



# Datasheet of SAW Device

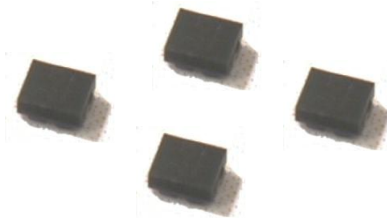
## SAW Duplexer

for Band5 / Unbalanced / LR /1814

Murata PN: SAYEY836MBA0F0A

### ■ Feature

- Smallest size
- Low I.L.
- High Isolation



Note : Murata SAW Component is applicable for Cellular /Cordless phone (Terminal) relevant market only.

Please also read caution at the end of this document.

## SAYEY836MBA0F0A ( Band5 / Unbalanced / LR / 1814 )

| Revision No.           | Date        | Description             |
|------------------------|-------------|-------------------------|
| SAYEY836MBA0F0A_rev. A | Aug-06-2013 | ■ Initial Release       |
| SAYEY836MBA0F0A_rev. B | Oct-16-2013 | ■ Updated specification |
| SAYEY836MBA0F0A_rev. C | Nov-19-2013 | ■ Updated for MP        |
|                        |             |                         |
|                        |             |                         |
|                        |             |                         |
|                        |             |                         |
|                        |             |                         |

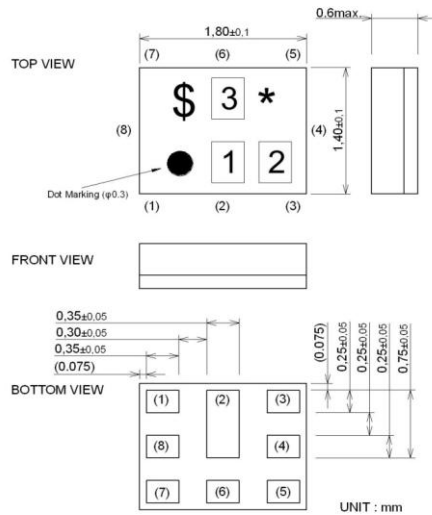
- Operating temperature : -20 to +85 deg.C
- Storage temperature : -40 to +85 deg.C
- Input Power : +29 dBm 5000 h 55 deg.C
- D.C. Voltage between the terminals : 3V (25+/-2 deg.C)
- Minimum Resistance between the terminals : 10M ohm
- RoHS compliance : Yes

# SAYEY836MBA0F0A (Band5 / Unbalanced / LR / 1814)

## 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 : 5

2 : V

3 : A

Terminal Number

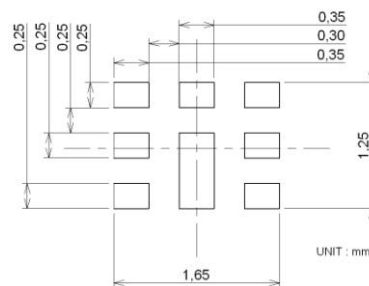
(6) : ANT.

(3) : TX

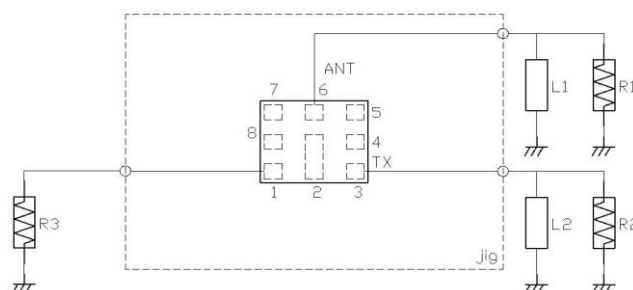
(1) : RX

Others : GND.

### Land Pattern



### Measurement Circuit (Top View)



R1 : 50 ohm

L1 : 7.2 nH(Ideal inductor)

R2 : 50 ohm

L2 : 25 nH(Ideal inductor)

R3 : 50 ohm

# SAYEY836MBA0F0A ( Band5 / Unbalanced / LR / 1814 )

## Electrical Characteristic < TX→ANT. >

### Matching Impedance (nominal)

- : ANT. Port : 50 ohm // 7.2 nH(Ideal inductor), 8.2 nH(LQP0603TN8N2, Reference)
- : TX Port : 50 ohm // 25 nH(Ideal inductor)
- : RX Port : 50 ohm

