Datasheet of SAW Device

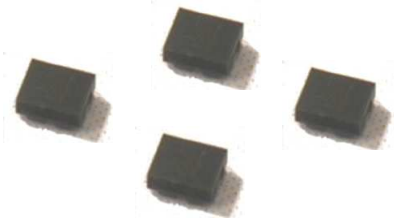
SAW Duplexer

for Band2 / Unbalanced / LR /1814

Murata PN: SAYEY1G88BA0B0A

■ Feature

- LTE-A
- Low Insertion Loss
- 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.

SAYEY1G88BA0B0A (Band2 / Unbalanced / LR / 1814)

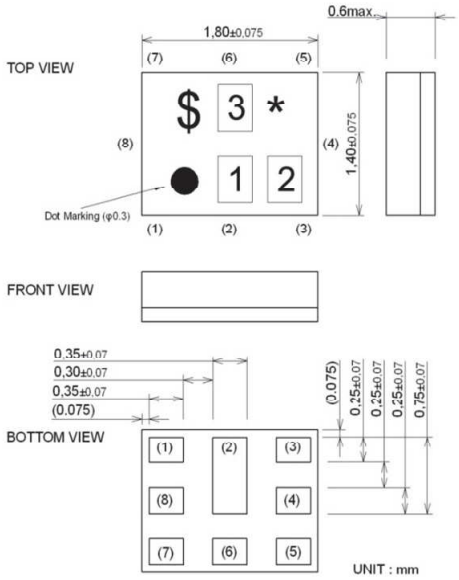
Revision Number	Date	Description
SAYEY1G88BA0B0A_rev. A	Aug-20-2013	■ Initial Release
SAYEY1G88BA0B0A_rev. B	Oct-18-2013	
SAYEY1G88BA0B0A_rev. C	Dec-17-2013	
SAYEY1G88BA0B0A_rev. D	Jan-30-2014	■ Updated MP Spec
SAYEY1G88BA0B0A_rev. E	Jan-13-2015	■ Updated SPEC
SAYEY1G88BA0B0A_rev. F	Apr-17-2015	
SAYEY1G88BA0B0A_rev. G	Jun-01-2015	
SAYEY1G88BA0B0A_rev. H	Sep-25-2015	■ Updated Feature
SAYEY1G88BA0B0A_rev. I	May-20-2016	■ Updated Feature
SAYEY1G88BA0B0A_rev. J	Sep-02-2016	■ General Information
SAYEY1G88BA0B0A_rev. K	May-10-2017	■ Updated General Information
SAYEY1G88BA0B0A_rev. L	May-30-2017	■ 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

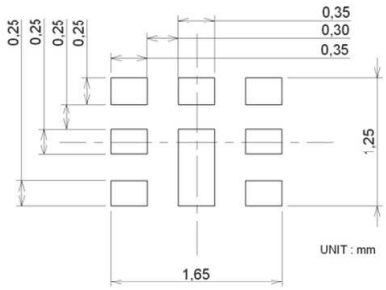


Marking : Laser Printing
* : Month code(Refer to the table A)
$: Date code(Refer to the table B)
1 : 5
2 : P
3 : A

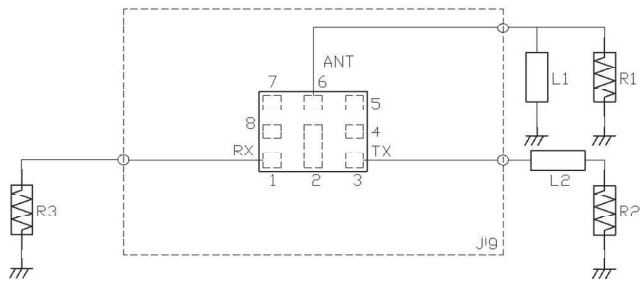
Terminal Number
(6) : Ant
(3) : TX
(1) : RX
Others : GND

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

Land Pattern



Measurement Circuit (Top Thru View)



R1 : 50 ohm	L1 :4.3nH(Ideal inductor)
	:5.1nH(LQP03TN5N1) <Reference>
R2 : 50 ohm	L2 :1.5nH(Ideal capacitor)
R3 : 50 ohm	

SAYEY1G88BA0B0A (Band2 / Unbalanced / LR / 1814)

