

Data Sheet for SAW Components

GNSS L1&L2+L5
Rx Dual Filter



Product ID: LBB1590D1S

Date: Jun. 13, 2023

Revision: 0.1 Preliminary

Features

- ◆ Package Size : 1.5 x 1.1 x 0.5max mm
- ◆ Single-Ended Input and Output
- ◆ Terminating Impedance : 50 Ω
- ◆ Moisture Sensitivity Level 3
- ◆ ESD Sensitive Device

Electrical Specifications GNSS L1&L2+L5 Rx Dual Filter

Temperature Range for Specification : -30 to +85 °C

Ant to Lch	Min.	Typ.	Max.	Unit
Insertion Loss				
1166.22 - 1186.68 MHz	-	-	1.8	dB
1205.09 - 1209.19 MHz	-	-	1.8	dB
1226.58 - 1228.62 MHz	-	-	2.0	dB
Pass Band Ripple				
1166.22 - 1186.68 MHz	-	-	0.8	dB
1205.09 - 1209.19 MHz	-	-	0.5	dB
1226.58 - 1228.62 MHz	-	-	1.0	dB
VSWR Ant				
1166.22 - 1228.62 MHz	-	-	2.0	-
VSWR Lch				
1166.22 - 1228.62 MHz	-	-	2.0	-
Group Delay				
1166.22 - 1228.62 MHz	-	-	20	ns
Absolute Attenuation				
10 - 960 MHz	30	-	-	dB
638 - 748 MHz	33	-	-	dB
777 - 798 MHz	30	-	-	dB
807 - 915 MHz	25	-	-	dB
1427 - 2025 MHz	27	-	-	dB
1626.5 - 1660.5 MHz	25	-	-	dB
1695 - 1785 MHz	28	-	-	dB
1850 - 2025 MHz	31	-	-	dB
2300 - 2400 MHz	35	-	-	dB
2400 - 2483 MHz	36	-	-	dB
2496 - 2690 MHz	35	-	-	dB
3400 - 3800 MHz	29	-	-	dB
4400 - 4900 MHz	26	-	-	dB
5150 - 5925 MHz	26	-	-	dB

Electrical Specifications GNSS L1&L2+L5 Rx Dual Filter

Temperature Range for Specification : -30 to +85 °C

Ant to Hch	Min.	Typ.	Max.	Unit
Insertion Loss				
1574.39 - 1576.45 MHz	-	-	2.0	dB
1574.39 - 1576.45 MHz	-	-	1.9	dB ^{*1}
1559.05 - 1563.15 MHz	-	-	2.3	dB
1559.05 - 1563.15 MHz	-	-	2.2	dB ^{*1}
1597.55 - 1605.89 MHz	-	-	2.3	dB
1597.55 - 1605.89 MHz	-	-	2.2	dB ^{*1}
Pass Band Ripple				
1574.39 - 1576.45 MHz	-	-	1.0	dB
1559.05 - 1563.15 MHz	-	-	1.0	dB
1597.55 - 1605.89 MHz	-	-	1.0	dB
VSWR Ant				
1574.39 - 1576.45 MHz	-	-	2.0	-
1559.05 - 1563.15 MHz	-	-	2.2	-
1597.55 - 1605.89 MHz	-	-	2.2	-
VSWR Hch				
1574.39 - 1576.45 MHz	-	-	2.0	-
1559.05 - 1563.15 MHz	-	-	2.0	-
1597.55 - 1605.89 MHz	-	-	2.2	-
Group Delay				
1574.39 - 1605.89 MHz	-	-	20	ns
Absolute Attenuation				
10 - 960 MHz	33	-	-	dB
638 - 698 MHz	39	-	-	dB
698 - 748 MHz	38	-	-	dB
777 - 798 MHz	35	-	-	dB
807 - 915 MHz	34	-	-	dB
1427 - 1463 MHz	32	-	-	dB
1710 - 1785 MHz	40	-	-	dB
1786 - 1797 MHz	40	-	-	dB
1850 - 1910 MHz	38	-	-	dB
1910 - 1980 MHz	37	-	-	dB

2010	-	2025	MHz	37	-	-	dB
2300	-	2315	MHz	41	-	-	dB
2401	-	2483	MHz	42	-	-	dB
2496	-	2690	MHz	40	-	-	dB
5150	-	5925	MHz	23	-	-	dB

