

## **Datasheet of SAW Device**

SAW Extractor for GPS L1\_GPS L5\_Cellular / Unbalanced / 9pin/2016

Murata PN: SADAG1G17AA0C0A

- Feature
  - Double Extractor
  - ➤ GNSS L1 + L5 +MHB



Note: This Murata SAW Component is Consumer grade product and applicable for Cellular phone or similar end devices.

Please also read Important Notice at the end of this document.





#### **General Information**

- Operating temperature : -20 to +85 deg.C - Storage temperature : -40 to +85 deg.C

- Input Power @Cellular Port :+28.0dBm 5000h +50deg.C<sup>(1)</sup>

(for 1427-1510.9MHz, 1710-2690MHz)

@Antenna Port :+15.0dBm 5000h +50deg.C<sup>(1)</sup>

(for 617-915MHz, 1427-1510.9MHz, 1710-2690MHz, 3300-5000MHz)

+15.0dBm 5000h +50deg.C<sup>(2)</sup>

(for 1166.22-1186.68MHz, 1559.05-1605.89MHz)

<sup>(1)</sup> applicable for W-CDMA, SC-FDMA, DFT-s-OFDM, CP-OFDM

(2) applicable for CW

- D.C. Volatage between the terminals : 3V (25+/-2 deg.C)

- Minimum Resistance between the terminals : 1M ohm

: Yes

- ESD (ElectroStatic Discharge) sensitive device

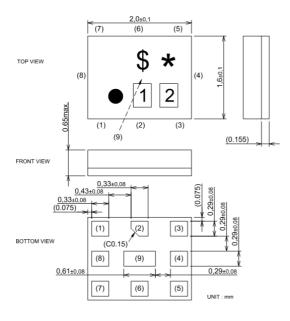


unit: mm

## SADAG1G17AA0C0A (GPS L1\_GPS L5\_Cellular / Unbalanced / 9pin/ 2016)

## Package Dimensions & Recommended Land Pattern

#### **Dimensions**



Marking: Laser Printing

\*: Month code

\$: Date code

1 : Q

2:3

#### **Terminal Number**

(1): Unbalance Port(GNSS L1 Port)

(3): Unbalance Port(GNSS L5 Port)

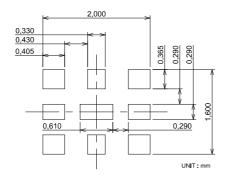
(5): Unbalance Port(Cellular Port)

(7): Unbalance Port(ANT. Port)

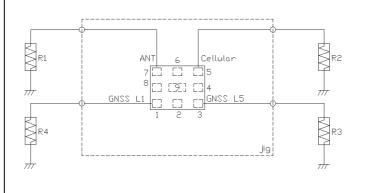
Others GND.

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

#### Land Pattern



## Measurement Circuit (Top Thru View)



R1 : 50 ohm	
R2 : 50 ohm	
R3 : 50 ohm	
R4 : 50 ohm	



## Electrical Characteristic < Ant → GPS L1 >

Ant -	→ GPS L1			(-20	เบ รอง น	eu.c i	Unit	
Center Frequency		Ant → GPS L1						Note
			min.	typ.* /1561.1	max.	MHz		
Insertion Loss	1559.05 to	1563.15	MHz	15/5.4	1.5	2.0	dB	
Inscrion Loss	1574.39 to	1576.45			0.8	1.4	dB	
	1597.55 to	1605.89			1.1	1.8	dB	
VSWR	1559.05 to	1563.15			1.2	2.0		ANT.
	1574.39 to	1576.45	MHz		1.4	2.0		ANT.
	1597.55 to	1605.89			1.3	2.0		ANT.
	1559.05 to	1563.15			1.4	2.0		GNSS
	1574.39 to	1576.45			1.5	2.0		GNSS
	1597.55 to			25	1.4	2.0	-ID	GNSS
Absolute Attenuation	617. to		MHz	35 28	42 33		dB dB	
	1427. to		MHz MHz	35	41		dВ	
	2300. to		MHz	30	41		dB	
	3400. to		MHz	25	30		dB	
	5150. to		MHz	15	19		dB	
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								* Typical value at 25+2deg C

