | to | 2689.75 MHz | | 2.0 | 2.9 | dB | |
| | 2622.5 | to | 2687.5 MHz | | 2.0 | 2.8 | $dB_{INT}$ | Any 4.5MHz |
| Ripple Deviation | 2620.25 | to | 2689.75 MHz | | 0.5 | 1.7 | dB | |
| VSWR | 2620.25 | to | 2689.75 MHz | | 1.8 | 2.3 | | ANT. |
| | 2620.25 | to | 2689.75 MHz | | 1.9 | 2.4 | | RX |
| Absolute Attenuation | 1. | to | 2500. MHz | 40 | 48 | | dB | |
| | | | 45. MHz | 50 | 100 | | dB | Rx-Tx |
| | 718. | to | 748. MHz | 40 | 65 | | dB | B28TX |
| | 814. | to | 849. MHz | 40 | 63 | | dB | B26TX |
| | 832. | to | 862. MHz | 40 | 63 | | dB | B20TX |
| | 880. | to | 915. MHz | 40 | 62 | | dB | B8TX |
| | 1710. | to | 1785. MHz | 40 | 52 | | dB | B3TX |
| | 2402. | to | 2470. MHz | 45 | 63 | | dB | ISM2.4 |
| | 2500. | to | 2570. MHz | 45 | 53 | | dB | TX |
| | 2570. | to | 2600. MHz | 2.5 | 5.5 | | dB | (Rx + Tx)/2 |
| | 4900. | to | 5950. MHz | 40 | 49 | | dB | ISM 5G |
| | 7620. | to | 7830. MHz | 35 | 44 | | dB | Rx + 2Tx |
| | 7860. | to | 8070. MHz | 35 | 44 | | dB | 3f |
| | 10480. | to | 10760. MHz | 20 | 45 | | dB | 4f |