Electrical Characteristic < TX→ANT. >

TX → ANT.			Characteristics (-20 to +85 deg.C)			Unit	Note
			min.	typ.*	max.		
Center Frequency				1880		MHz	
Insertion Loss	1850.48 to 1909.52	MHz		2.0	2.8	dB	
	1852.4 to 1907.6	MHz		1.9	2.4	dB_{INT}	Any 3.84MHz
	1852.5 to 1907.5	MHz		1.9	2.4	dB_{INT}	Any 4.5MHz
	1851.25 to 1908.75	MHz		2.0	2.6	dB_{INT}	Any 1.25MHz
	1850.48 to 1909.52	MHz		2.0	2.3	dB	+23 to +27deg.C
	1852.4 to 1907.6	MHz		1.9	2.1	dB_{INT}	+23 to +27deg.C Any 3.84MHz
Ripple Deviation	1850.48 to 1909.52	MHz		0.3	1.2	dB	Any 5MHz
	1850.48 to 1909.52	MHz		0.3	0.8	dB	+23 to +27deg.C Any 5MHz
VSWR	1850.48 to 1909.52	MHz		1.4	1.9		Ant
	1850.48 to 1909.52	MHz		1.5	1.9		TX
	1850.48 to 1909.52	MHz		1.4	1.9		+23 to +27deg.C ANT.
	1850.48 to 1909.52	MHz		1.5	1.9		+23 to +27deg.C TX
Absolute Attenuation	10. to 728.	MHz	33	38		dB	
	704. to 716.	MHz	34	39		dB	
	728. to 764.	MHz	33	38		dB	
	777. to 787.	MHz	32	37		dB	
	869. to 894.	MHz	31	36		dB	
	1226. to 1250.	MHz	28	33		dB	
	1559. to 1563.	MHz	35	38		dB	
	1565.42 to 1573.37	MHz	35	39		dB	
	1573.37 to 1577.47	MHz	35	39		dB	
	1577.47 to 1585.42	MHz	35	39		dB	
	1597.55 to 1605.88	MHz	35	40		dB	
	1605.88 to 1680.	MHz	24	35		dB	
	1930. to 1990.	MHz	41	49		dB	
	1930. to 1990.	MHz	43	49		dB	+23 to +27deg.C
	2010. to 2025.	MHz	36	44		dB	
	2110. to 2155.	MHz	25	38		dB	
	2350. to 2360.	MHz	17	25		dB	
	2400. to 2500.	MHz	18	26		dB	
	3700. to 3820.	MHz	18	23		dB	
	4900. to 5850.	MHz	5.0	10.0		dB	
	5254. to 5455.	MHz	7.0	12.0		dB	
	5520. to 5845.	MHz	5.0	10.0		dB	
	5540. to 5950.	MHz	5.0	10.0		dB	
	7390. to 7650.	MHz	3.0	6.1		dB	
	9240. to 9560.	MHz	9.0	7.5		dB	
	11090. to 11470.	MHz	12	8		dB	

* Typical value at 25±2deg.C

SAYEY1G88BA0B0A (Band2 / Unbalanced / LR / 1814)

Electrical Characteristic < ANT.→RX >

ANT. → RX			Characteristics (-20 to +85 deg.C)			Unit	Note
			min.	typ.*	max.		
Center Frequency				1960		MHz	
Insertion Loss	1930.48 to 1989.52	MHz		2.6	3.2	dB	
	1932.4 to 1987.6	MHz		2.2	2.9	dB_{INT}	Any 3.84MHz
	1932.5 to 1987.5	MHz		2.2	2.9	dB_{INT}	Any 4.5MHz
	1931.25 to 1988.75	MHz		2.3	3.0	dB_{INT}	Any 1.25MHz
	1930.48 to 1989.52	MHz		2.6	2.8	dB	+23 to +27deg.C
	1932.4 to 1987.6	MHz		2.2	2.4	dB_{INT}	+23 to +27deg.C Any 3.84MHz
Ripple Deviation	1930.48 to 1989.52	MHz		0.6	1.4	dB	Any 5MHz
	1930.48 to 1989.52	MHz		0.6	1.1	dB	+23 to +27deg.C Any 5MHz
VSWR	1930.48 to 1989.52	MHz		2.0	2.1		ANT.
	1930.48 to 1989.52	MHz		1.8	2.1		RX
	1930.48 to 1989.52	MHz		2.0	2.1		+23 to +27deg.C ANT
	1930.48 to 1989.52	MHz		1.8	2.0		+23 to +27deg.C RX
Absolute Attenuation	1. to 1850.	MHz	30	46		dB	
	80. to 80.	MHz	80	94		dB	
	699. to 716.	MHz	51	57		dB	
	777. to 787.	MHz	50	56		dB	
	824. to 849.	MHz	48	55		dB	
	1770. to 1830.	MHz	47	53		dB	
	1850. to 1910.	MHz	45	56		dB	
	1910. to 1915.	MHz	11	52		dB	
	2005. to 2050.	MHz	2.5	7.4		dB	
	1850. to 1910.	MHz	51	56		dB	+23 to +27deg.C
	1910. to 1915.	MHz	24	52		dB	+23 to +27deg.C
	2005. to 2050.	MHz	4.0	7.4		dB	+23 to +27deg.C
	2050. to 2075.	MHz	25	50		dB	
	2075. to 6000.	MHz	40	45		dB	
	2305. to 2315.	MHz	42	47		dB	
	2400. to 2500.	MHz	42	48		dB	
	3780. to 3900.	MHz	48	60		dB	
	3860. to 3980.	MHz	48	60		dB	
	3980. to 13025.	MHz	15	38		dB	
	4900. to 5950.	MHz	40	48		dB	
	5610. to 5845.	MHz	40	48		dB	
	5630. to 5810.	MHz	40	48		dB	
	5790. to 5970.	MHz	40	48		dB	
	5970. to 7720.	MHz	30	40		dB	
	7720. to 7960.	MHz	30	38		dB	
	9650. to 9950.	MHz	20	38		dB	
	11580. to 11940.	MHz	15	38		dB	