*1: +23~+27℃

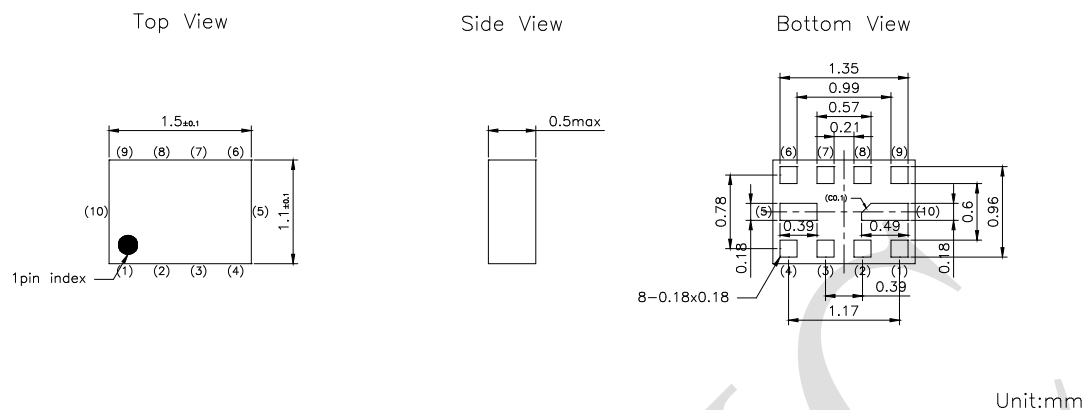
Maximum Ratings

Item	Rating	Condition / Remark
Storage Temperature	-40 to +85 °C	
DC Voltage	5 V	+25 °C
Input power	+15 dBm	LTE , +55 °C , 3000 h