* Typical value at 25±2deg.C

# SAYEY2G53BC0F0A ( Band7 / Unbalanced / LR / 1814 )

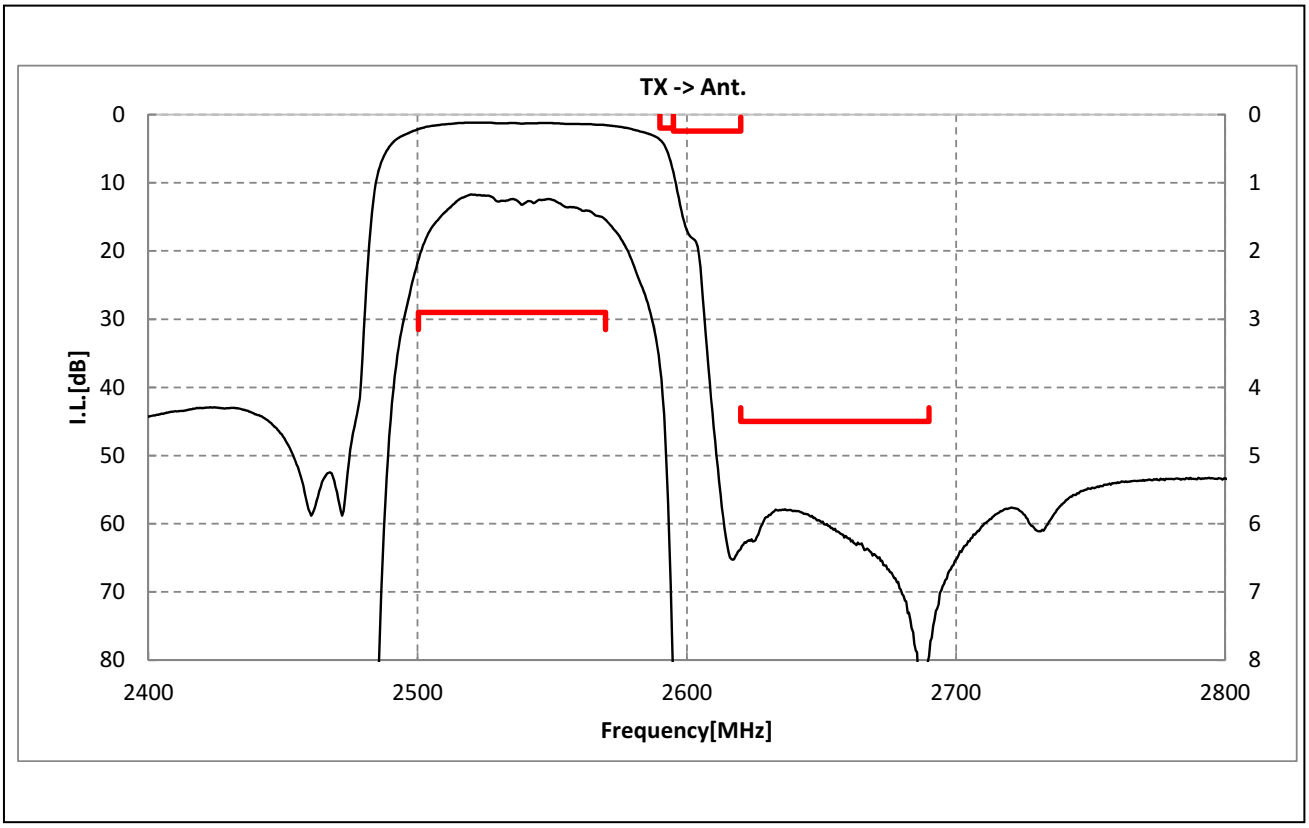
## Electrical Characteristic < TX→RX. >

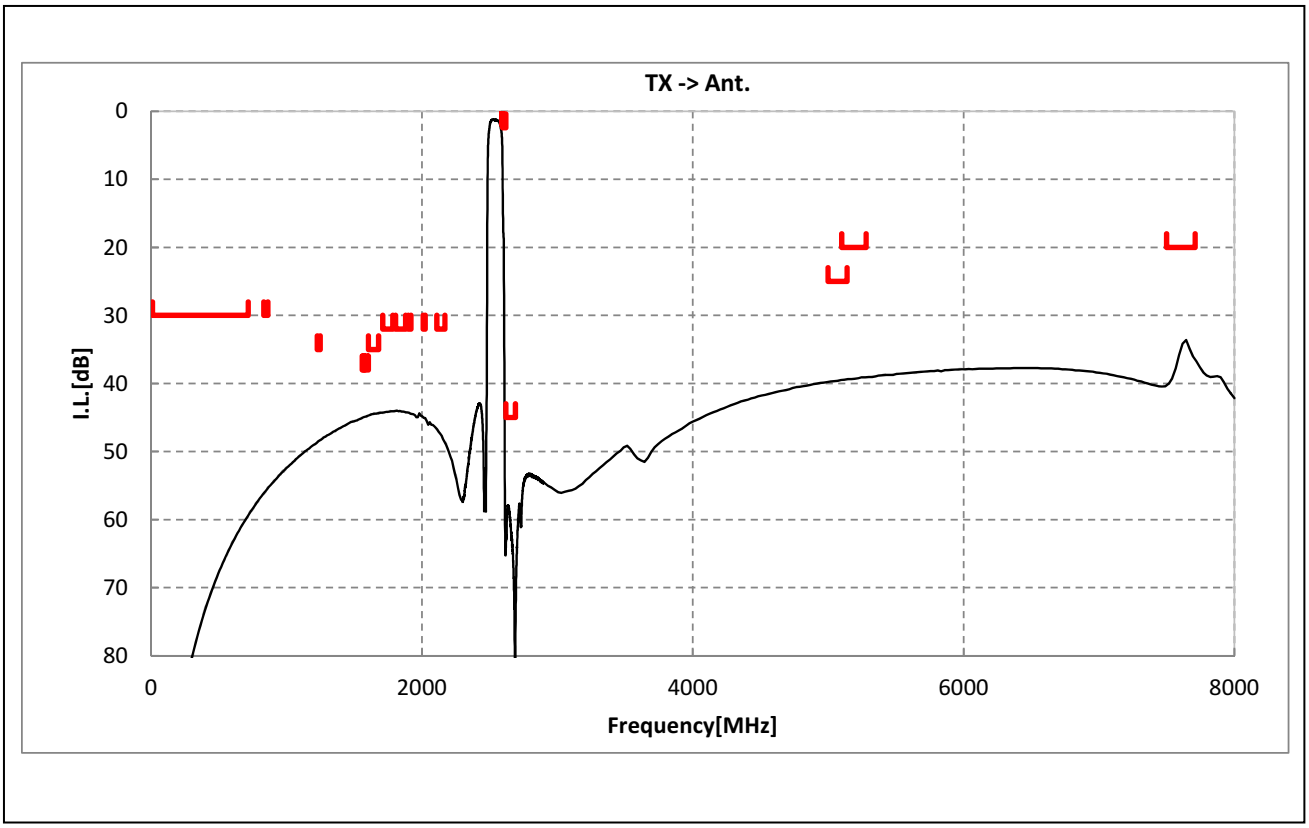
| Item | | Characteristics ( -20 to +85 deg.C ) | | | Unit | Note |
|---|---|---|---|---|---|---|
| | | min. | typ.* | max. | | |
| Isolation | | | | | | |
| | 1574. to 2570. MHz | 30 | 53 | | dB | GPS |
| | 2500.25 to 2569.75 MHz | 55 | 58 | | dB | TX |
| | 2502.5 to 2567.5 MHz | 55 | 59 | | $dB_{INT}$ | Any 4.5MHz, TX |
| | 2620.25 to 2689.75 MHz | 55 | 58 | | dB | RX |
| | 2622.5 to 2687.5 MHz | 55 | 58 | | $dB_{INT}$ | Any 4.5MHz, RX |
| | 5000. to 5140. MHz | 30 | 48 | | dB | 2f |
| | 7500. to 7710. MHz | 25 | 40 | | dB | 3f |