<sup>\*</sup> Typical value at 25±2deg.C



## Electrical Characteristic < ANT. → GPS L5 >

Center Frequency	ANT. → GPS L5			Characteristics (-20 to +85 deg.C)			Unit	Note	
No.   No.		> GI 3 L3				typ.*	max.		Note
1166.22 to 1186.68 MHz	Center Frequency							MHz	
VSWR	Insertion Loss	1166.22 to	1186.68	MHz		1.5	2.1	dB	
Absolute Attenuation    1166.22 to	VSWR	1166.22 to				1.3			ANT.
Absolute Attenuation    617.   to   960.   MHz   32   35   dB		1166.22 to	1186.68						GNSS
1427. to 1511. MHz 30 34 dB 1710. to 2200. MHz 28 33 dB 2300. to 2690. MHz 30 34 dB 3300. to 4200. MHz 25 34 dB	Absolute Attenuation				32			dB	0.100
1710. to 2200. MHz 28 33 dB 2300. to 2690. MHz 30 34 dB 3300. to 4200. MHz 25 34 dB	/ tosolate / titeridation								
2300. to 2690. MHz 30 34 dB 3300. to 4200. MHz 25 34 dB									
3300. to 4200. MHz 25 34 dB									
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<sup>\*</sup> Typical value at 25±2deg.C



## Electrical Characteristic < ANT. → Cell >

ANT. → Cell					Characteristics (-20 to +85 deg.C) min. typ.* max.			Unit	Note
1						typ.*	max.		
Insertion Loss	1452.	to	1496.	MHz		1.6	2.3	dB	
	1710.	to	2200.	MHz		1.5	2.0	dB	
VSWR	2300. 1452.	to	2690. 1496.	MHz		1.5 1.3	2.2	dB	ANIT
VSWR	1710.	to	2200.	MHz MHz		1.6	2.0		ANT.
	2300.	to to	2690.	MHz		1.3	2.0		ANT.
	1452.	to	1496.	MHz		1.2	2.0		Cell
	1710.	to	2200.	MHz		1.6	2.0		Cell
	2300.	to	2690.	MHz		1.4	2.0		Cell
Absolute Attenuation	1166.22	to	1186.68	MHz	10	14		dB	
	1559.05	to	1605.89	MHz	7.0	10.0		dB	
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## Electrical Characteristic < Cell → GPS L1 >

Ce		Cha (-20	racteri to +85 d	stics eg.C)	Unit	Note		
	0. 0	o. o		min.	typ.*	max.	<b></b>	1.000
Isolation	617. to	960.	MHz	35	43		dB	
	1166.22 to	1186.68	MHz	35	53		dB	
	1452. to	1496.	MHz	35	40		dB	
	1559.05 to	1605.89	MHz	8.0	11.0		dB	
	1710. to	2200.	MHz	35	43		dB	
	2300. to	2690.	MHz	35	45		dB	
	3300. to	4200.	MHz	27	31		dB	
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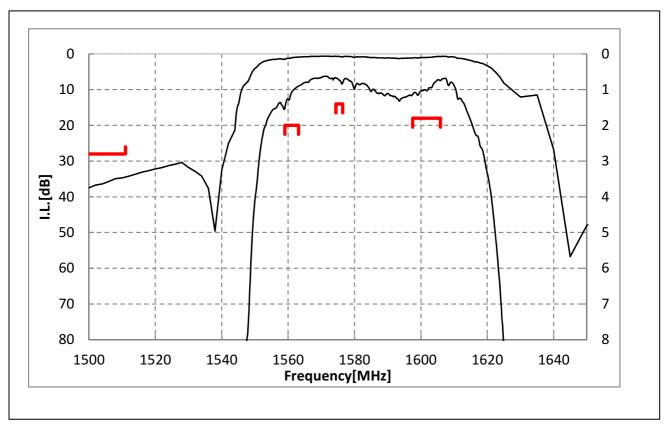
## Electrical Characteristic < Cell → GPS L5 >