| TX → ANT.            |                        |    |    | Characteristics<br>( -20 to +85 deg.C ) |       |      | Unit              | Note             |
|----------------------|------------------------|----|----|-----------------------------------------|-------|------|-------------------|------------------|
|                      |                        |    |    | min.                                    | typ.  | max. |                   |                  |
|                      |                        |    |    |                                         |       |      |                   |                  |
| Center Frequency     |                        |    |    |                                         | 836.5 |      | MHz               |                  |
| Insertion Loss       | 824. to 849. MHz       |    |    |                                         | 1.6   | 1.9  | dB                |                  |
|                      | 826.5 to 846.5 MHz     |    |    |                                         | 1.3   | 1.7  | dB <sub>INT</sub> | Any 4.5MHz       |
| Ripple Deviation     | 824. to 849. MHz       |    |    |                                         | 0.8   | 1.3  | dB                |                  |
|                      | 824. to 849. MHz       |    |    |                                         | 0.5   | 1.2  | dB                | Any 3.84MHz      |
| VSWR                 | 824. to 849. MHz       |    |    |                                         | 1.3   | 2.0  |                   | TX               |
|                      | 824. to 849. MHz       |    |    |                                         | 1.4   | 2.0  |                   | ANT.             |
| Absolute Attenuation | 10. to 420. MHz        | 30 | 42 |                                         |       |      | dB                |                  |
|                      | 420. to 494. MHz       | 34 | 39 |                                         |       |      | dB                | 450MHz Rejection |
|                      | 494. to 701. MHz       | 30 | 34 |                                         |       |      | dB                |                  |
|                      | 699. to 716. MHz       | 30 | 35 |                                         |       |      | dB                | B12 TX           |
|                      | 701. to 728. MHz       | 30 | 35 |                                         |       |      | dB                |                  |
|                      | 704. to 716. MHz       | 30 | 35 |                                         |       |      | dB                | B17 TX           |
|                      | 728. to 764. MHz       | 30 | 35 |                                         |       |      | dB                | 700MHz Rejection |
|                      | 764. to 804. MHz       | 30 | 40 |                                         |       |      | dB                |                  |
|                      | 860. to 869. MHz       | 5  | 10 |                                         |       |      | dB                |                  |
|                      | 869. to 894. MHz       | 44 | 56 |                                         |       |      | dB                | RX               |
|                      | 1559. to 1563. MHz     | 32 | 36 |                                         |       |      | dB                | COMPASS          |
|                      | 1565.42 to 1573.37 MHz | 32 | 36 |                                         |       |      | dB                | Lower GPS        |
|                      | 1573.37 to 1577.47 MHz | 32 | 36 |                                         |       |      | dB                | Regular GPS      |
|                      | 1577.47 to 1585.42 MHz | 32 | 36 |                                         |       |      | dB                | Upper GPS        |
|                      | 1597.55 to 1605.89 MHz | 32 | 36 |                                         |       |      | dB                | GLONASS          |
|                      | 1683. to 1708. MHz     | 30 | 35 |                                         |       |      | dB                | 2f               |
|                      | 1710. to 1785. MHz     | 30 | 35 |                                         |       |      | dB                | B4 TX            |
|                      | 1844.9 to 1879.9 MHz   | 30 | 34 |                                         |       |      | dB                | B3 TX            |
|                      | 1884.5 to 1919.6 MHz   | 30 | 34 |                                         |       |      | dB                |                  |
|                      | 1920. to 1980. MHz     | 30 | 34 |                                         |       |      | dB                | B1 TX            |
|                      | 2110. to 2170. MHz     | 30 | 34 |                                         |       |      | dB                | B1 RX            |
|                      | 2400. to 2494. MHz     | 30 | 35 |                                         |       |      | dB                | ISM2.4, 3f       |
|                      | 3286. to 3406. MHz     | 5  | 12 |                                         |       |      | dB                | 4f               |
|                      | 4110. to 4255. MHz     | 5  | 10 |                                         |       |      | dB                | 5f               |
|                      | 4900. to 5950. MHz     | 3  | 10 |                                         |       |      | dB                | ISM 5G, 6f, 7f   |
|                      | 6582. to 6802. MHz     | 7  | 13 |                                         |       |      | dB                | 8f               |
|                      | 7406. to 7651. MHz     | 10 | 16 |                                         |       |      | dB                | 9f               |
|                      | 8230. to 8500. MHz     | 12 | 23 |                                         |       |      | dB                | 10f              |
|                      | 9054. to 9349. MHz     | 4  | 10 |                                         |       |      | dB                | 11f              |
|                      | 9878. to 10198. MHz    | 2  | 7  |                                         |       |      | dB                | 12f              |
|                      | 10702. to 11047. MHz   | 3  | 8  |                                         |       |      | dB                | 13f              |
|                      | 11526. to 11896. MHz   | 5  | 11 |                                         |       |      | dB                | 14f              |
|                      | 12350. to 12745. MHz   | 3  | 9  |                                         |       |      | dB                | 15f              |

\* Typical value at 25±2deg.C

# SAYEY836MBA0F0A ( Band5 / Unbalanced / LR / 1814 )

## Electrical Characteristic < ANT.→RX. >

### Matching Impedance (nominal)

- : ANT. Port : 50 ohm // 7.2 nH(Ideal inductor), 8.2 nH(LQP0603TN8N2, Reference)
- : TX Port : 50 ohm // 25 nH(Ideal inductor)
- : RX Port : 50 ohm