Recommended Operating Conditions

Item	Rating	Condition / Remark
Operating Temperature, T _{CASE}	-30 to +85 °C	

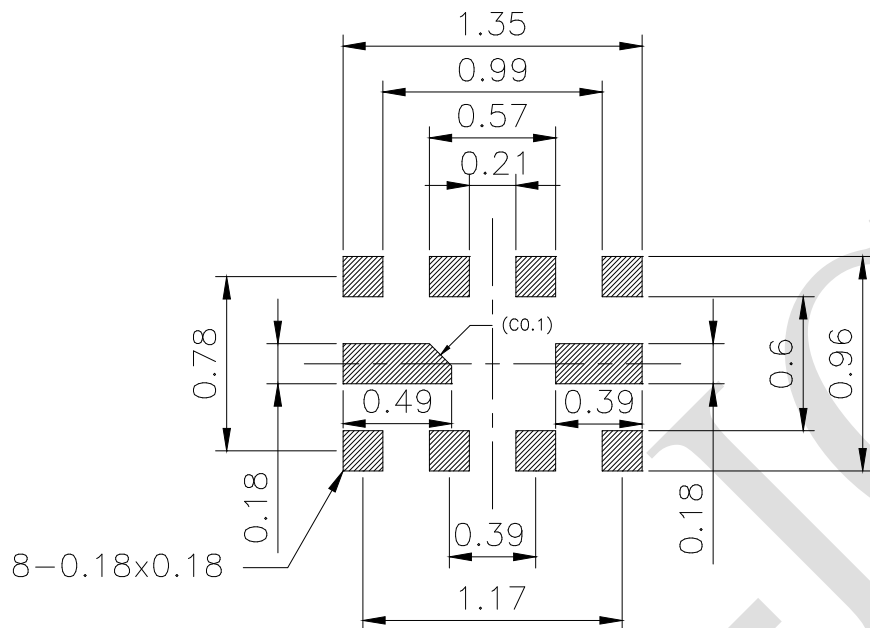
Package Information



Pin Configuration

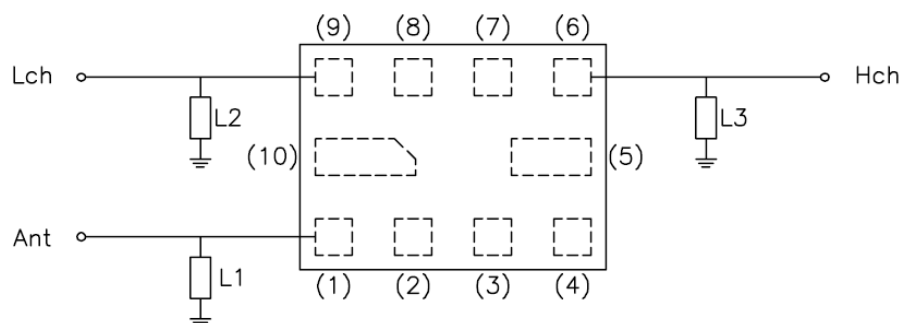
1	:	Ant
6	:	Hch
9	:	Lch
Other	:	GND

Land Pattern



Unit:mm

Application Circuit



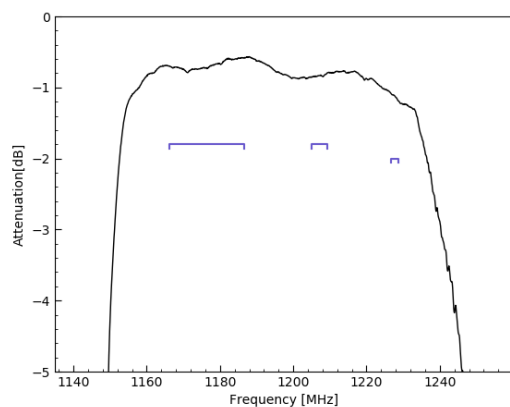
Port	Terminating Z	Matching Component
Ant	50 Ω	L1 : 3.9nH (Ideal inductor)
Lch	50 Ω	L2 : 8.2nH (Ideal inductor)
Hch	50 Ω	L2 : 12nH (Ideal inductor)

For ESD protection, external shunt inductor at all ports is recommended.

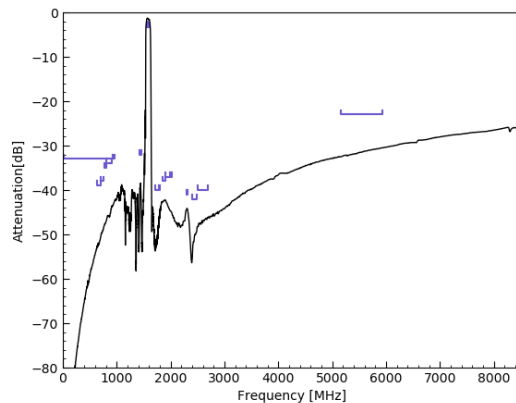
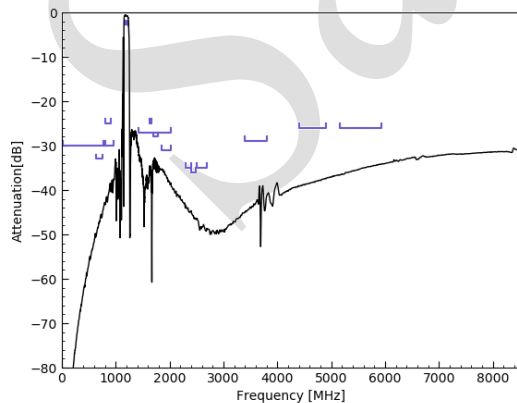
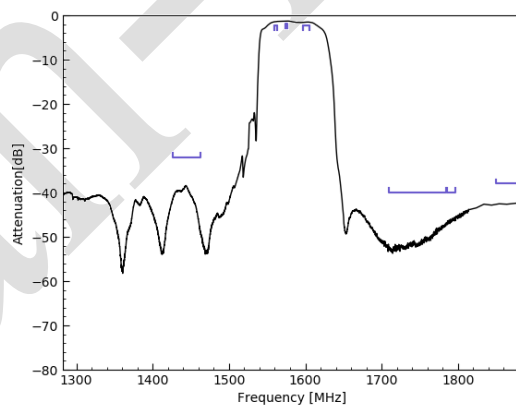
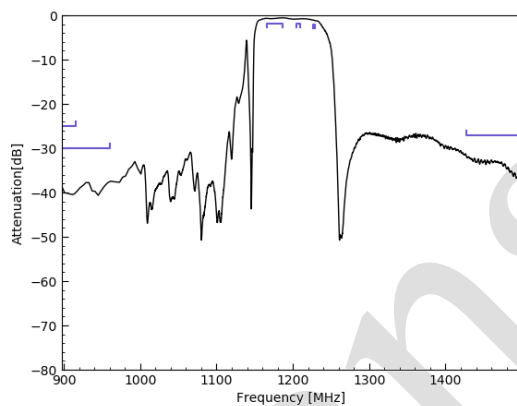
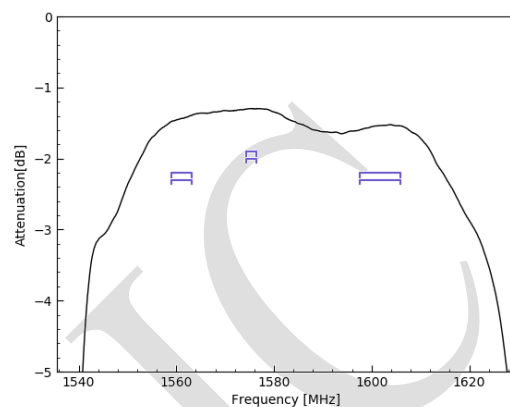
Electrical Characteristics

