TAI-SAW TECHNOLOGY CO., LTD.
No. 3, Industrial 2nd Rd., Ping-Chen Industrial District,
Taoyuan, 324, Taiwan, R.O.C.
TEL: 886-3-4690038 FAX: 886-3-4697532
E-mail: tstsales@mail.taisaw.com Web: www.taisaw.com

Product Specifications Approval Sheet

Product Description: SAW DPX 1880/1960 MHz LTE Band 2 SMD 1814

TST Part No.: TF0127A

Customer Part No.:_____

Customer signature required

Company:_____

Division:_____

Approved by :_____

Date:_____

Checked by:_____ Anne Chen 陳秀宜

Approved by:_____ Bob Chau

Date:_____ 2017, 04, 10

1. Customer signed back is required before TST can proceed with sample build and receive orders.
2. Orders received without customer signed back will be regarded as agreement on the specifications.
3. Any specifications changes must be approved upon by both parties and a new revision of specifications shall be released to reflect the change

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SAW DPX 1880/1960 MHz LTE Band 2 SMD 1814 (59.04 MHz BW)

MODEL NO.:TF0127A REV.No.:2

A. MAXIMUM RATING:

1. Operating temperature range: -30 ℃ to +85 ℃
2. Storage temperature range: -30 ℃ to +85 ℃
3. Input power : 29dBm (Ta=+50℃,50kh,CW)
4. Maximum DC Voltage: +/-3 V
5. Moisture Sensitivity Level: Level 1
6. ESD 50V(MM) 100V(HBM)

RoHS Compliant
Lead free
Lead-free soldering

Electrostatic **S**ensitive **D**evice (**ESD**)

B. ELECTRICAL CHARACTERISTICS:

Terminating impedance (Tx Port): 50 Ω (Single-ended)
Terminating impedance (Rx Port): 100+2.2nHx2 Ω (Balanced)
Terminating impedance (Ant Port): 50//4.3nH Ω (Single-ended)

Tx to ANT (f_{T0}=1880 MHz)

Parameters Description			Unit	Min	Typ	Max	Remarks
Insertion Loss		1850.48~1909.52MHz	dB(*1)	-	2.1	3.0	-20 to+85 ℃
		1850.48~1909.52MHz (*2)	dB(*1)	-	2.0	2.7	-20 to+85 ℃
		1850.625~1909.375MHz (*3)	dB(*1)	-	2.1	2.9	
Amplitude ripple		1850.48~1909.52MHz	dB	-	1.5	2.1	
VSWR	ANT	1850.48~1909.52MHz	-	-	1.8	2.1	
	Tx		-	-	1.6	2.0	
Attenuation:							
1570~1580 MHz			dB	36	38	-	
1930.48~1989.52 MHz			dB	42	58	-	-20 to+85 ℃
1930.48~1989.52 MHz (*2)			dB	45	59	-	-20 to+85 ℃
1930.625~1989.375 MHz (*3)			dB	40	58	-	
3700~3820 MHz			dB	25	33	-	
5550~5730 MHz			dB	21	26		

ANT to Rx (f_{T0}=1960 MHz)

Parameters Description			Unit	Min	Typ	Max	Remarks
Insertion Loss		1930.48~1989.52MHz	dB(*1)		2.9	3.3	-20 to+85 ℃
		1930.48~1989.52MHz (*2)	dB(*1)		2.5	3.0	-20 to+85 ℃
		1930.625~1989.375MHz (*3)	dB(*1)		2.7	3.2	
Amplitude ripple		1930.48~1989.52MHz	dB		1.6	2.2	
Phase balance		1930.48~1989.52MHz	Deg	-12	-4/+3	12	
Amplitude balance		1930.48~1989.52MHz	dB	-1.3	-0.4/+0.6	1.3	
VSWR	ANT	1930.48~1989.52MHz			1.6	2.0	
	Rx				1.7	2.0	
Attenuation:							
1850.48~1909.52MHz			dB	47	50	-	-20 to+85 ℃
1850.48~1909.52MHz (*2)			dB	47	52	-	-20 to+85 ℃
1850.625~1909.375MHz (*3)			dB	47	50		

Tx to Rx

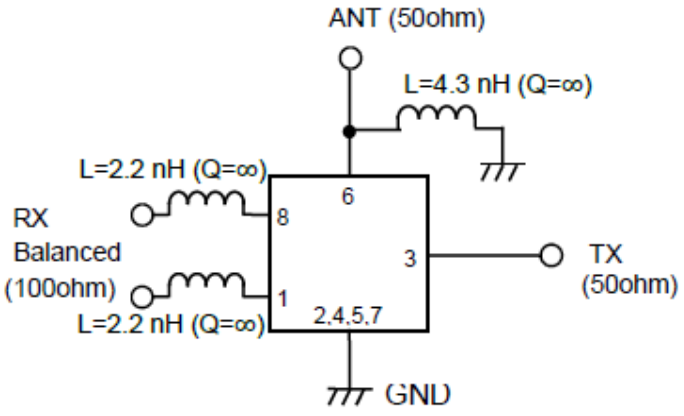
Isolation	1850.48~1909.52 MHz	dB	53	56	-	-20 to+85 ℃
	1850.48~1909.52 MHz (*2)	dB	54	57	-	
		dB	53	57		
	1850.625~1909.375 MHz (*3)	dB	53	56		
	1930.48~1989.52 MHz	dB	47	55	-	-20 to+25 ℃
		dB	50	55	-	+25 to+85 ℃
	1930.48~1989.52 MHz (*2)	dB	50	56	-	-20 to+85 ℃
	1930.625~1989.375 MHz (*2)	dB	45	55	-	-30 to+25 ℃
		dB	50	55	-	+25 to+85 ℃

(*1) Specification of insertion loss excludes loss that comes from the test board.