* Typical value at 25±2deg.C

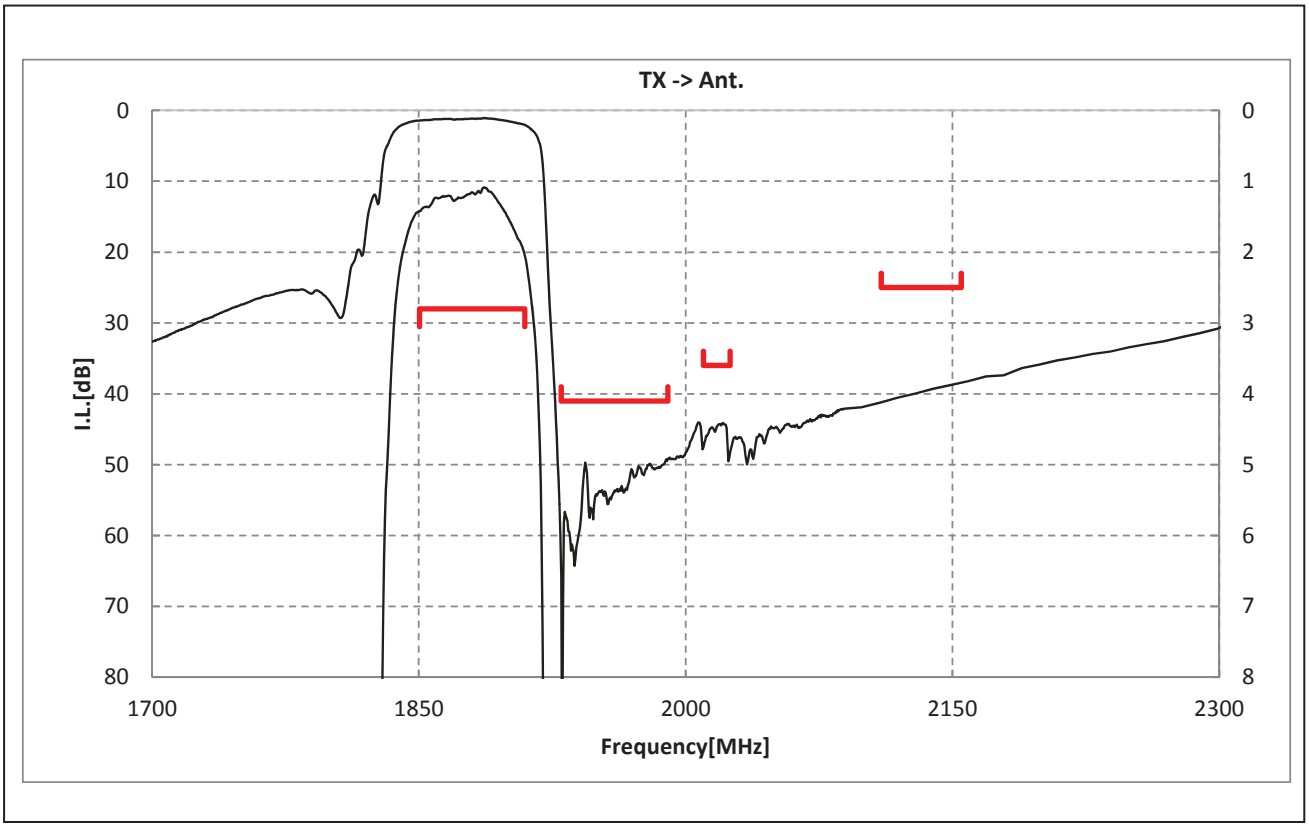
Electrical Characteristic < TX→RX. >

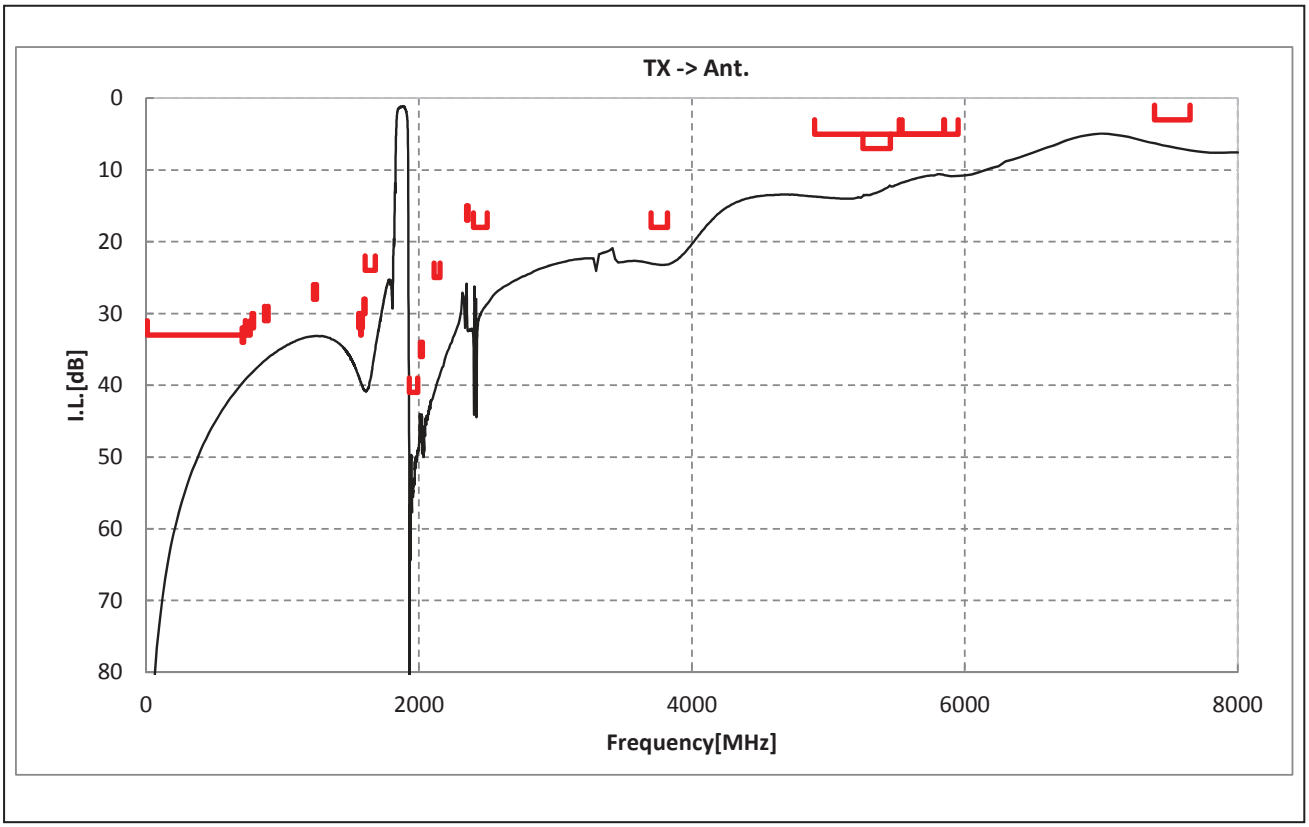
TX → RX		Characteristics (-20 to +85 deg.C)			Unit	Note
		min.	typ.*	max.		
Isolation						
	1574. to 1577. MHz	40	66		dB	
	1850.25 to 1909.75 MHz	53	58		dB	
	1850.48 to 1909.52 MHz	53	58		dB	
	1852.4 to 1907.6 MHz	53	58		dB_{INT}	Any 3.84MHz
	1852.5 to 1907.5 MHz	53	58		dB_{INT}	Any 4.5MHz
	1851.25 to 1908.75 MHz	53	58		dB_{INT}	Any 1.25MHz
	1930.25 to 1989.75 MHz	50	54		dB	
	1932.4 to 1987.6 MHz	52	55		dB_{INT}	Any 3.84MHz
	1932.5 to 1987.5 MHz	52	55		dB_{INT}	Any 4.5MHz
	1931.25 to 1988.75 MHz	52	55		dB_{INT}	Any 1.25MHz
	1850.48 to 1909.52 MHz	54	58		dB	+23 to +27deg.C
	1852.4 to 1907.6 MHz	54	58		dB_{INT}	+23 to +27deg.C Any 3.84MHz
	3700. to 3820. MHz	45	53		dB	
	5550. to 5850. MHz	42	59		dB	

