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 Duplexer filter 897.5/942.5MHz BW 34.7/34.7MHz SMD1.6x1.2mm

TST Parts No.: TF0227AA0033

Customer Parts No.:_____

Customer signature required

Company:_____

Division:_____

Approved by :_____

Date:_____

Checked by:_____ Nina Chen Nina Chen

Approved by:_____ Kazuma Lee Kazuma Lee

Date:_____ 2021/12/29

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 changes.

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SAW Duplexer filter 897.5/942.5MHz BW 34.7/34.7MHz SMD 1.6x1.2mm

MODEL NO.: TF0227AA0033 REV. NO.:1.0

A. Maximum Rating:

1. Input Power Level: 29 dBm.
2. DC Voltage : 0 V
3. Operating Temperature: -30°C to +85°C
4. Storage Temperature: -40°C to +100°C
5. Moisture Sensitivity Level: Level 1 (**MSL 1**)

RoHS Compliant
Lead-free soldering

Electrostatic Sensitive Device (**ESD**)

B. Electrical Characteristics:

Item			Unit	Min	Typ	Max	Remarks
Center frequency			MHz		897.5		
Insertion Loss		880.15-914.85MHz	dB	-	1.7	3.2	
Amplitude Ripple		880.15-914.85MHz	dB	-	1.0	2.8	
VSWR	Tx	880.15-914.85MHz	-	-	1.5	2.0	
	Ant	880.15-914.85MHz	-	-	1.5	2.0	
Attenuation		925.15-959.85 MHz	dB	37	-	-	-30~ -20℃
			dB	42	-	-	-20~0℃
			dB	48	57	-	0~85℃
		1565-1606MHz	dB	35	39	-	
		1760-1830 MHz	dB	37	43	-	
		2640-2745 MHz	dB	30	47	-	

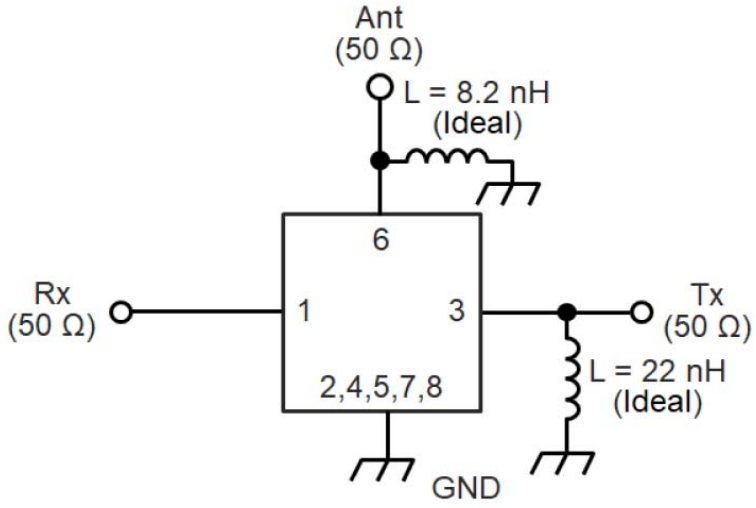
Tx to Ant

Item			Unit	Min	Typ	Max	Remarks
Center frequency			MHz		942.5		
Insertion Loss		925.15~959.85MHz	dB	-	-	3.5	-30~ -20℃
			dB	-	1.8	3.0	-20~85℃
Amplitude Ripple		925.15~959.85MHz	dB	-	0.8	2.9	
VSWR	Ant	925.15~959.85MHz	-	-	1.7	2.1	
	Tx	925.15~959.85MHz	-	-	1.8	2.1	
Attenuation		880.15-914.85MHz	dB	42	57	-	
		1805-1875MHz	dB	45	65	-	
		2400-2500 MHz	dB	45	65	-	
		2685-2790MHz	dB	40	65	-	