(*2) The integrated loss over any 3.84MHz(+/- 1.92MHz) channel within the band.

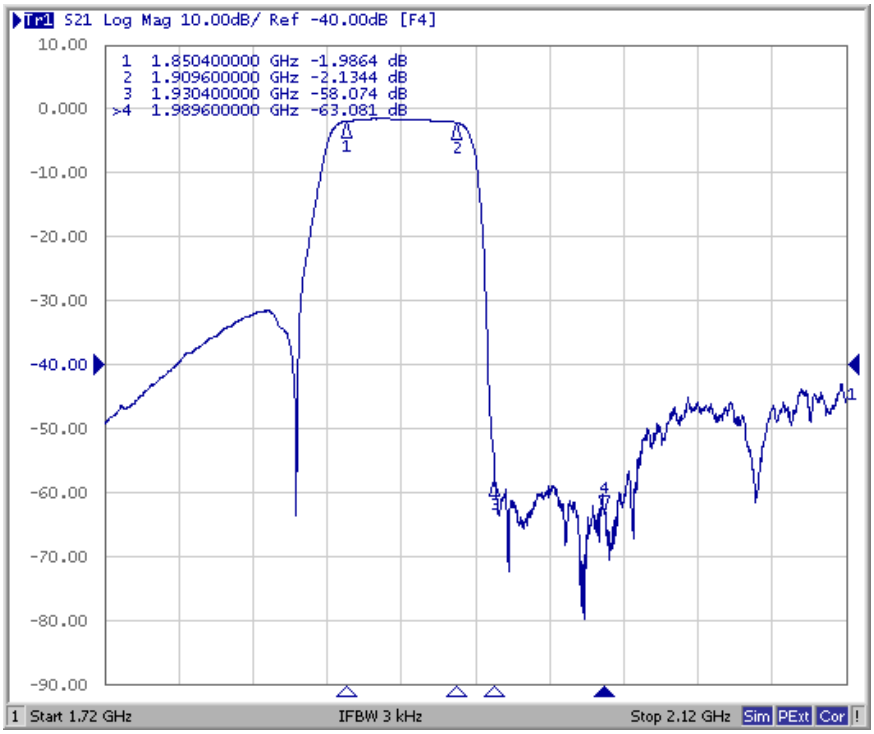
(*3) The integrated loss over any 1.25MHz(+/- 0.625MHz) channel within the band.