* Typical value at 25±2deg.C

## Electrical Characteristic

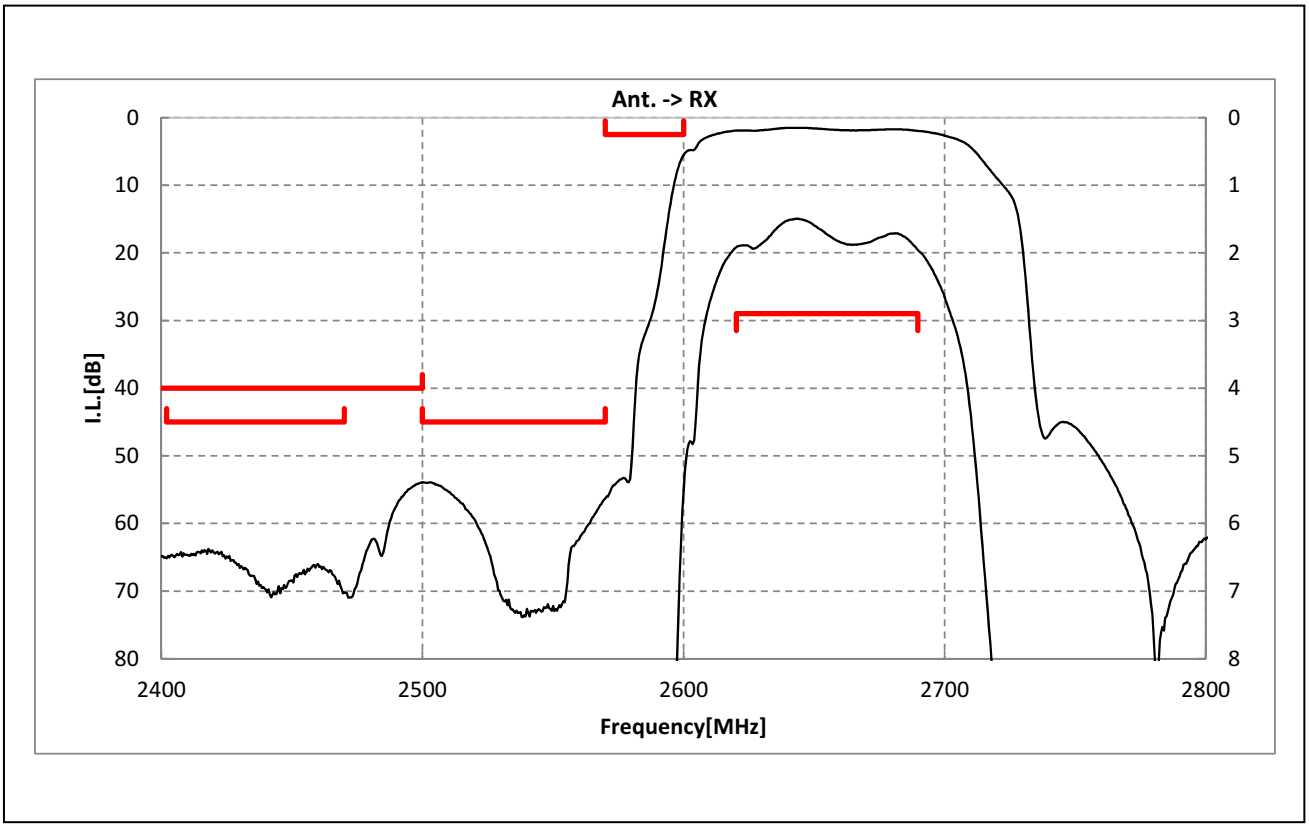
< TX→ANT. >

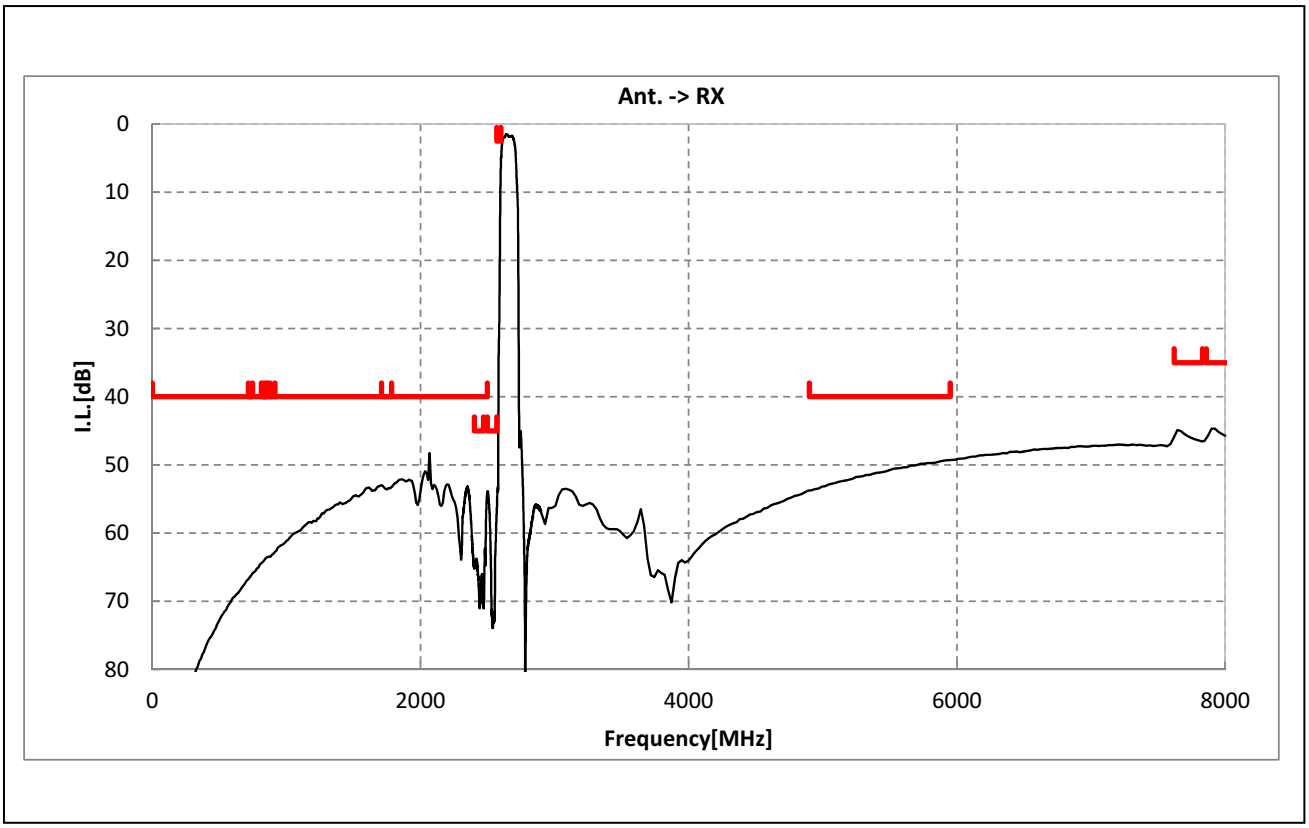


## Electrical Characteristic

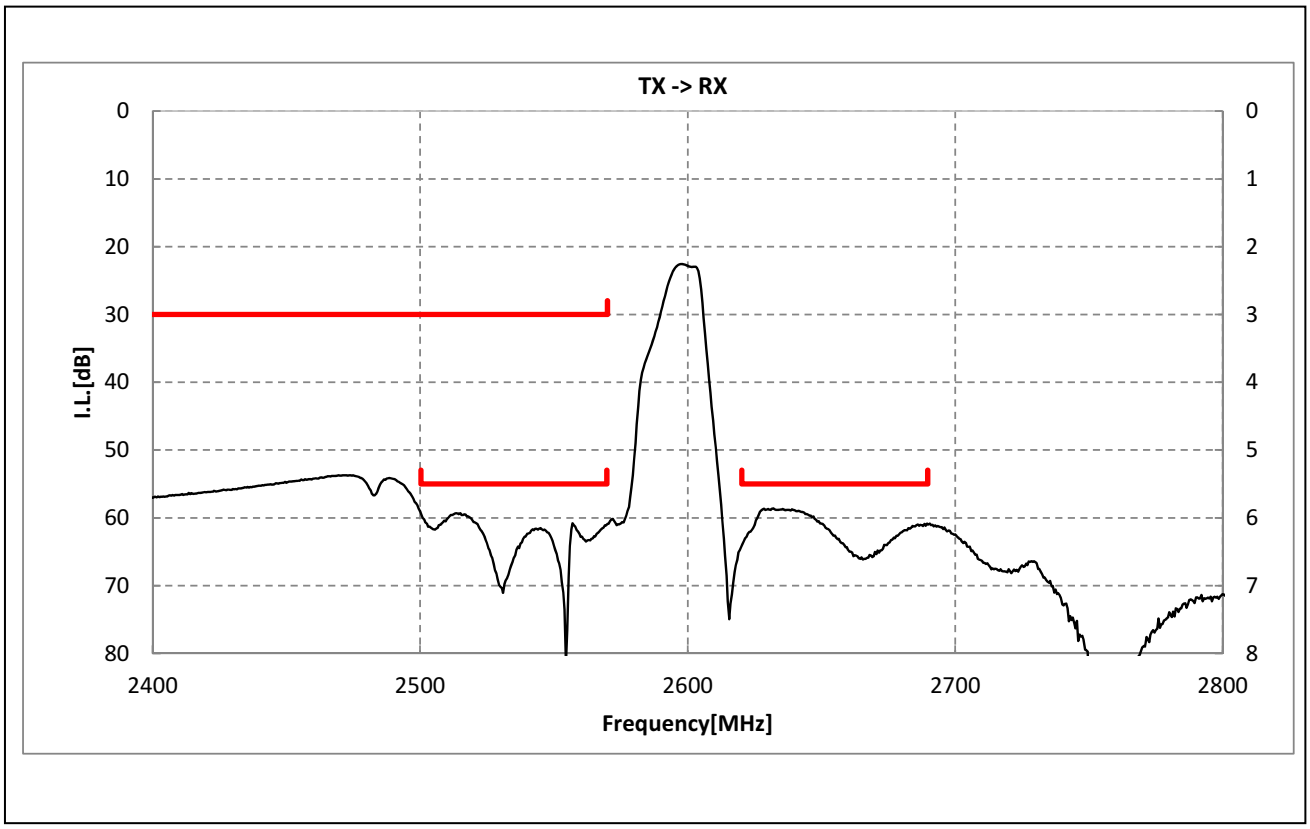
< ANT.→RX >

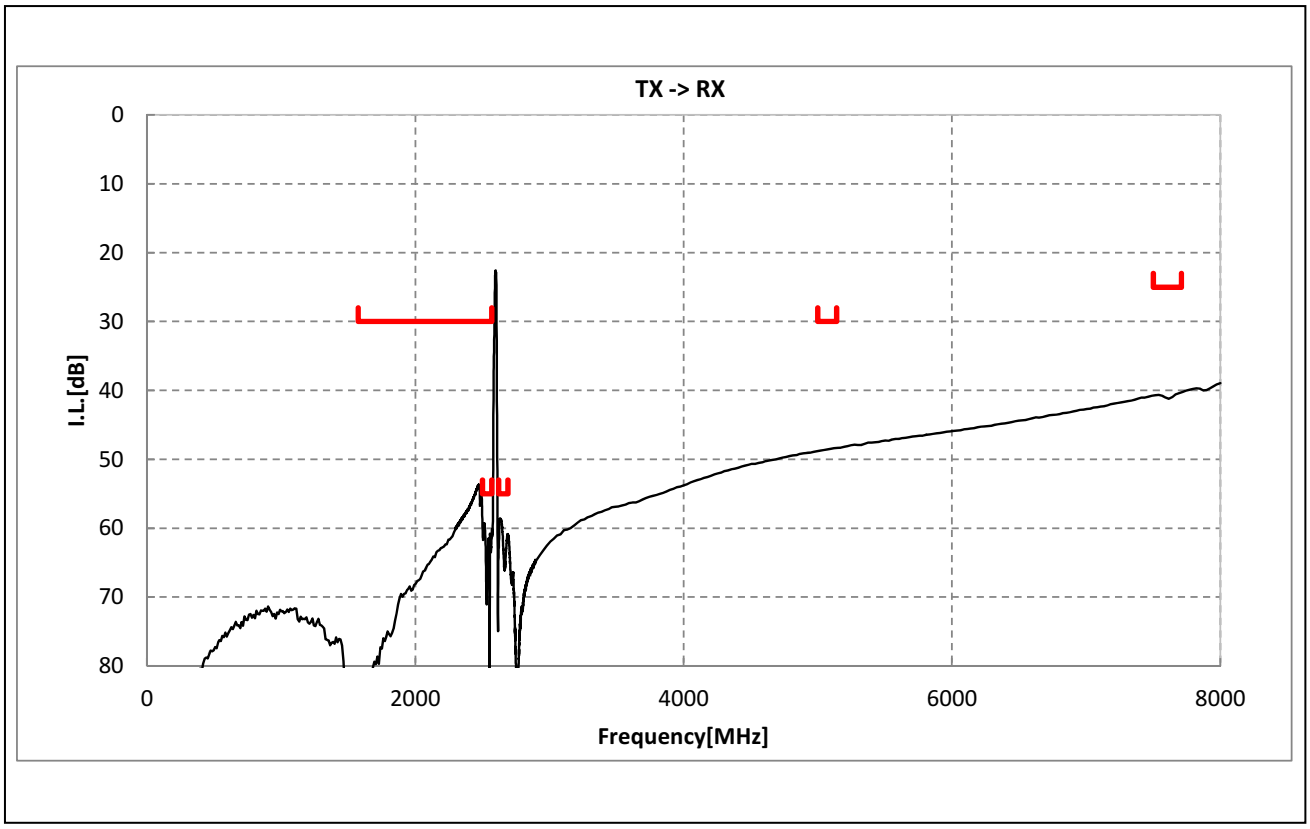


## Electrical Characteristic

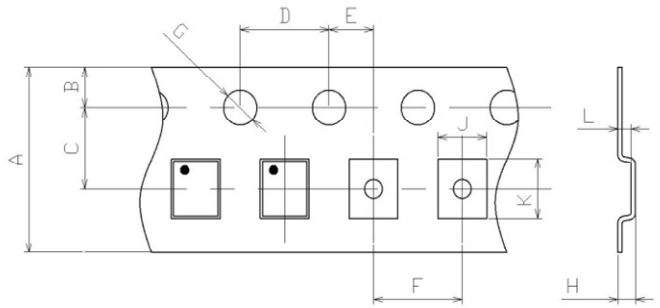
< TX→RX. >



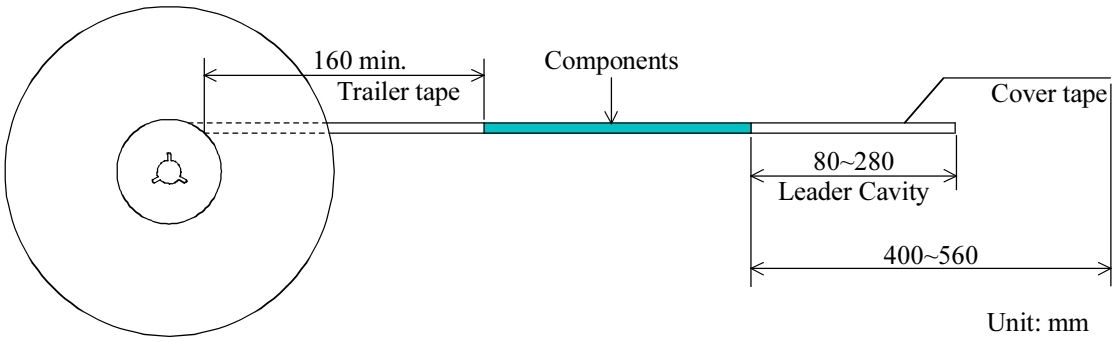
# Dimensions of Tape & Reel unit: mm

## Carrier Tape

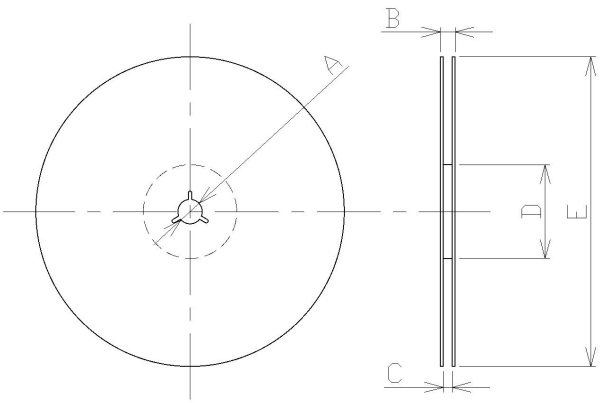



| | | | |
|---|---|---|---|
| A: | 8.0 | J: | 1.7 |
| B: | 1.75 | K: | 2.1 |
| C: | 3.50 | L: | 0.70 |