| ANT. → RX            |         |    |            | Characteristics     |       |      | Unit              | Note          |
|----------------------|---------|----|------------|---------------------|-------|------|-------------------|---------------|
|                      |         |    |            | (-20 to +85 deg.C ) |       |      |                   |               |
|                      |         |    |            | min.                | typ.  | max. |                   |               |
| Center Frequency     |         |    |            |                     | 881.5 |      | MHz               |               |
| Insertion Loss       | 869.    | to | 894. MHz   |                     | 1.7   | 2.1  | dB                |               |
|                      | 871.5   | to | 891.5 MHz  |                     | 1.6   | 1.9  | dB <sub>INT</sub> | Any 4.5MHz    |
| Ripple Deviation     | 869.    | to | 894. MHz   |                     | 0.3   | 1.0  | dB                |               |
|                      | 869.    | to | 894. MHz   |                     | 0.2   | 0.8  | dB                | Any 3.84MHz   |
| VSWR                 | 869.    | to | 894. MHz   |                     | 1.4   | 2.0  |                   | RX            |
|                      | 869.    | to | 894. MHz   |                     | 1.5   | 2.0  |                   | ANT.          |
| Absolute Attenuation | 10.     | to | 447. MHz   | 45                  | 60    |      |                   |               |
|                      | 45. MHz |    |            | 50                  | 100   |      |                   | RX - TX       |
|                      | 447.    | to | 824. MHz   | 40                  | 51    |      |                   |               |
|                      | 779.    | to | 804. MHz   | 40                  | 53    |      | dB                | 2TX - RX      |
|                      | 824.    | to | 849. MHz   | 45                  | 58    |      | dB                | TX            |
|                      | 849.    | to | 854. MHz   | 30                  | 56    |      | dB                | (RX + TX) / 2 |
|                      | 909.    | to | 979. MHz   | 12                  | 19    |      | dB                |               |
|                      | 1693.   | to | 1743. MHz  | 40                  | 63    |      | dB                | RX + TX       |
|                      | 1710.   | to | 1785. MHz  | 50                  | 62    |      | dB                | B3 TX         |
|                      | 1788.   | to | 1788. MHz  | 40                  | 63    |      | dB                | 2f            |
|                      | 1850.   | to | 1920. MHz  | 40                  | 66    |      | dB                | B2 TX         |
|                      | 1920.   | to | 1980. MHz  | 40                  | 69    |      | dB                | B1 TX         |
|                      | 1980.   | to | 2400. MHz  | 35                  | 70    |      | dB                |               |
|                      | 2305.   | to | 2315. MHz  | 40                  | 73    |      | dB                | B30 TX        |
|                      | 2400.   | to | 2500. MHz  | 40                  | 67    |      | dB                | ISM2.4        |
|                      | 2467.   | to | 2494. MHz  | 44                  | 68    |      | dB                | WLAN Co-ex    |
|                      | 2517.   | to | 2592. MHz  | 40                  | 64    |      | dB                | RX + 2TX      |
|                      | 2607.   | to | 2682. MHz  | 40                  | 63    |      | dB                | 3f            |
|                      | 3476.   | to | 3576. MHz  | 35                  | 60    |      | dB                | 4f            |
|                      | 4345.   | to | 4470. MHz  | 35                  | 59    |      | dB                | 5f            |
|                      | 4900.   | to | 5950. MHz  | 37                  | 47    |      | dB                | ISM 5G        |
|                      | 5214.   | to | 5364. MHz  | 30                  | 48    |      | dB                | 6f            |
|                      | 6083.   | to | 6258. MHz  | 20                  | 54    |      | dB                | 7f            |
|                      | 6952.   | to | 7152. MHz  | 15                  | 48    |      | dB                | 8f            |
|                      | 7821.   | to | 8046. MHz  | 15                  | 40    |      | dB                | 9f            |
|                      | 8690.   | to | 8940. MHz  | 15                  | 34    |      | dB                | 10f           |
|                      | 9559.   | to | 9834. MHz  | 15                  | 29    |      | dB                | 11f           |
|                      | 10428.  | to | 10728. MHz | 15                  | 24    |      | dB                | 12f           |
|                      | 11297.  | to | 11622. MHz | 15                  | 21    |      | dB                | 13f           |
|                      | 12166.  | to | 12516. MHz | 15                  | 23    |      | dB                | 14f           |
|                      |         |    |            |                     |       |      |                   |               |
|                      |         |    |            |                     |       |      |                   |               |
|                      |         |    |            |                     |       |      |                   |               |

\* Typical value at 25±2deg.C

SAYEY836MBA0F0A (Band5 / Unbalanced / LR / 1814)

Electrical Characteristic  $\langle TX \rightarrow RX \rangle$ 

Matching Impedance (nominal)

- : ANT. Port : 50 ohm // 7.2 nH(Ideal inductor), 8.2 nH(LQP0603TN8N2, Reference)
- : TX Port : 50 ohm // 25 nH(Ideal inductor)
- : RX Port : 50 ohm