GNSS L1&L2+L5 Rx Dual Filter

Ant to Lch



Ant to Hch

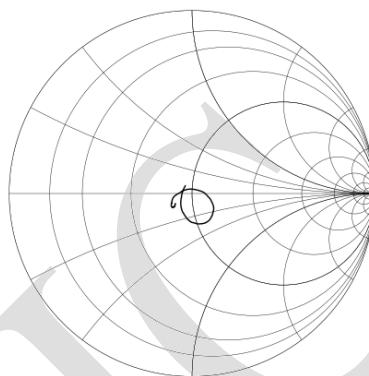
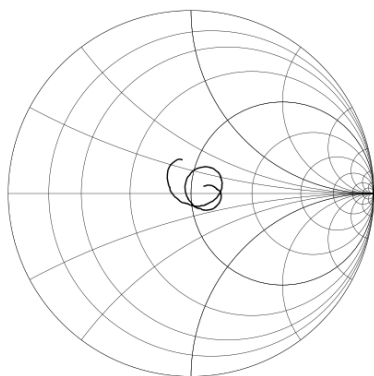


Electrical Characteristics

GNSS L1&L2+L5 Rx Dual Filter

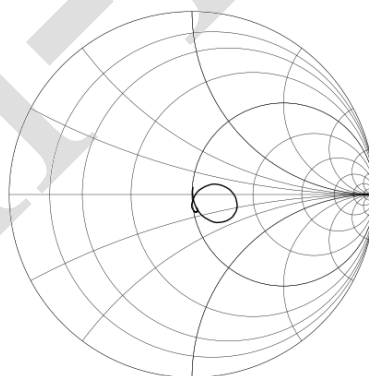
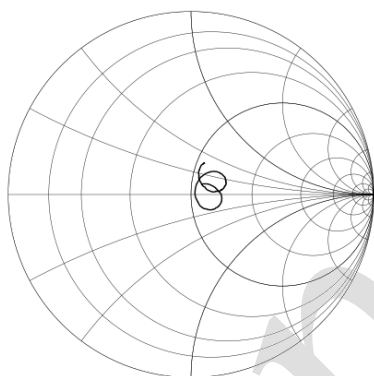
Ant Impedance (Lch band)

Ant Impedance (Hch band)

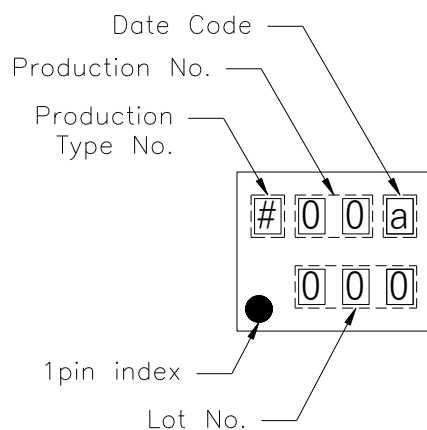


Lch Impedance

Hch Impedance



Marking Information



Production type No. (S: Sample, P: Production)

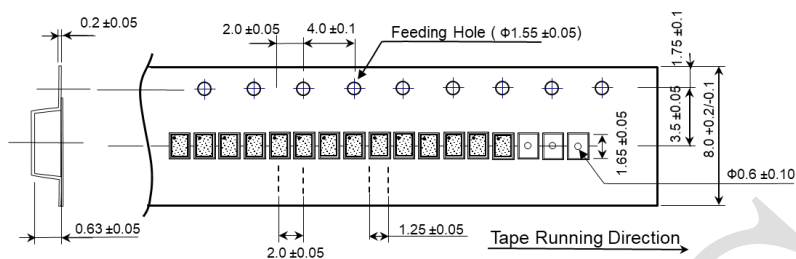
Product No. : 1S

Lot No. (Indicated by 0 ~ 9 or A to Z and a to z, except I, O, i, o and l)