* Typical value at 25±2deg.C

Electrical Characteristic

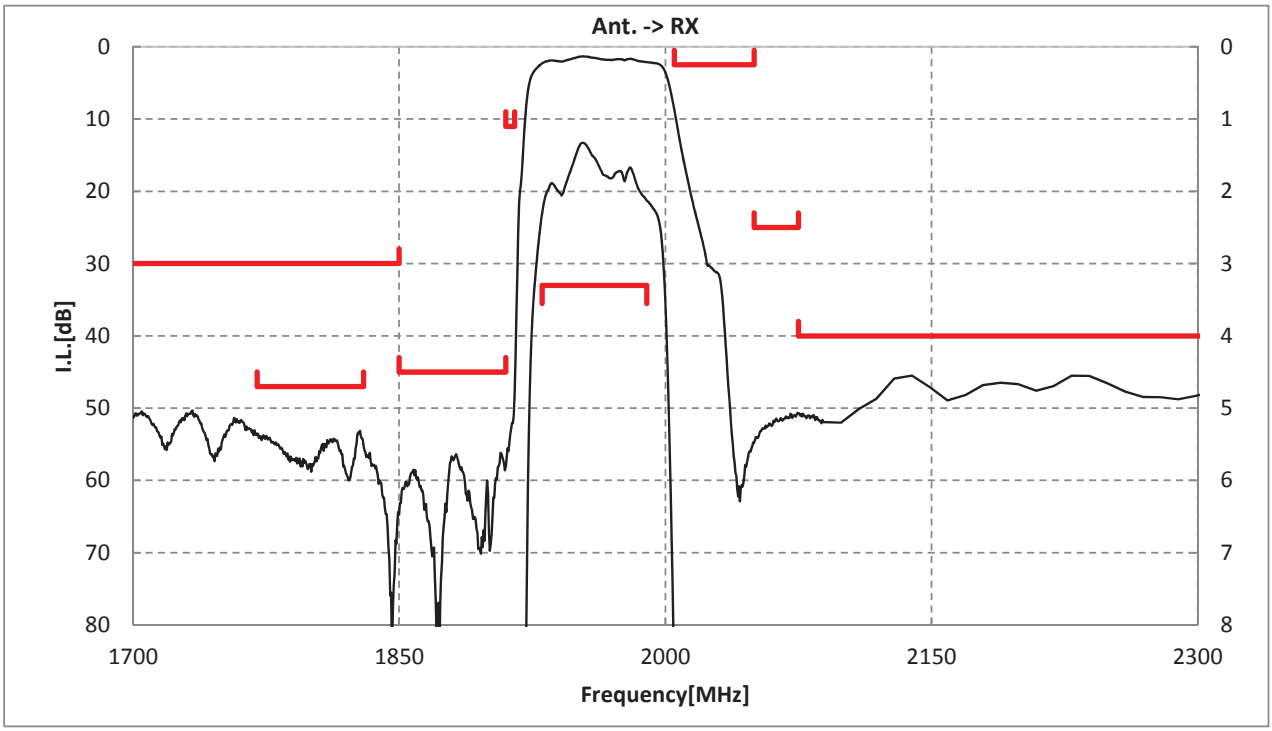
< TX→ANT. >

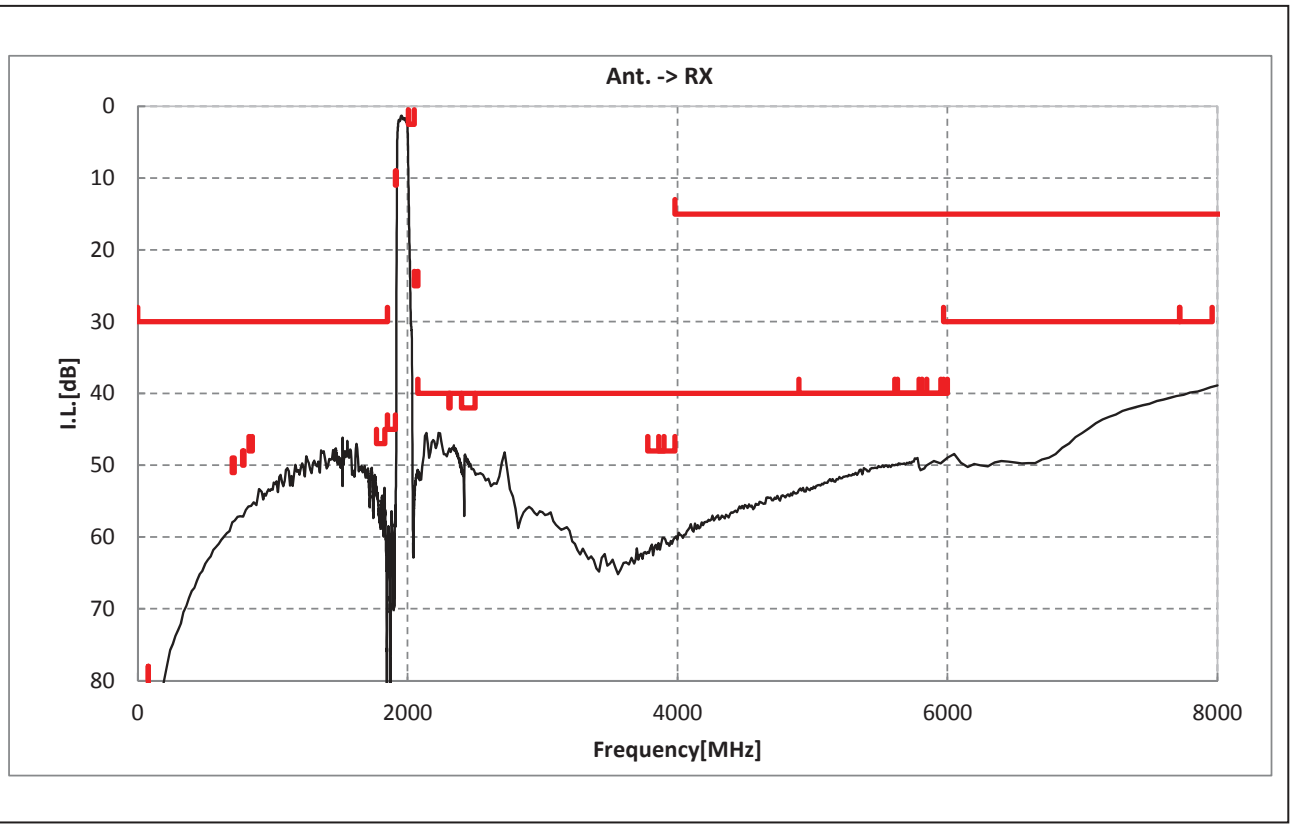




Electrical Characteristic

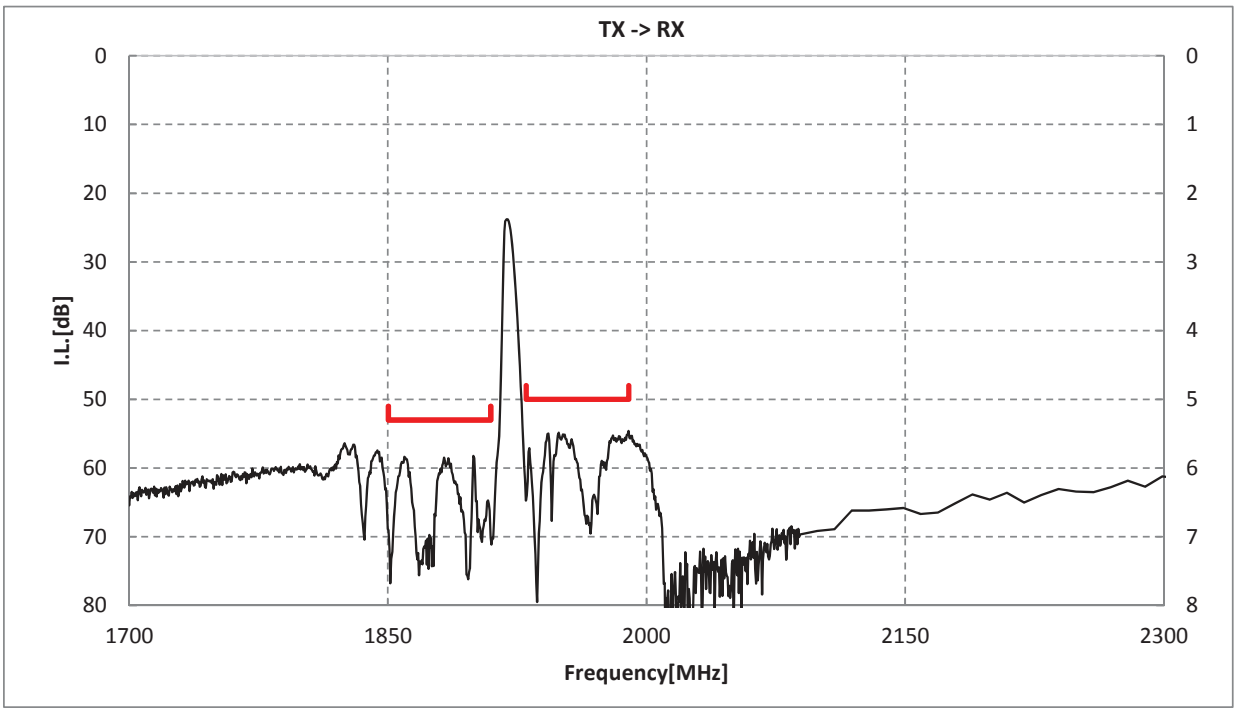
< ANT.→RX >

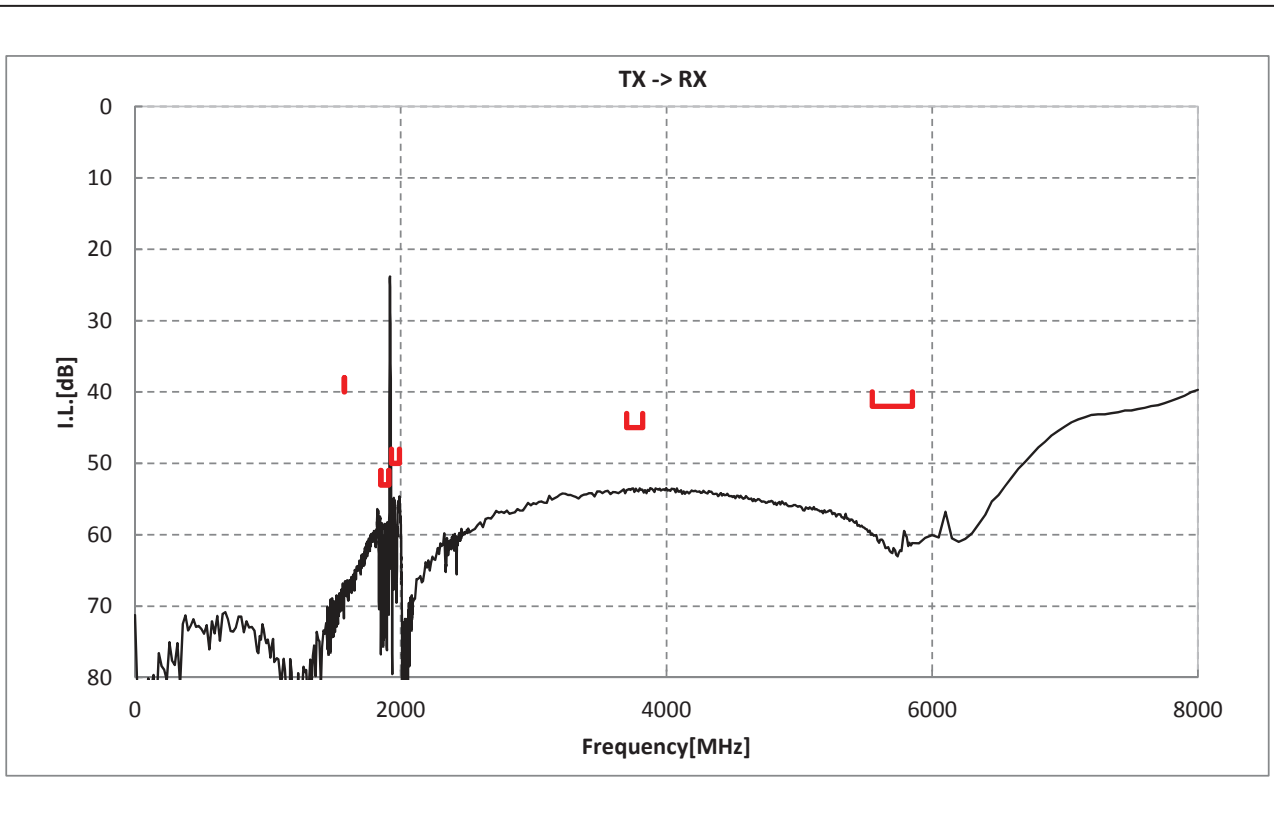




Electrical Characteristic

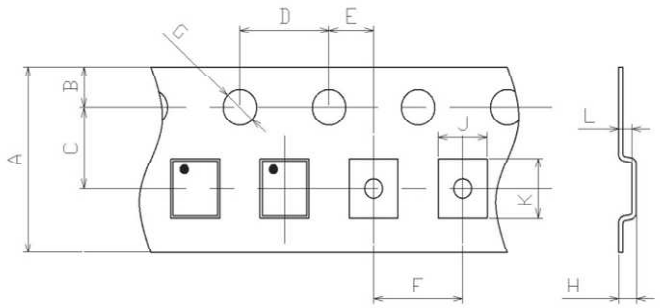
< TX→RX. >





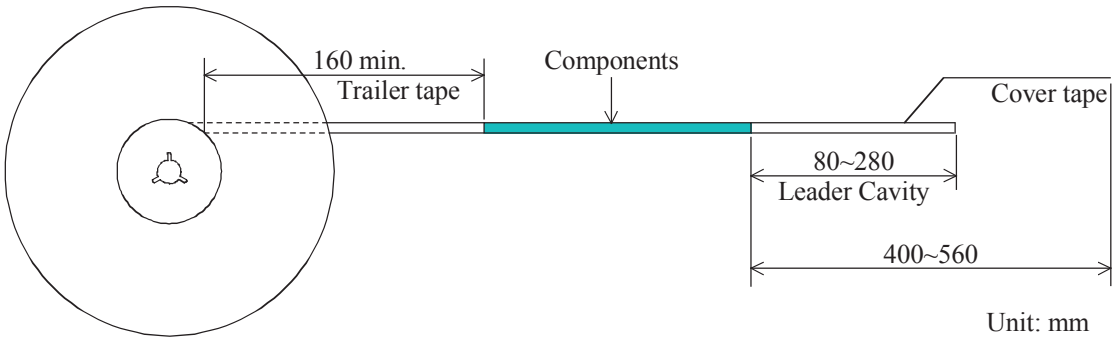
Dimensions of Tape & Reel unit: mm

Carrier Tape

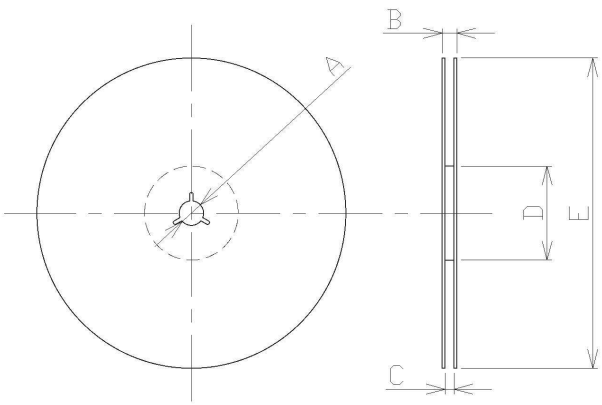


A:	8.0	J:	1.7
B:	1.75	K:	2.1
C:	3.50	L:	0.70
D:	4.0		
E:	2.00		
F:	4.0		
G:	φ1.5		
H:	1.00		

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

SAYEY1G88BA0B0AR00… 10000pcs (φ330)
SAYEY1G88BA0B0AR1S… Sample Order (φ178/330)

Marking Code

Table A: Month Code

2013 2017 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 2018 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 2019 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 2020 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

Important Notice (1/2)

PLEASE READ THIS NOTICE BEFORE USING OUR PRODUCTS.