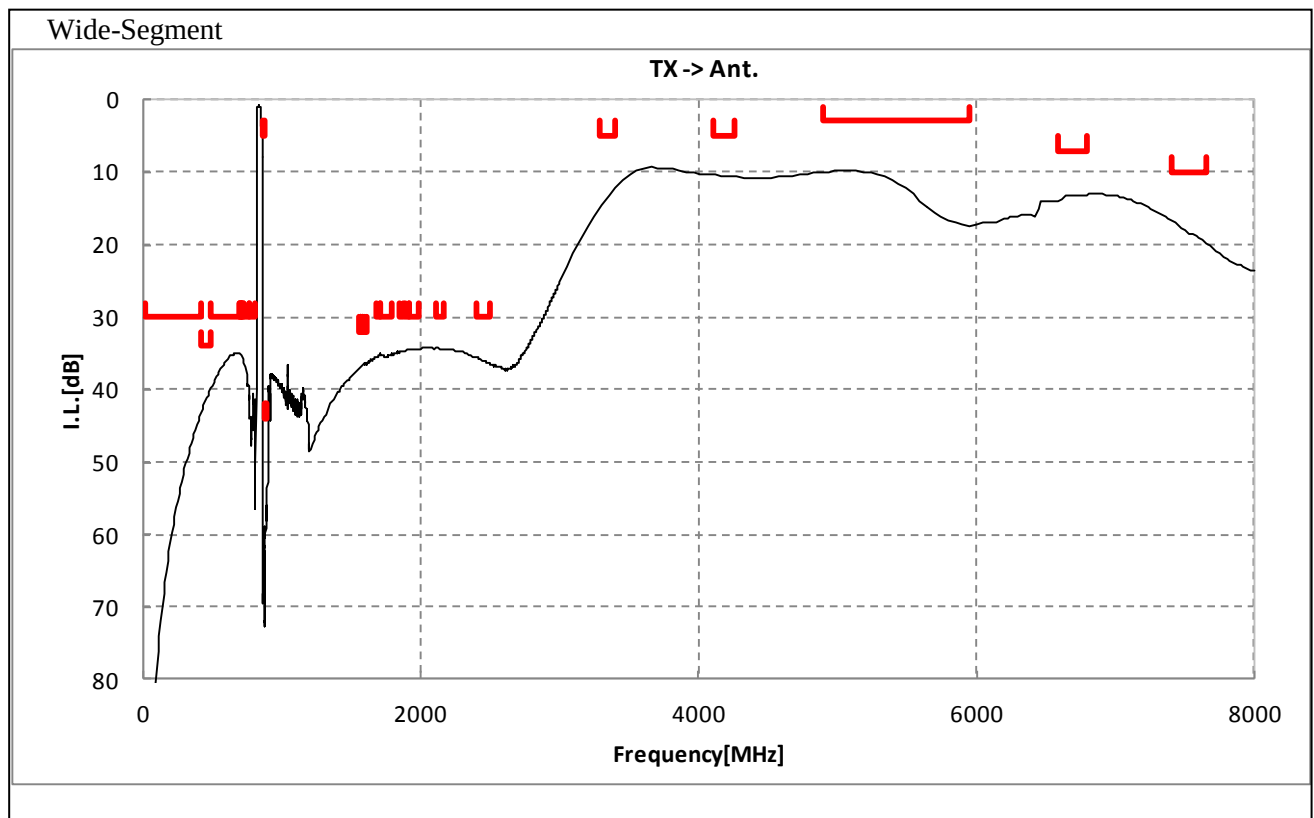
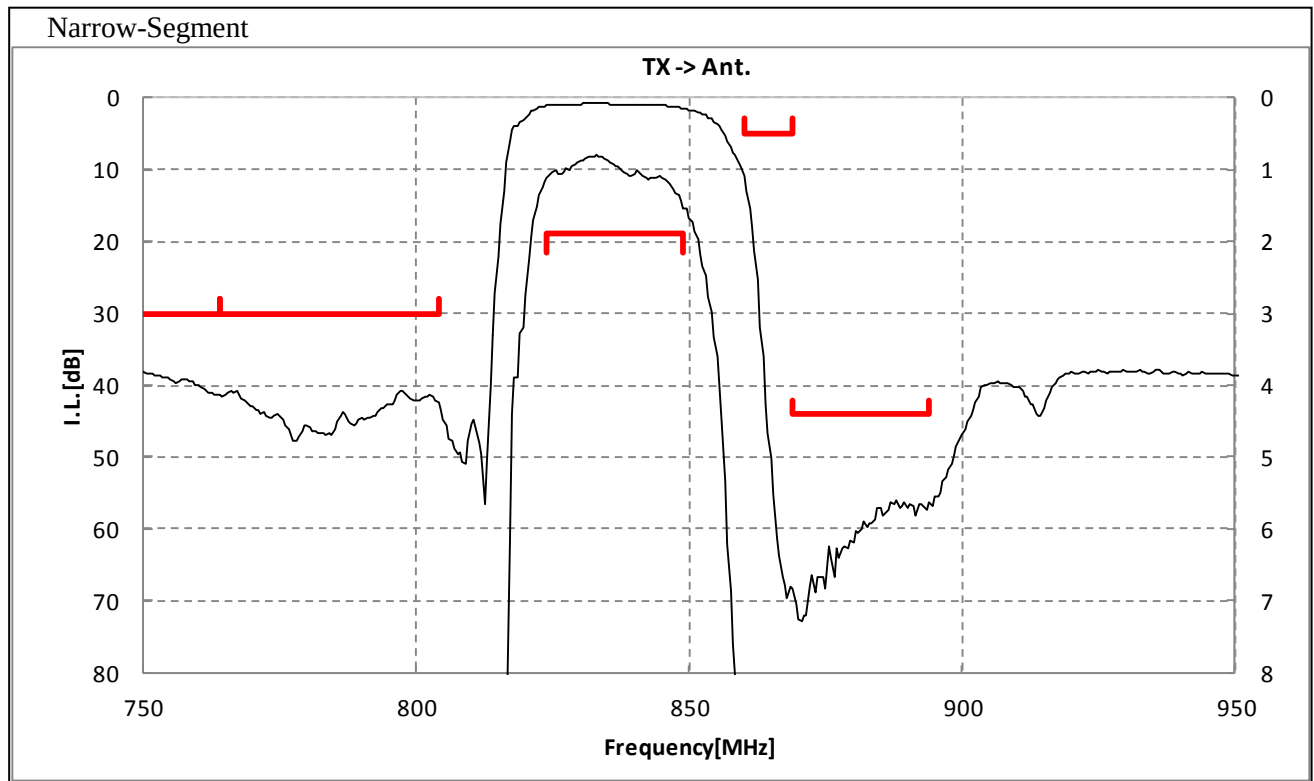
[illegible]