C.Evaluation Circuit

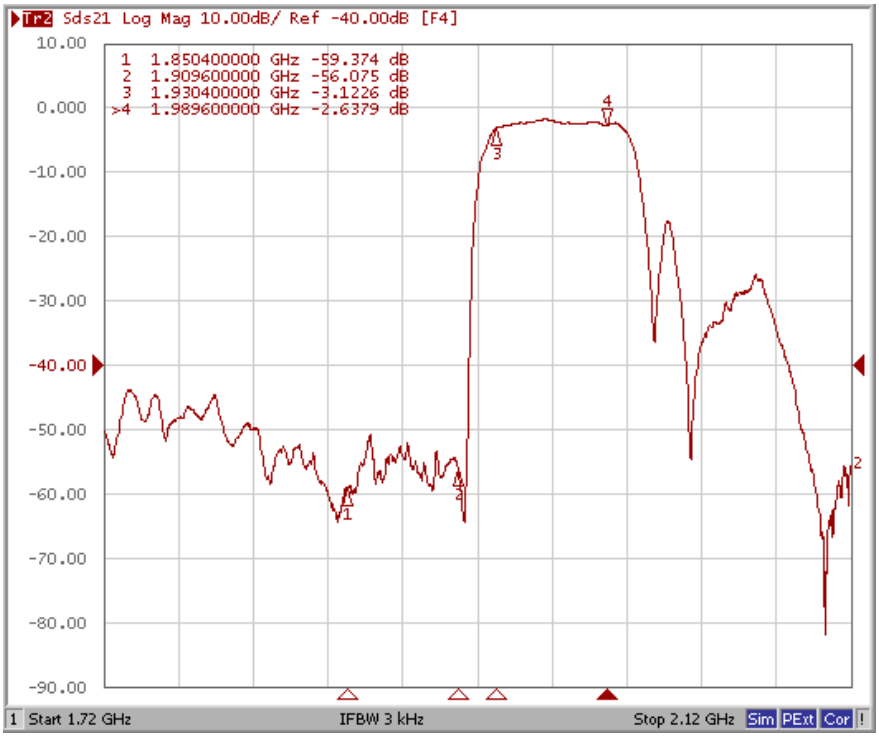


D. FREQUENCY CHARACTERISTICS:

Tx to Ant

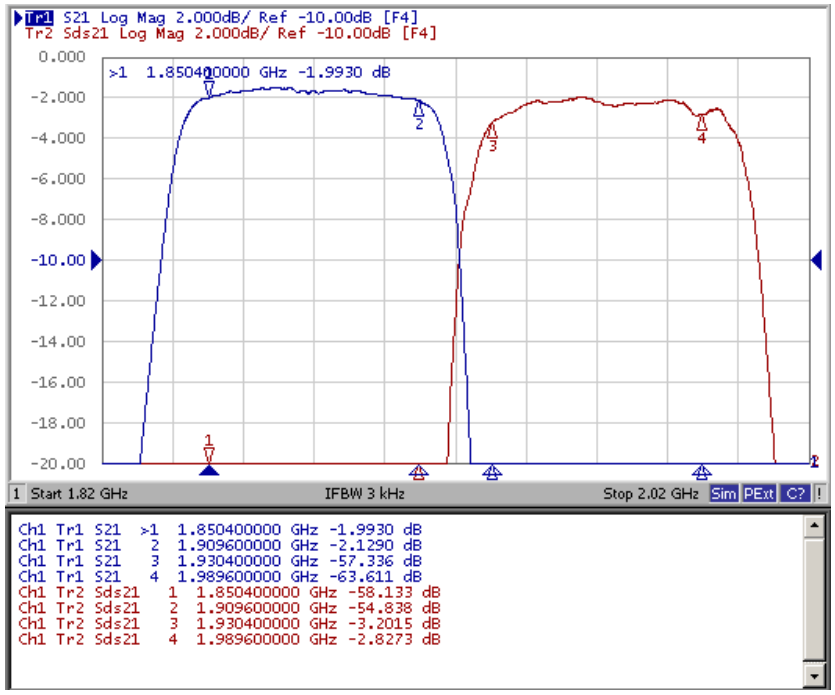


Ant to Rx

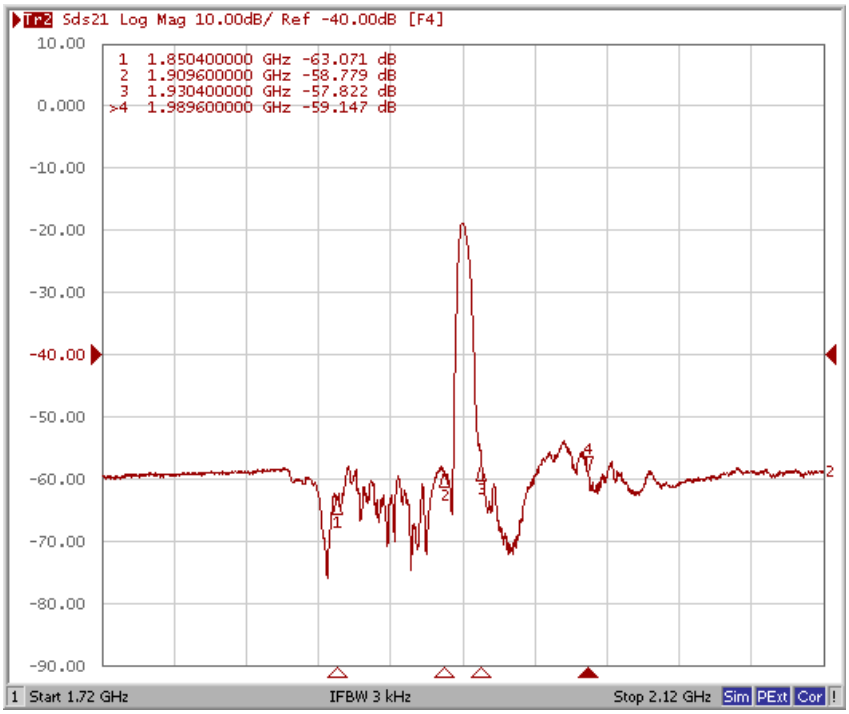


These data exclude loss that comes from the test board.