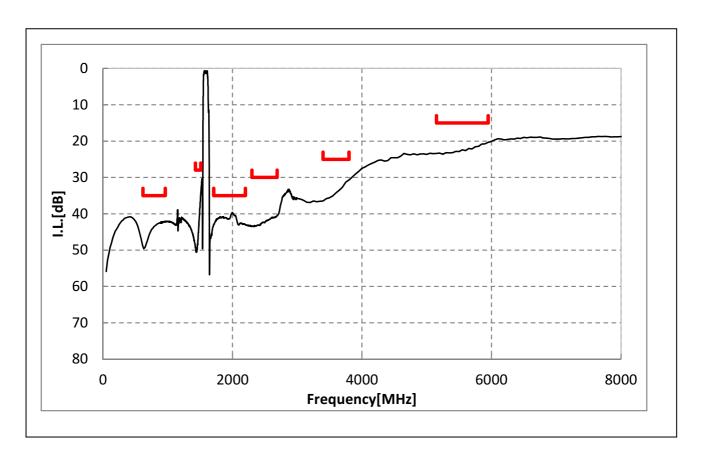
	0    000				Cha	ractari	etice	l	ĺ
	Cell → GPS L5						stics eg.C)	Unit	Note
					min.	typ.*	max.		
Isolation	617.	to	960.	MHz	30	35		dB	
	1166.2	2 to	1186.68	MHz	10	15		dB	
	1452.	to	1496.	MHz	25	33		dB	
	1559.0	5 to	1605.89	MHz	25	28		dB	
	1710.	to	2200.	MHz	28	33		dB	
	2300.	to	2690.	MHz	28	32		dB	
	3300.	to	4200.	MHz	25	30		dB	
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#### **Electrical Characteristic**