\* Typical value at 25±2deg.C

# SAYEY836MBA0F0A ( Band5 / Unbalanced / LR / 1814 )

## Electrical Characteristic

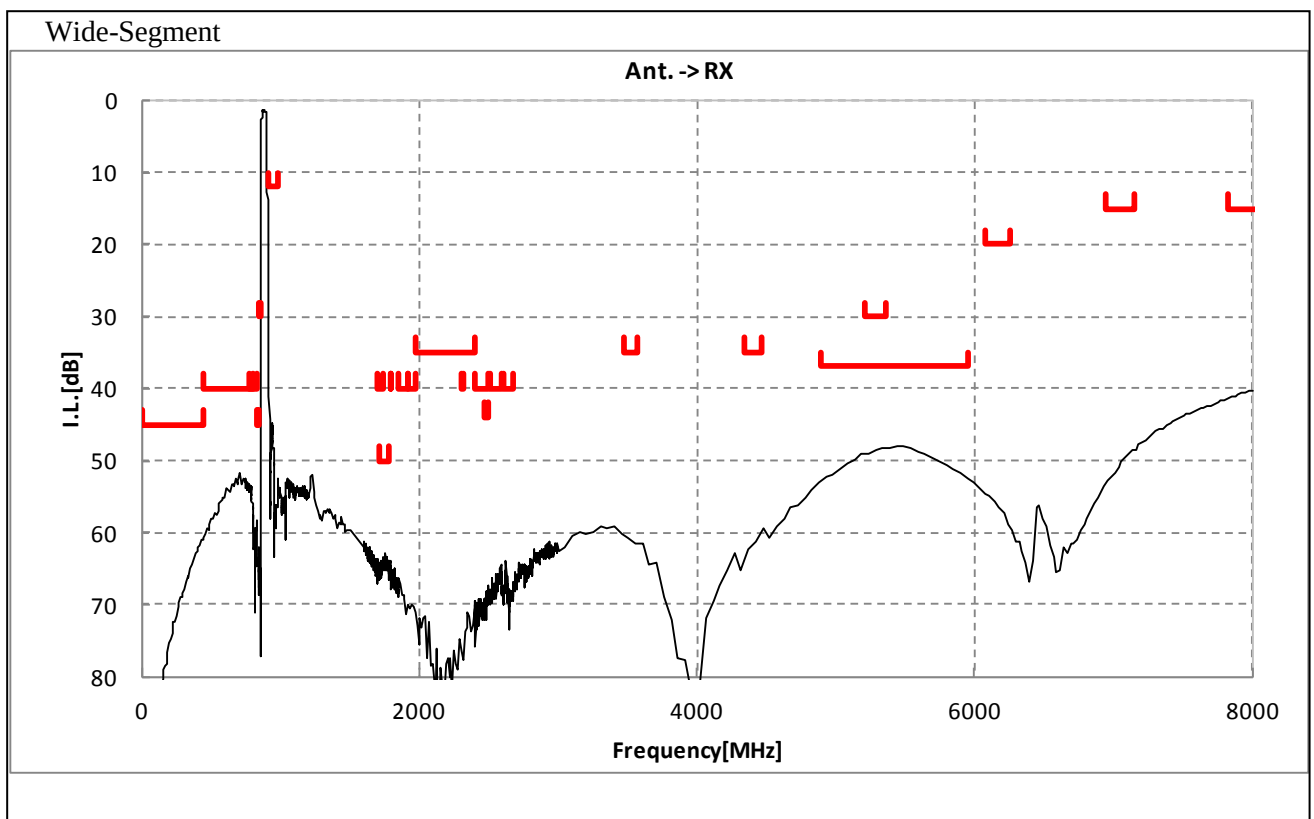
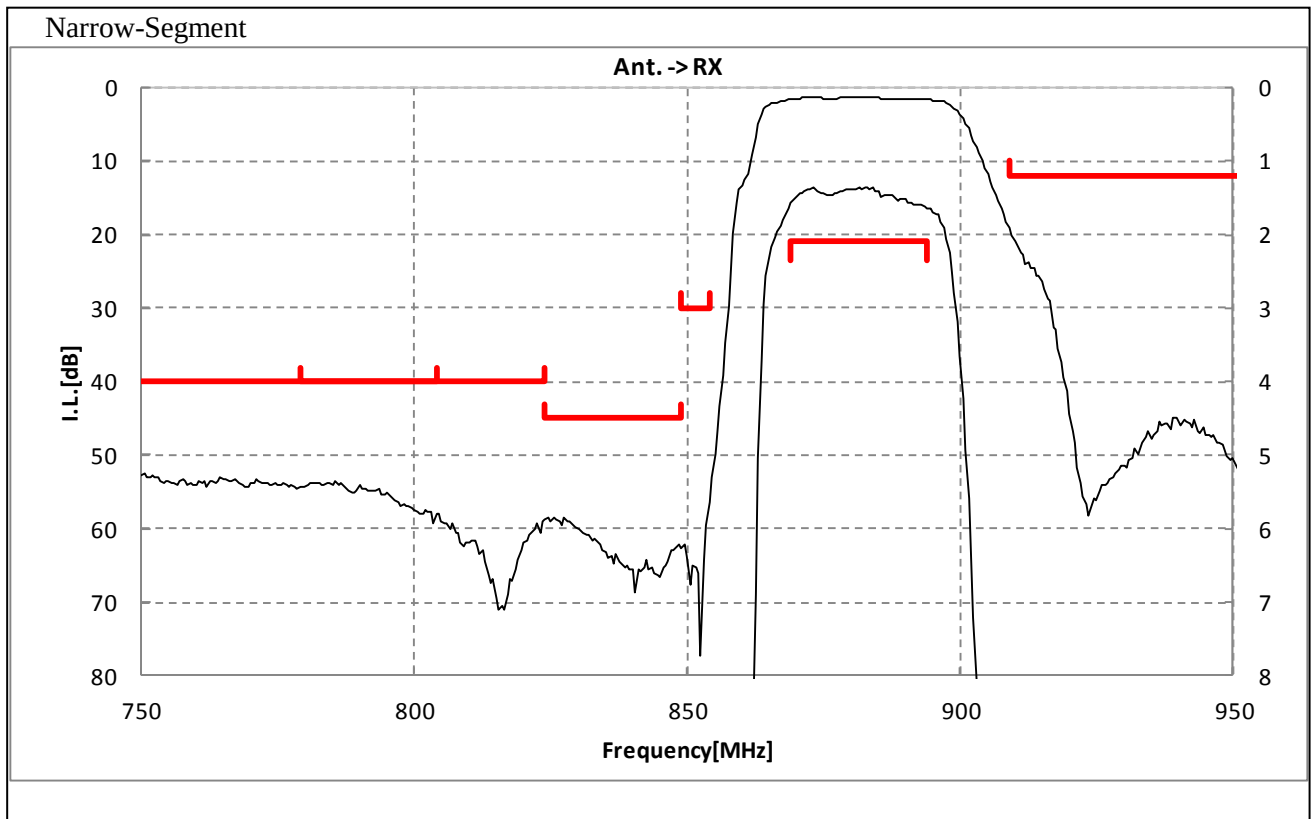
< TX→ANT. >