Tx to Ant ,Ant to Rx

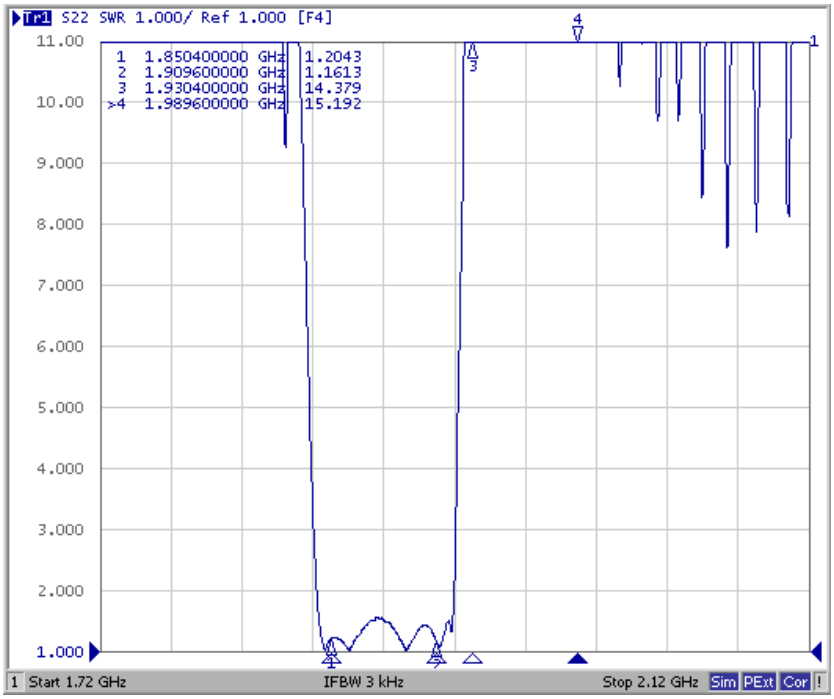


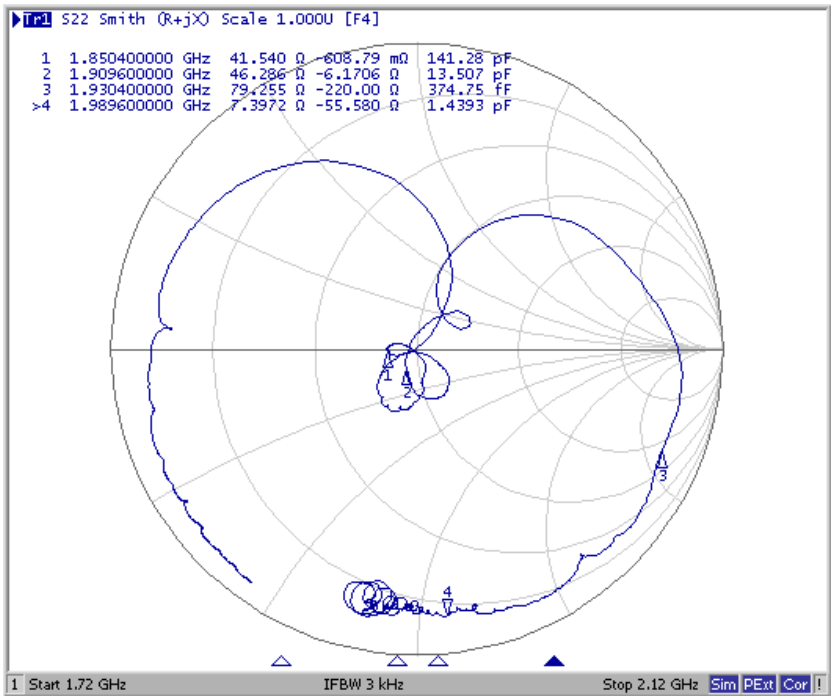
Tx to Rx Isolation



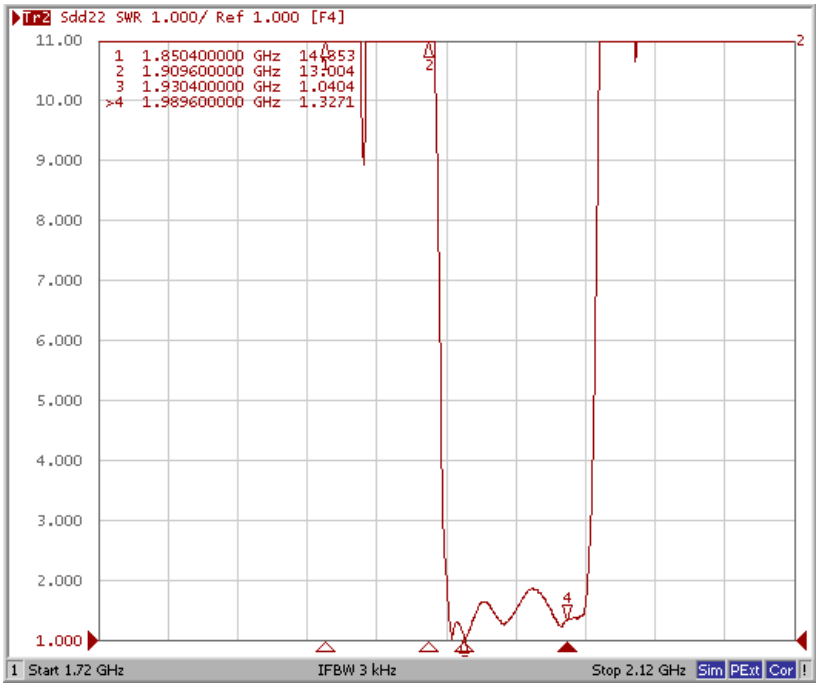
These data exclude loss that comes from the test board

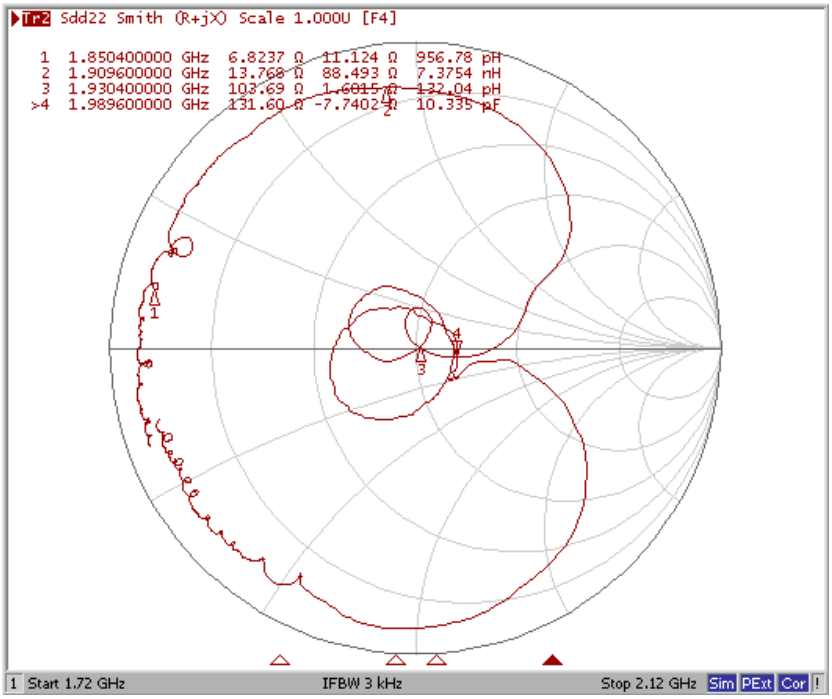
Tx Port


Tr1 S22 SWR 1.000/ Ref 1.000 [F4]
1 1.850400000 GHz 1.2043
2 1.909600000 GHz 1.1613
3 1.930400000 GHz 14.379
>4 1.989600000 GHz 15.192
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
1 Start 1.72 GHz
IFBW 3 kHz
Stop 2.12 GHz
Sim PExt Cor