< ANT. → GPS L1 >

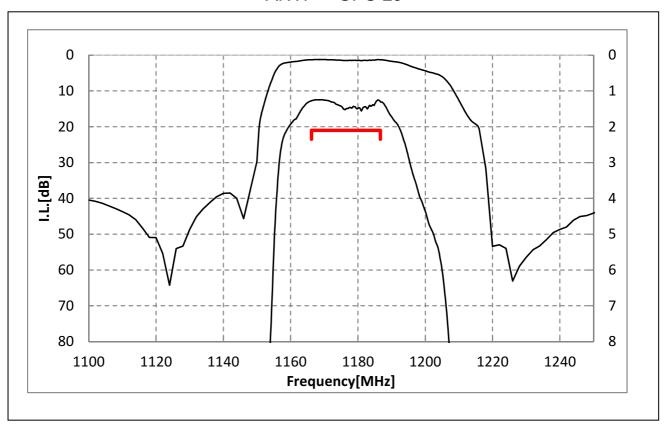


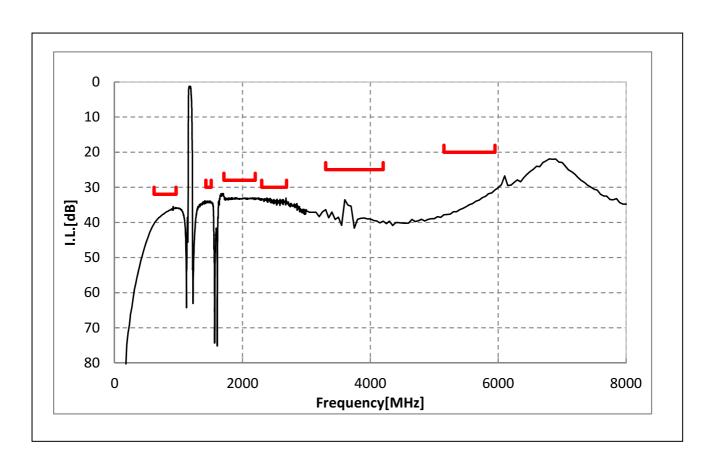




# SADAG1G17AA0C0A (GPS L1\_GPS L5\_Cellular / Unbalanced / 9pin/ 2016 ) Electrical Characteristic

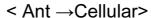
< ANT.  $\rightarrow$  GPS L5 >

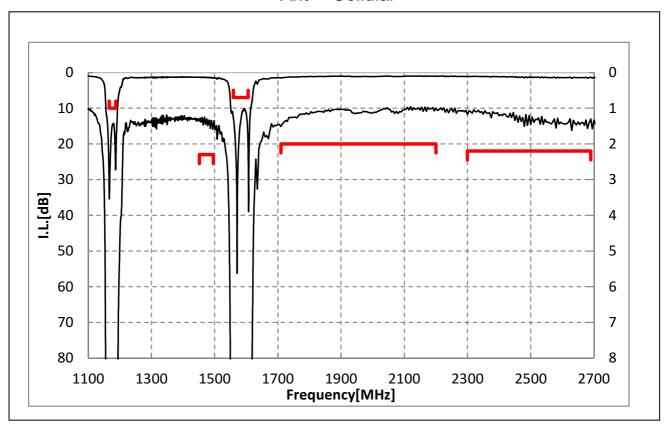


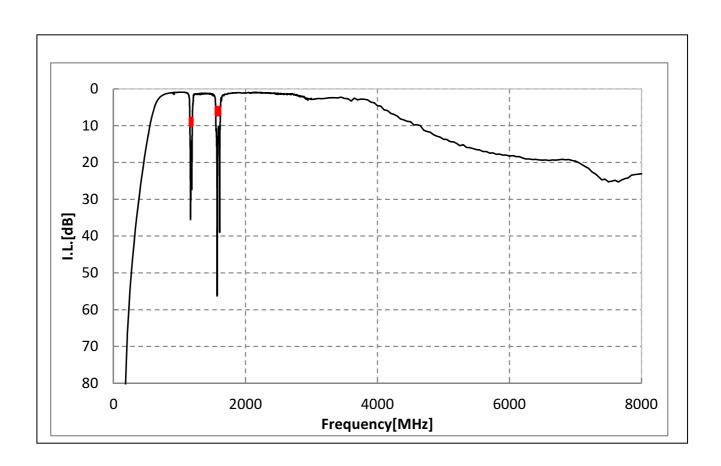




# SADAG1G17AA0C0A (GPS L1\_GPS L5\_Cellular / Unbalanced / 9pin/ 2016 ) Electrical Characteristic



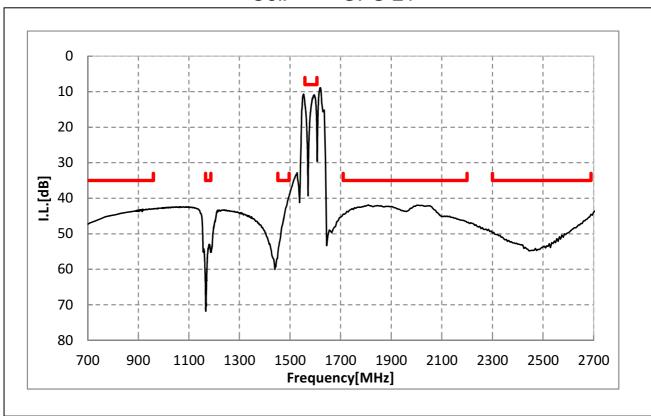




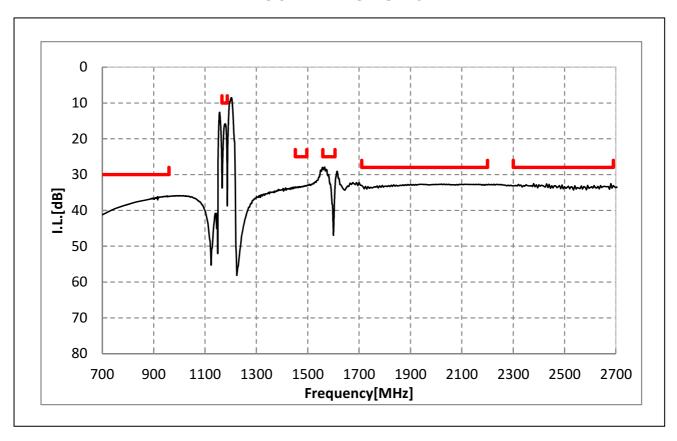


## SADAG1G17AA0C0A (GPS L1\_GPS L5\_Cellular / Unbalanced / 9pin/ 2016 ) Electrical Characteristic





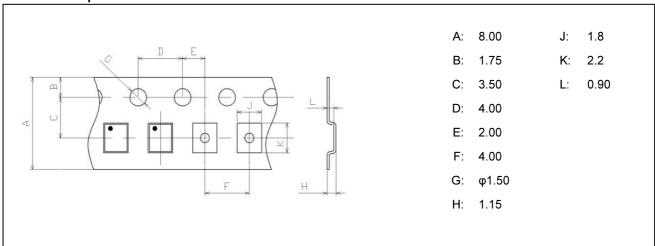
#### < Cell $\rightarrow$ GPS L5>



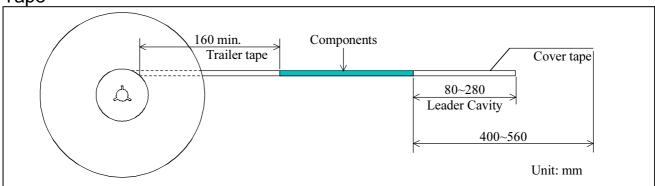


# SADAG1G17AA0C0A (GPS L1\_GPS L5\_Cellular / Unbalanced / 9pin/ 2016 ) Dimensions of Tape & Reel unit: mm

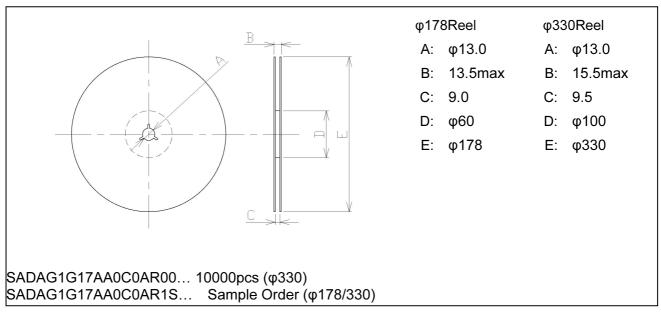
#### **Carrier Tape**



#### Tape



#### Reel





### 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 specified in the front page of this product specifications (the "Product" or "Products") 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 Product 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 for any application which requires especially high reliability or accuracy in order to prevent defect which incurs high possibility of damage to the third party's life, body or property such as the applications listed below as item (a) to (j) (the "Prohibited Application"). You acknowledge and agree that, if you use our Products in the Prohibited Applications, we will not be responsible for any damage caused by such use.

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 THE PROHIBITED APPLICATIONS.

- (a) Aircraft equipment.
- (b) Aerospace equipment
- (c) Undersea equipment.
- (d) Power plant control equipment
- (e) Medical equipment.
- (f) Transportation equipment (vehicles, automotive, trains, ships, etc.).
- (g)Traffic signal equipment.
- (h)Disaster prevention / crime prevention equipment.
- (i) Burning / explosion control equipment
- (j) Application of similar complexity and/ or reliability requirements to the applications listed in the above.

For the avoidance of doubt, the Product is not automotive grade, and will not support such requests for automotive as below, also not support other specific requests for automotive.

- AEC-Q200
- PPAP
- IATF16949, VDA6.3
- Zero Defect program
- Long product life cycle
- Automotive 8D failure analysis and report



#### Important Notice (2/2)

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.

We do not warrant or represent that any license, either express or implied, is granted under any our patent right, copyright, mask work right, or our other intellectual property right relating to any combination, machine, or process in which our Products or services are used. Information provided by us regarding third-party products or services does not constitute a license from us to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from us under our patents or other intellectual property.

Please do not use our Products, our technical information and other data provided by us for the purpose of developing of mass-destruction weapons and the purpose of military use.

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.

Customer acknowledges that engineering samples may deviate from specifications and may contain defects due to their development status.

We reject any liability or product warranty for engineering samples.

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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