| D: | 4.0 | | |
| E: | 2.00 | | |
| F: | 4.0 | | |
| G: | φ1.5 | | |
| H: | 1.00 | | |

## Tape




## Reel




| φ178Reel | | φ330Reel | |
|---|---|---|---|
| A: | φ13.0 | A: | φ13.0 |
| B: | 13.5max | B: | 15.5max |
| C: | 9.0 | C: | 9.5 |
| D: | φ60 | D: | φ100 |
| E: | φ178 | E: | φ330 |

SAYEY2G53BC0F0AR00… 10000pcs (φ330)
SAYEY2G53BC0F0AR1S… Sample Order (φ178/330)

## Marking Code

### Table A: Month Code

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2013<br>2017<br>2021 | Jan. | Feb. | Mar. | Apr. | May. | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. |
| | A | B | C | D | E | F | G | H | J | K | L | M |
| 2014<br>2018<br>2022 | Jan. | Feb. | Mar. | Apr. | May. | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. |
| | N | P | Q | R | S | T | U | V | W | X | Y | Z |
| 2015<br>2019<br>2023 | Jan. | Feb. | Mar. | Apr. | May. | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. |
| | a | b | c̄ | d | e | f | g | h | j | k | l | m |
| 2016<br>2020<br>2024 | Jan. | Feb. | Mar. | Apr. | May. | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. |
| | n | p | q | r | s | t | u | v | w | x | y | z |

### Table B: Date Code

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| date | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | 10th |
| code | A | B | C | D | E | F | G | H | J | K |
| date | 11th | 12th | 13th | 14th | 15th | 16th | 17th | 18th | 19th | 20th |
| code | L | M | N | P | Q | R | S | T | U | V |
| date | 21st | 22nd | 23rd | 24th | 25th | 26th | 27th | 28th | 29th | 30th | 31st |
| code | W | X | Y | Z | a | b | c̄ | d | e | f | g |

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- Application of similar complexity and/ or reliability requirements to the applications listed in the above.

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