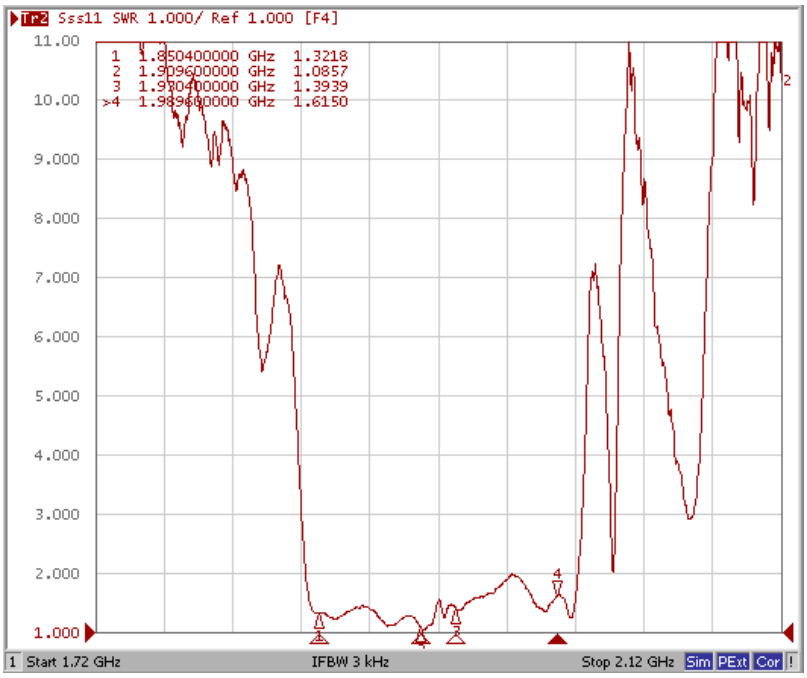

Tr1 S22 Smith (R+jX) Scale 1.000U [F4]
1 1.850400000 GHz 41.540 Ω -608.79 mΩ 141.28 pF
2 1.909600000 GHz 46.286 Ω -6.1706 Ω 13.507 pF
3 1.930400000 GHz 79.255 Ω -220.00 Ω 374.75 fF
>4 1.989600000 GHz 7.3972 Ω -55.580 Ω 1.4393 pF
1 Start 1.72 GHz
IFBW 3 kHz
Stop 2.12 GHz
Sim PExt Cor

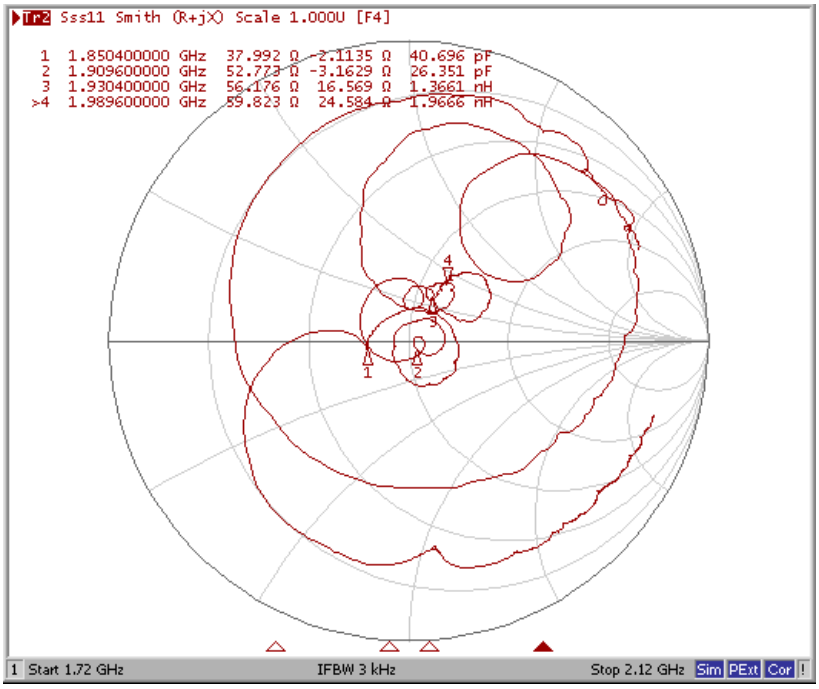
Rx Port


Tr2 Sdd22 SWR 1.000/ Ref 1.000 [F4]
1 1.850400000 GHz 14.853
2 1.909600000 GHz 13.004
3 1.930400000 GHz 1.0404
>4 1.989600000 GHz 1.3271
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
1 Start 1.72 GHz
IFBW 3 kHz
Stop 2.12 GHz
Sim PExt Cor


Tr2 Sdd22 Smith (R+jX) Scale 1.000U [F4]
1 1.850400000 GHz 6.8237 Ω 11.124 Ω 956.78 pH
2 1.909600000 GHz 13.768 Ω 88.493 Ω 7.3754 nH
3 1.930400000 GHz 103.69 Ω 1.6015 Ω -132.04 pH
>4 1.989600000 GHz 131.60 Ω -7.7402 Ω 10.335 pF
1 Start 1.72 GHz
IFBW 3 kHz
Stop 2.12 GHz
Sim PExt Cor