SAYEY836MBA0F0A ( Band5 / Unbalanced / LR / 1814 )

Electrical Characteristic

< ANT. → RX. >

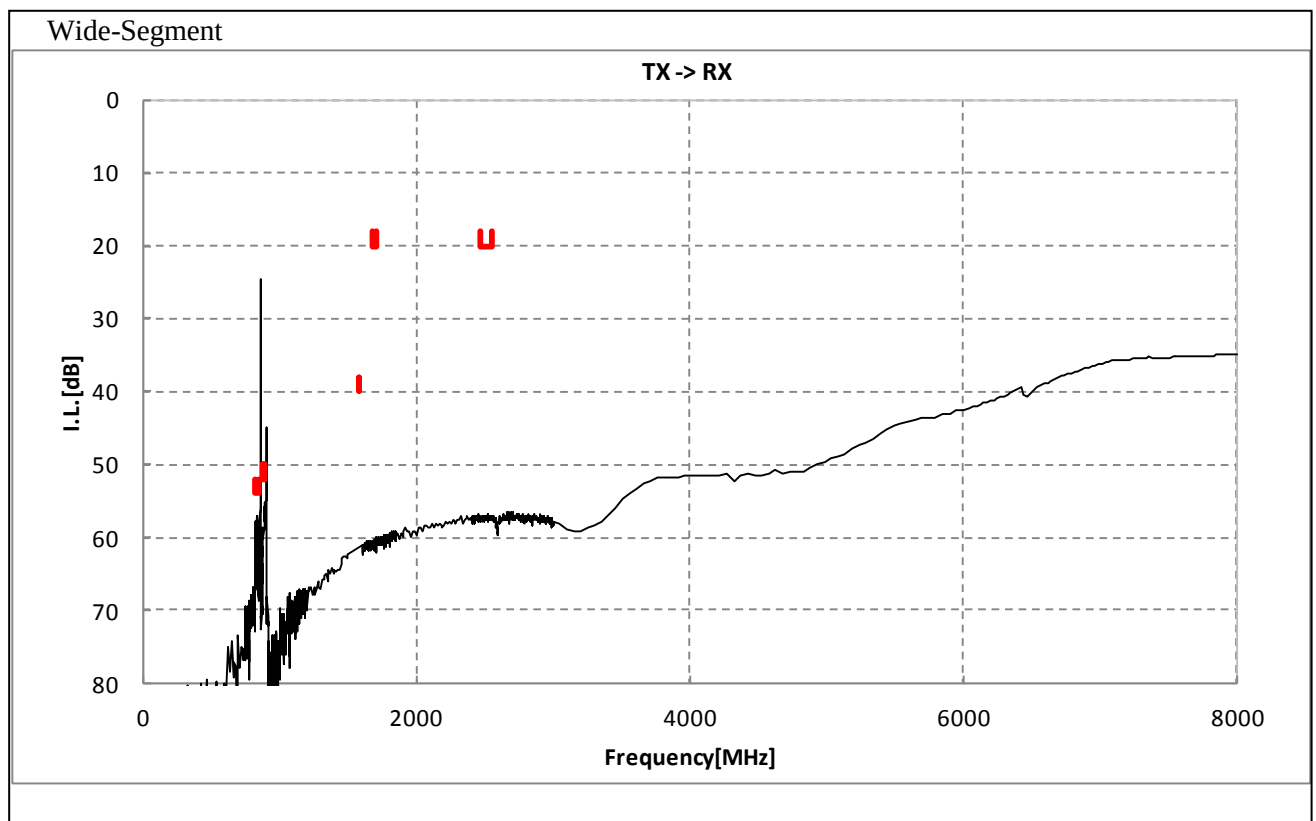
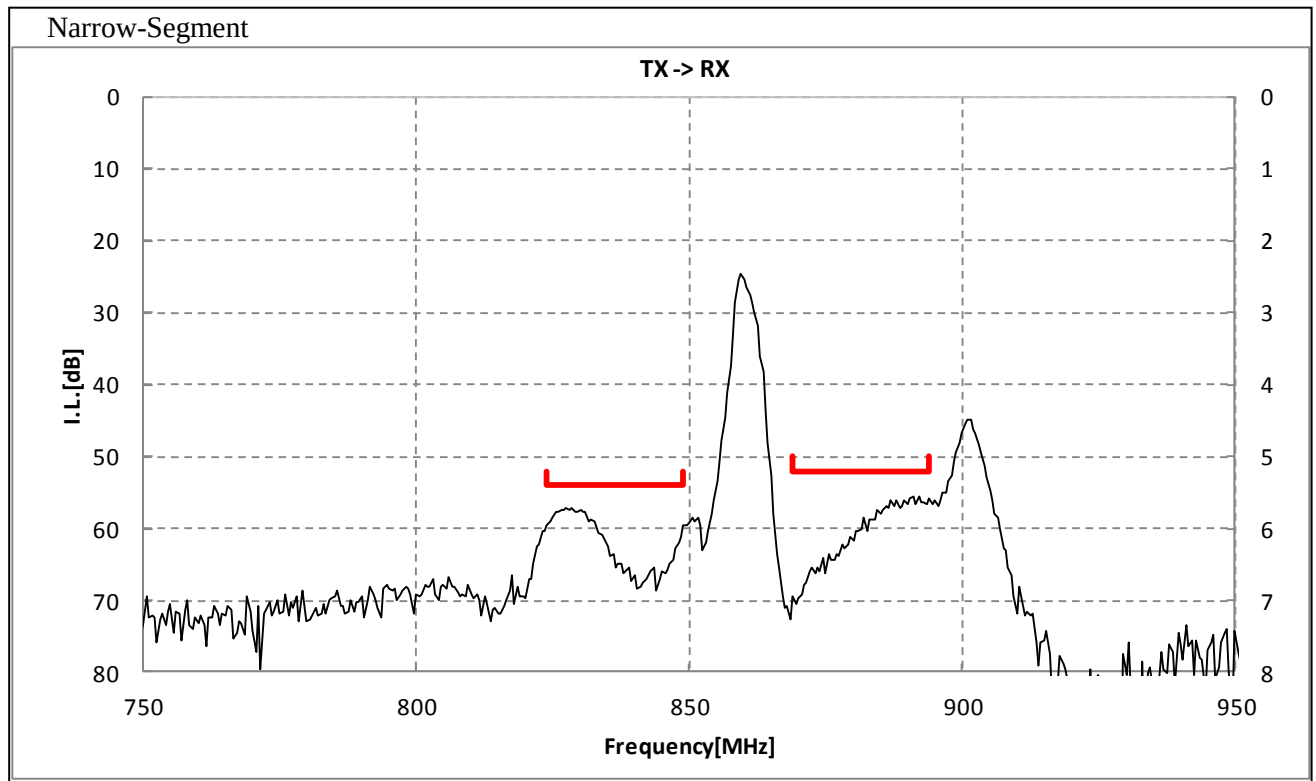