Ant to Rx

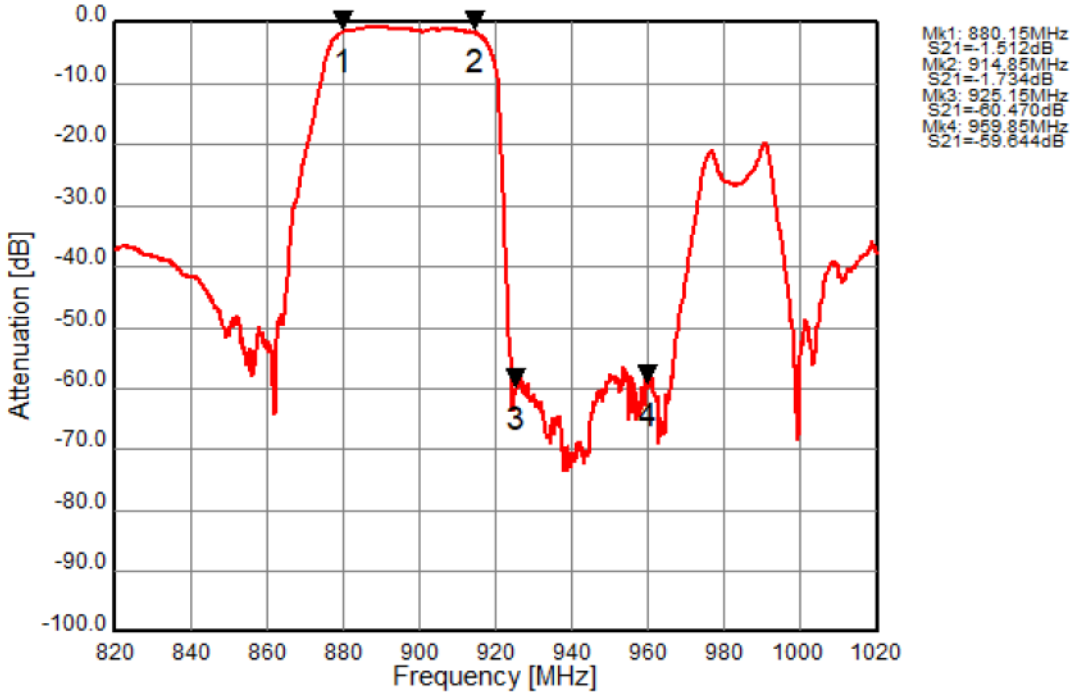
Item			Unit	Min	Typ	Max	Remarks
Tx to Rx	Isolation	880.15-914.85MHz	dB	55	60	-	-30~25℃
			dB	48	-	-	25~85℃
		925.15-959.85MHz	dB	40	-	-	-30~ -20℃
			dB	45	-	-	-20~0℃
			dB	53	59	-	0~85℃
Terminating Impendance		Tx port	Ω	50//22nH			
		Rx port	Ω	50			
		Ant port	Ω	50//8.2nH			
DC Impendance to ground			MΩ	100			Device only