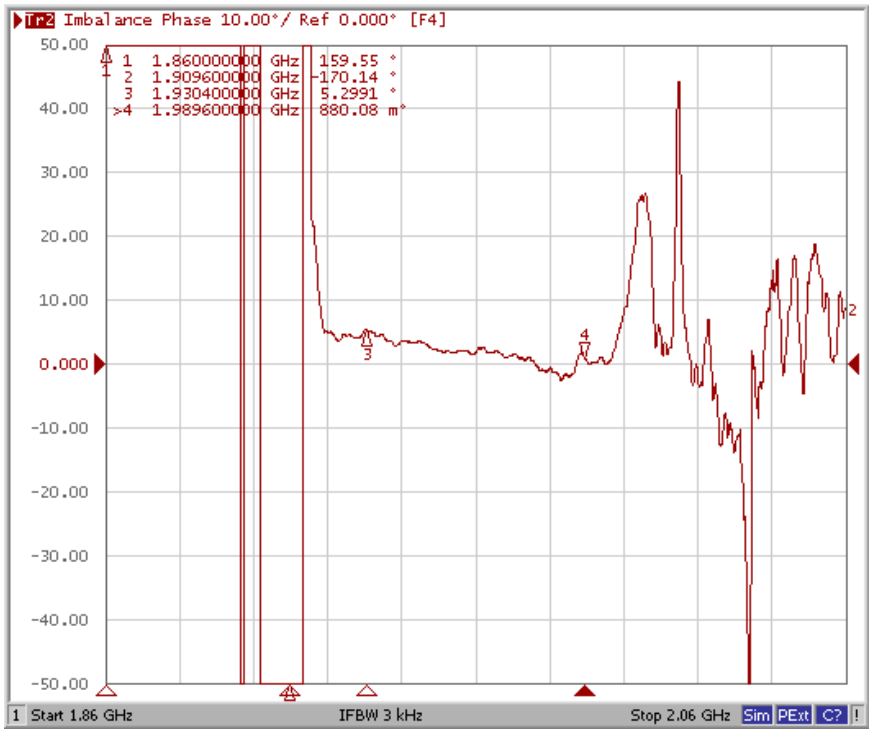
Ant Port


Tr2 Sss11 SWR 1.000/ Ref 1.000 [F4]
1 1.850400000 GHz 1.3218
2 1.909600000 GHz 1.0857
3 1.930400000 GHz 1.3939
>4 1.989600000 GHz 1.6150
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
1 Start 1.72 GHz
IFBW 3 kHz
Stop 2.12 GHz
Sim PExt Cor

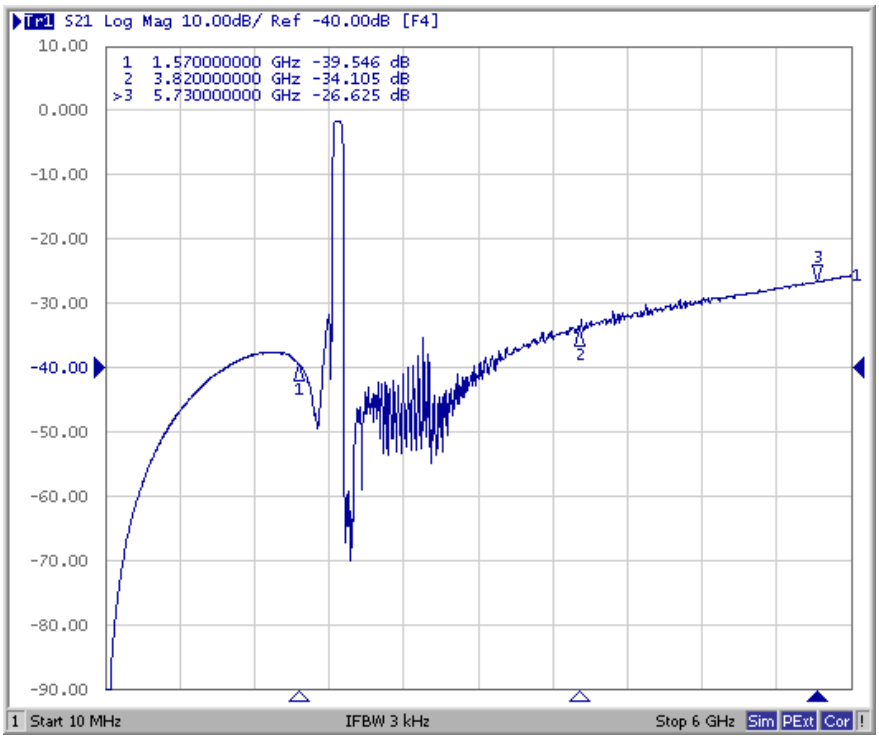

Tr2 Sss11 Smith (R+jX) Scale 1.000U [F4]
1 1.850400000 GHz 37.992 Ω -2.1135 Ω 40.696 pF
2 1.909600000 GHz 52.723 Ω -3.1629 Ω 26.351 pF
3 1.930400000 GHz 56.176 Ω 16.569 Ω 1.3661 nH
>4 1.989600000 GHz 89.823 Ω 24.584 Ω 1.9666 nH
1 Start 1.72 GHz
IFBW 3 kHz
Stop 2.12 GHz
Sim PExt Cor

Ant to Rx (Amplitude balance)