SAYEY836MBA0F0A ( Band5 / Unbalanced / LR / 1814 )

## Electrical Characteristic

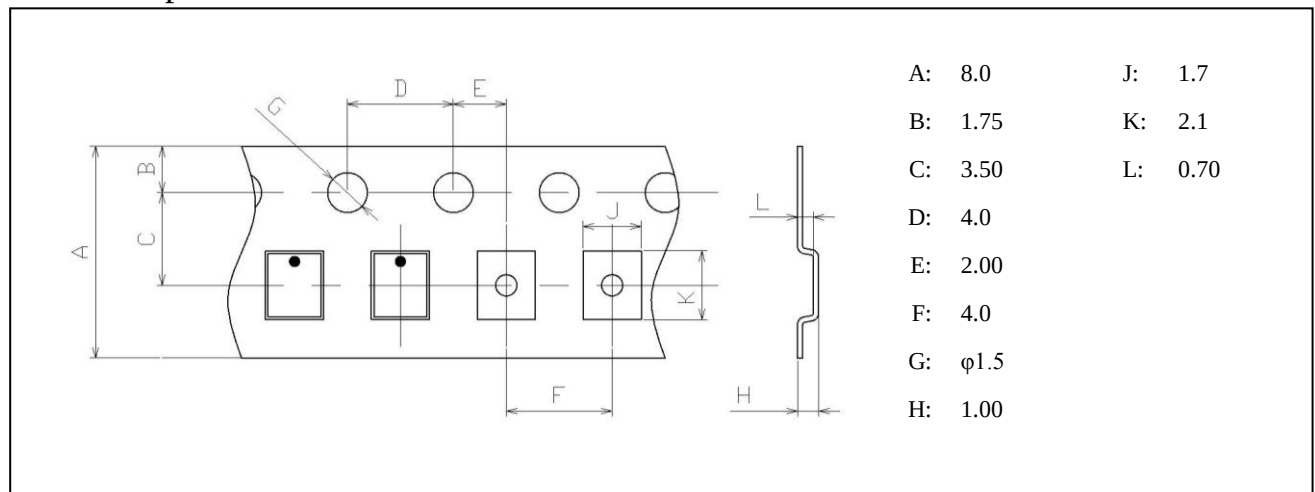
< TX→RX. >



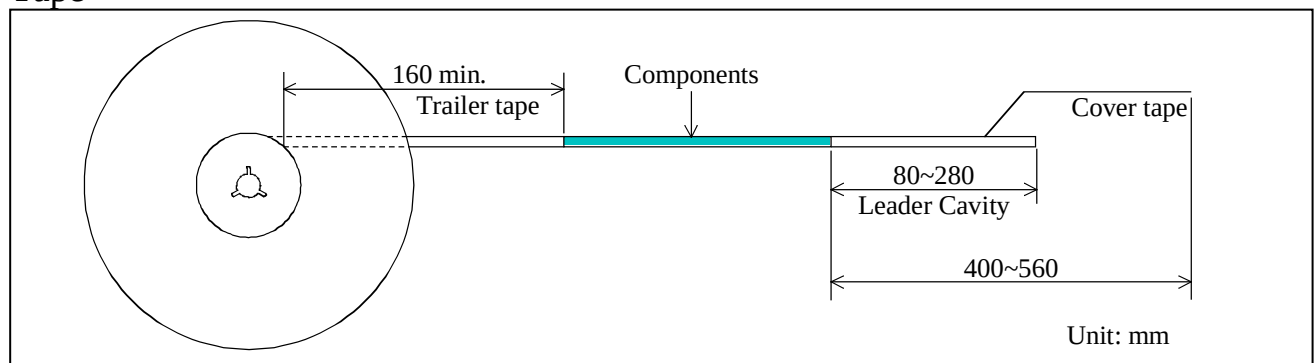
# SAYEY836MBA0F0A ( Band5 / Unbalanced / LR / 1814 )