Please make sure that your product has been evaluated and confirmed from the aspect of the fitness for the specifications of our product when our product is mounted to your product.
All the items and parameters in this product specification/datasheet/catalog have been prescribed on the premise that our product is used for the purpose, under the condition and in the environment specified in this specification. You are requested not to use our product deviating from the condition and the environment specified in this specification.
Please note that the only warranty that we provide regarding the products is its conformance to the specifications provided herein. Accordingly, we shall not be responsible for any defects in products or equipment incorporating such products, which are caused under the conditions other than those specified in this specification.

WE HEREBY DISCLAIMS ALL OTHER WARRANTIES REGARDING THE PRODUCTS, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, THAT THEY ARE DEFECT-FREE, OR AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS.

The product shall not be used in any application listed below which requires especially high reliability for the prevention of such defect as may directly cause damage to the third party's life, body or property. You acknowledge and agree that, if you use our products in such applications, we will not be responsible for any failure to meet such requirements.

Furthermore, YOU AGREE TO INDEMNIFY AND DEFEND US AND OUR AFFILIATES AGAINST ALL CLAIMS, DAMAGES, COSTS, AND EXPENSES THAT MAY BE INCURRED, INCLUDING WITHOUT LIMITATION, ATTORNEY FEES AND COSTS, DUE TO THE USE OF OUR PRODUCTS IN SUCH APPLICATIONS.

Important Notice (2/2)

- Aircraft equipment.
- 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.

We expressly prohibit you from analyzing, breaking, Reverse-Engineering, remodeling altering, and reproducing our product. Our product cannot be used for the product which is prohibited from being manufactured, used, and sold by the regulations and laws in the world.

Please do not use the product in molding condition.

This product is ESD (ElectroStatic Discharge) sensitive device.
When you install or measure this, you should be careful not to add antistatic electricity or high voltage.
Please be advised that you had better check anti serge voltage.

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Moreover, you must comply with "foreign exchange and foreign trade law", the "U.S. export administration regulations", etc.

Please note that we may discontinue the manufacture of our products, due to reasons such as end of supply of materials and/or components from our suppliers.

Customer acknowledges that Murata will, if requested by you, conduct a failure analysis for defect or alleged defect of Products only at the level required for consumer grade Products, and thus such analysis may not always be available or be in accordance with your request (for example, in cases where the defect was caused by components in Products supplied to Murata from a third party).

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

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In particular we disclaim liability for damages caused by

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・deviation or lapse in function of engineering sample,

・improper use of engineering samples.

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