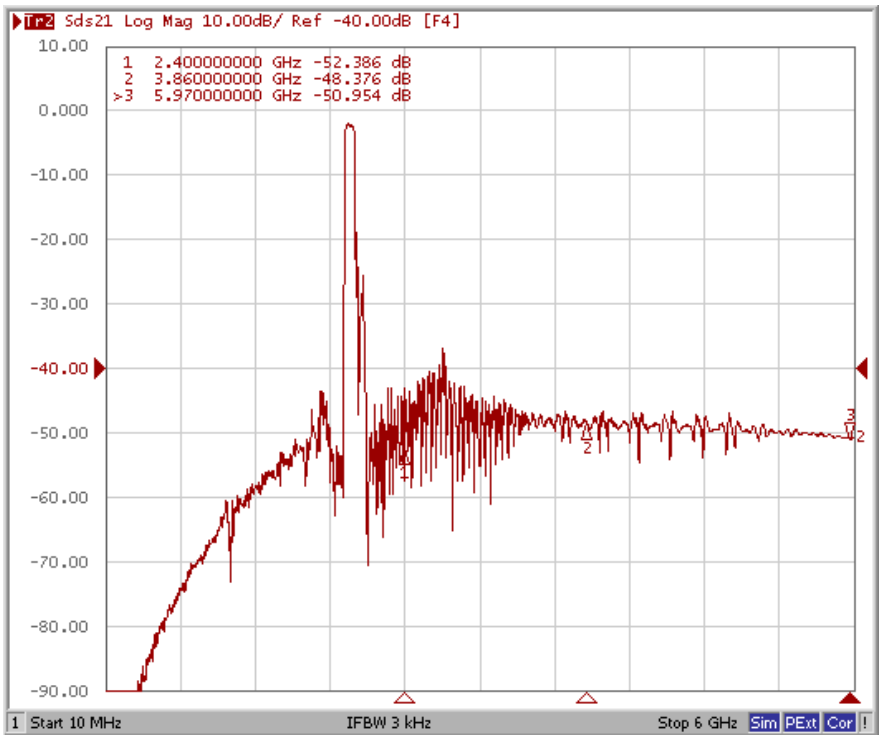
Ant to Rx (Phase balance)



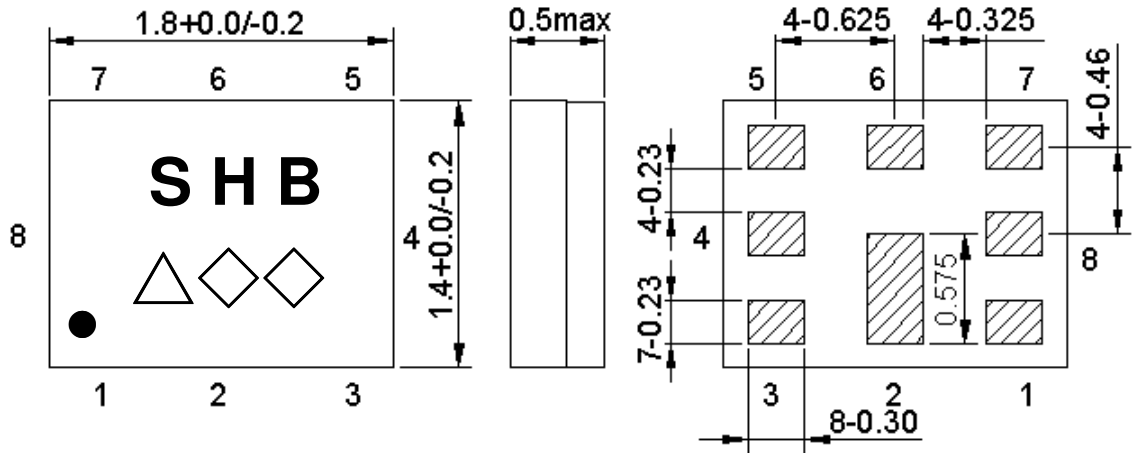
Tx to Ant (Wide span)



Ant to Rx (Wide span)



E.OUTLINE DRAWIN:



Marking name : **SHB**

△
: Date code(2016 May → s ,……., 2019 Dec→m.)

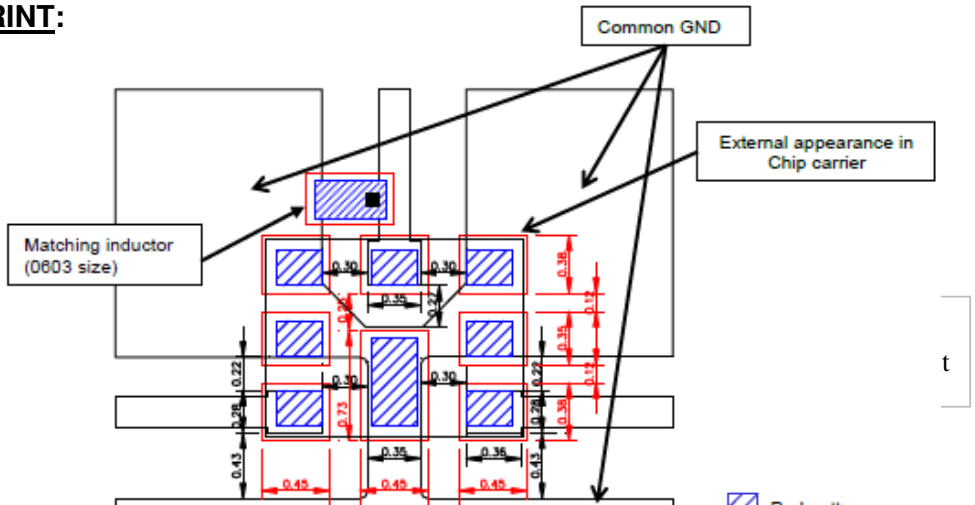
◇◇: Lot Code.
Product Date Code. Follow below table.