## Dimensions of Tape & Reel unit: mm

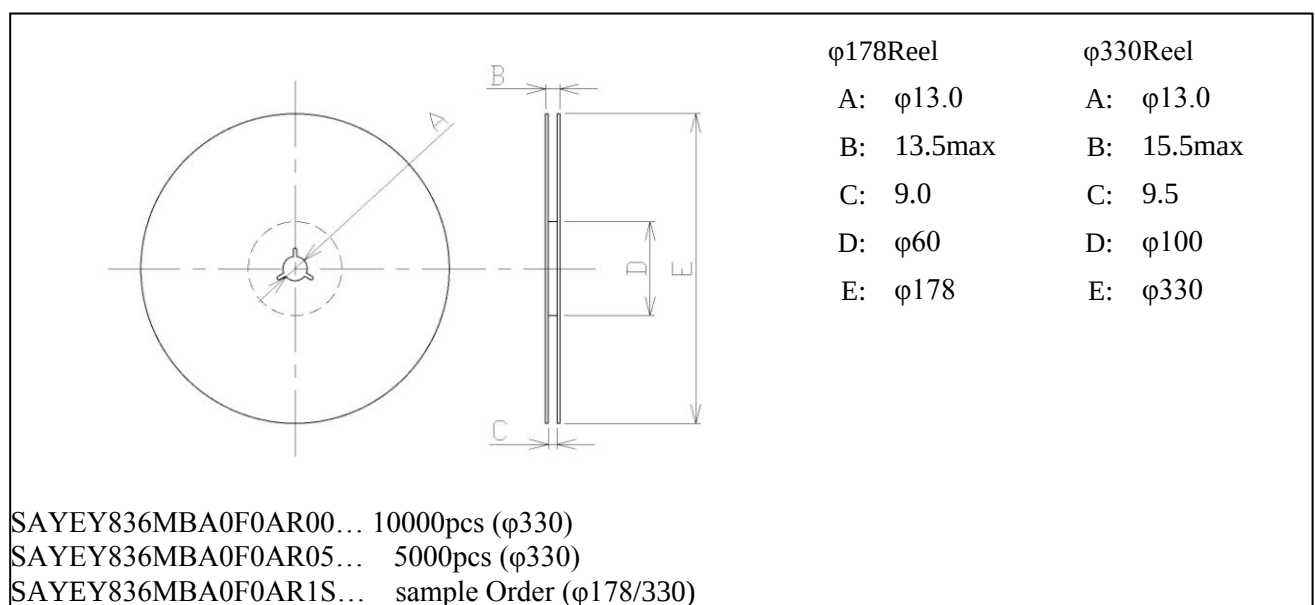
### Carrier Tape



### Tape



### Reel



# SAYEY836MBA0F0A ( Band5 / Unbalanced / LR / 1814 )

## Marking Code

Table A: Month Code

|      |      |      |      |      |     |      |      |      |      |      |      |      |
|------|------|------|------|------|-----|------|------|------|------|------|------|------|
| 2009 | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. |
| 2013 | A    | B    | C    | D    | E   | F    | G    | H    | J    | K    | L    | M    |
| 2017 |      |      |      |      |     |      |      |      |      |      |      |      |
| 2010 | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. |
| 2014 | N    | P    | Q    | R    | S   | T    | U    | V    | W    | X    | Y    | Z    |
| 2018 |      |      |      |      |     |      |      |      |      |      |      |      |
| 2011 | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. |
| 2015 | a    | b    | c̄   | d    | e   | f    | g    | h    | j    | k    | l    | m    |
| 2019 |      |      |      |      |     |      |      |      |      |      |      |      |
| 2012 | 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    |
| 2020 |      |      |      |      |     |      |      |      |      |      |      |      |

Table B: Date Code

|      |      |      |      |      |      |      |      |      |      |      |          |
|------|------|------|------|------|------|------|------|------|------|------|----------|
| date | 1st  | 2nd  | 3rd  | 4th  | 5th  | 6th  | 7th  | 8th  | 9th  | 10th | 31st     |
| 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 |          |
| code | W    | X    | Y    | Z    | a    | b    | c̄   | d    | e    | f    |          |
|      |      |      |      |      |      |      |      |      |      |      | <b>g</b> |

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## SAYEY836MBA0F0A ( Band5 / Unbalanced / LR / 1814 )

### Important Notice (2/2)

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- Aerospace equipment
- Undersea equipment.
- Power plant control equipment      - Medical equipment.
- Transportation equipment (vehicles, trains, ships, elevator, etc.).
- Traffic signal equipment.
- Disaster prevention / crime prevention equipment.
- Burning / explosion control equipment
- Application of similar complexity and/ or reliability requirements to the applications listed in the above.

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The product shall not be used in any other application/model than that of claimed to Murata.

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- improper use of engineering samples.

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