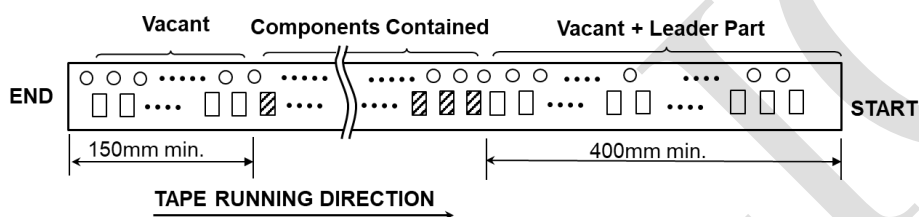
Product date code :

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	n	p	q	r	s	t	u	v	w	x	y	z
2024	A	B	C	D	E	F	G	H	J	K	L	M
2025	N	P	Q	R	S	T	U	V	W	X	Y	Z
2026	a	b	c	d	e	f	g	h	j	k	l	m

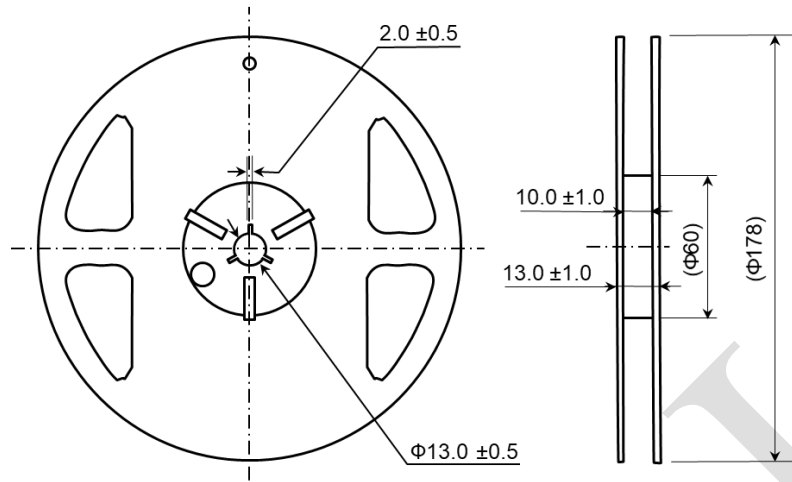
Tape Information



UNIT: mm

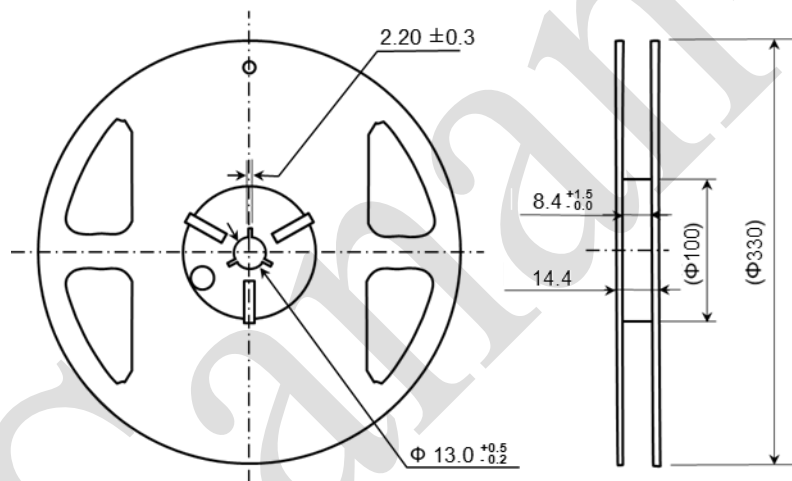


Reel Information



$\Phi 178$ Reel Dimension

UNIT: mm



$\Phi 330$ Reel Dimension

UNIT: mm

Ordering Code

Part Number	Description
LBB1590D1S-SA	Bulk (few pieces)
LBB1590D1S-MB	Tape & Reel 3,000 pcs/reel
LBB1590D1S-MC	Tape & Reel 10,000 pcs/reel
LBB1590D1S-SZ	EVB

Revision History

Revision	Date	Description
0.1	Jun. 13, 2023	● Initial release (Preliminary)

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