Year	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
2017	A	B	C	D	E	F	G	H	J	K	L	M
2018	N	P	Q	R	S	T	U	∇	W	X	Y	Z
2019	a	b	c	d	e	f	g	h	j	k	l	m

Pin Configuration:

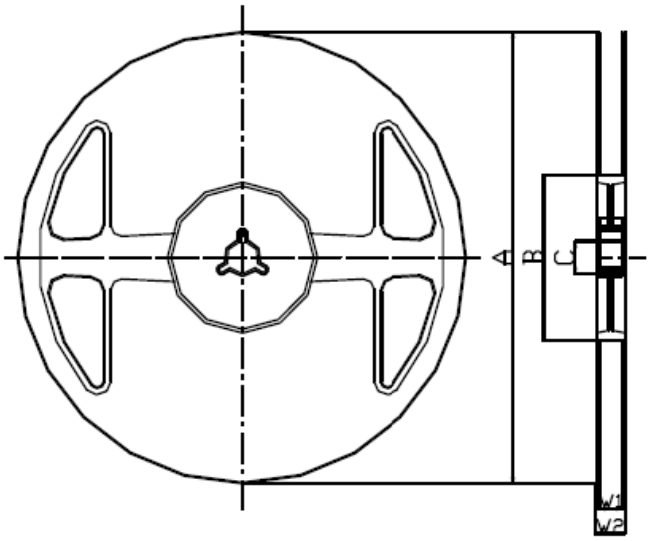
Pin No.	Pin Name	Description
1	Rx	Receive Pin
2	GND	Ground Pin
3	Tx	Transmitter Pin
4	GND	Ground Pin
5	GND	Ground Pin
6	ANT	Antenna Pin
7	GND	Ground Pin
8	GND	Ground Pin

F. FOOTPRINT:



G. PACKING:

1. REEL DIMENSION



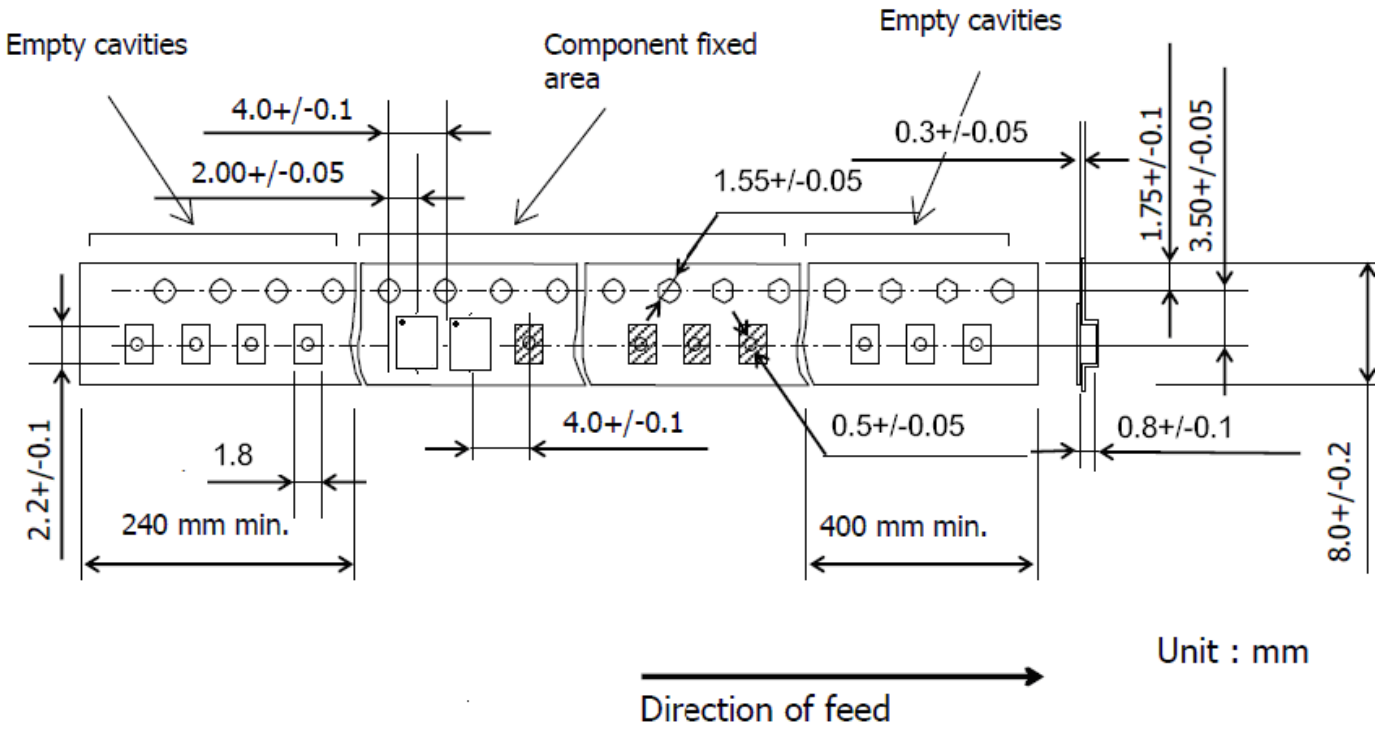
Materials of Reel

Material : Polystyrene + Carbon
Characteristics : Conforms to EIAJ-ET-7200A
Color : Black
Surface resistance (reference value) : $10^9\Omega$/sq Max.

Unit : mm

Code	Quantity	A	B	C	W1	W2
Z	3,000 pcs	ϕ 180.0 +0.0/-1.5	ϕ 66.0 +/-0.5	ϕ 13.0 +/-0.2	9.0 +1.0/-0.0	11.4 +/-1.0

2. TAPE DIMENSION



H. RECOMMENDED REFLOW PROFILE :

1. Preheating shall be fixed at 150~180℃ for 60~90 seconds.
2. Ascending time to preheating temperature 150℃ shall be 30 seconds min.
3. Heating shall be fixed at 220℃ for 50~80 seconds and at 245~260℃ peak (min. 10sec).
4. Time : 2 times.