C. Schematic

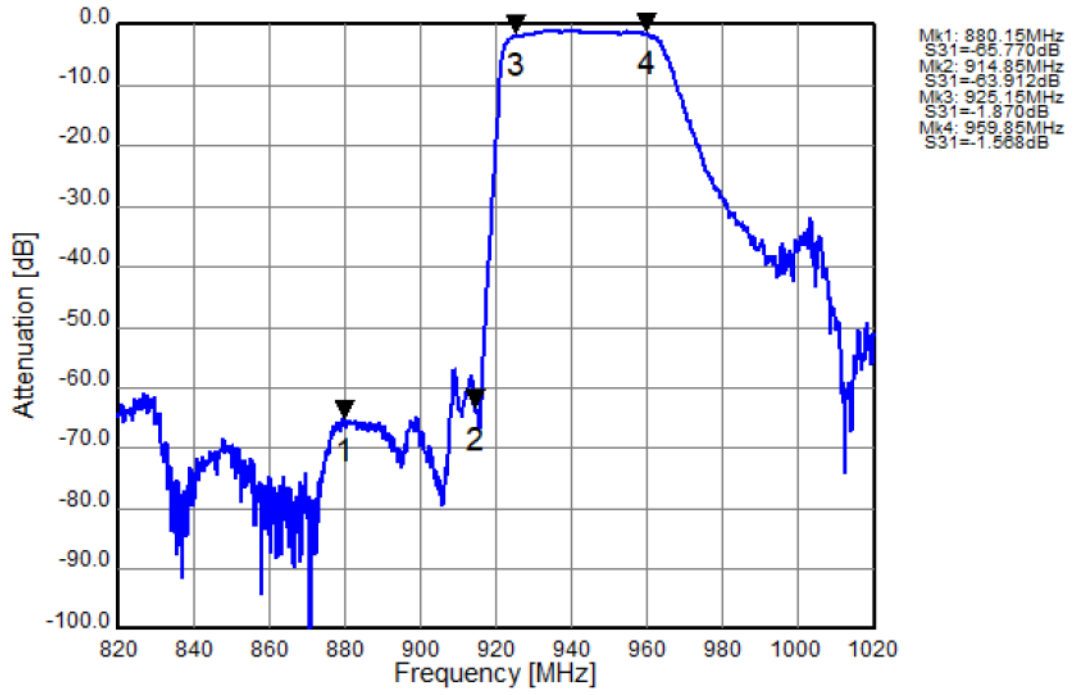


D. Performance Plots

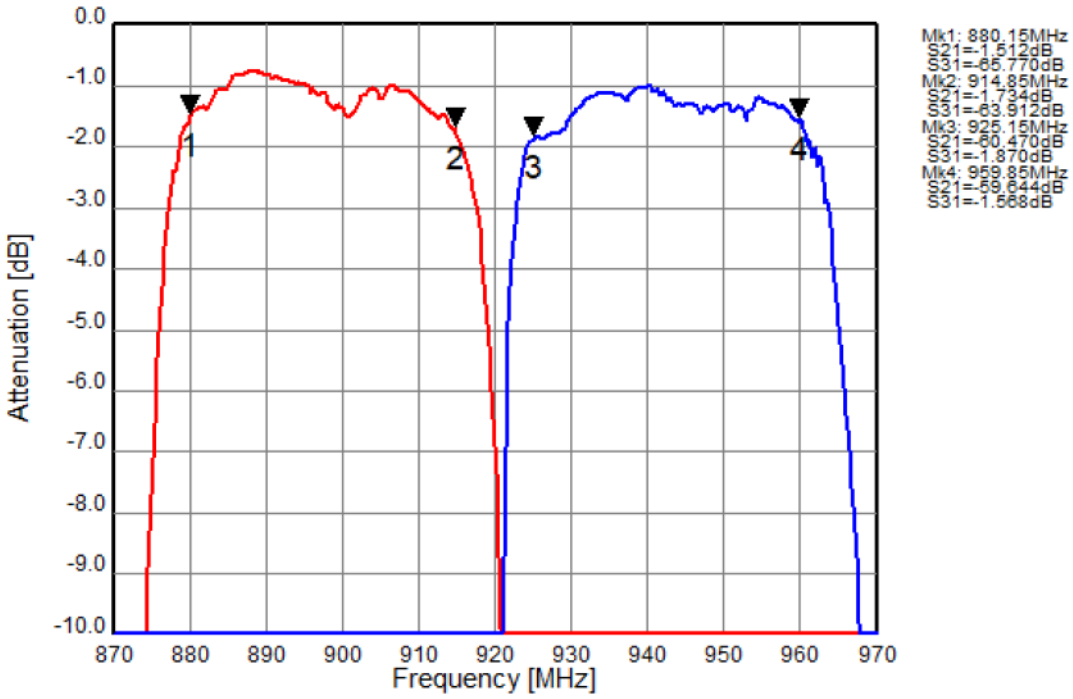
Tx to Ant



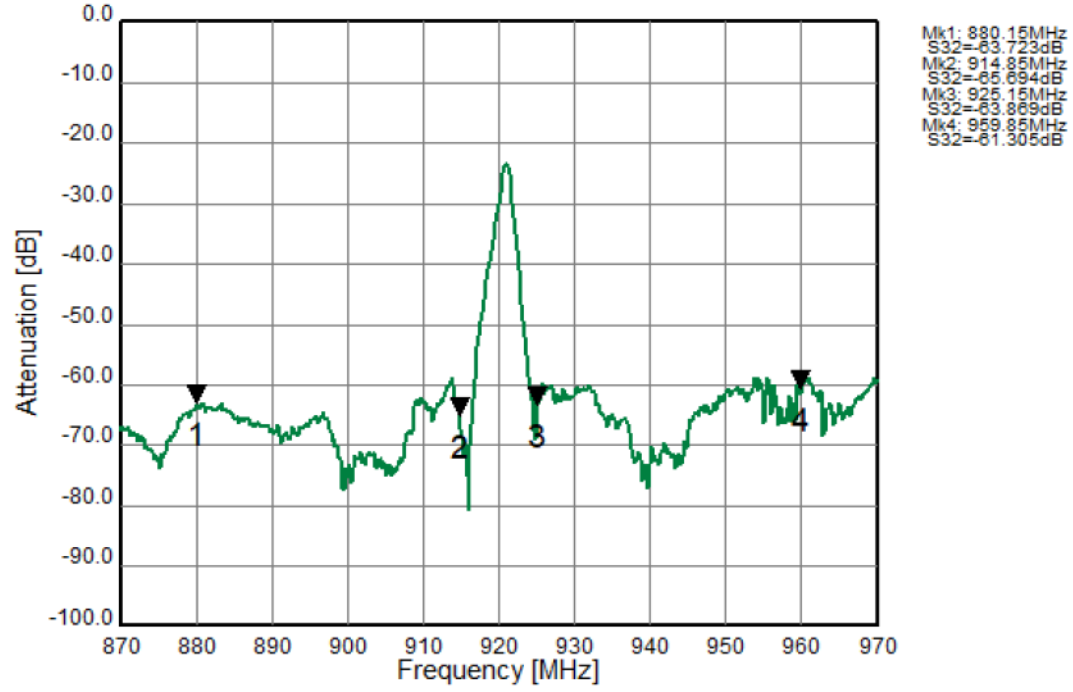
Ant to Rx



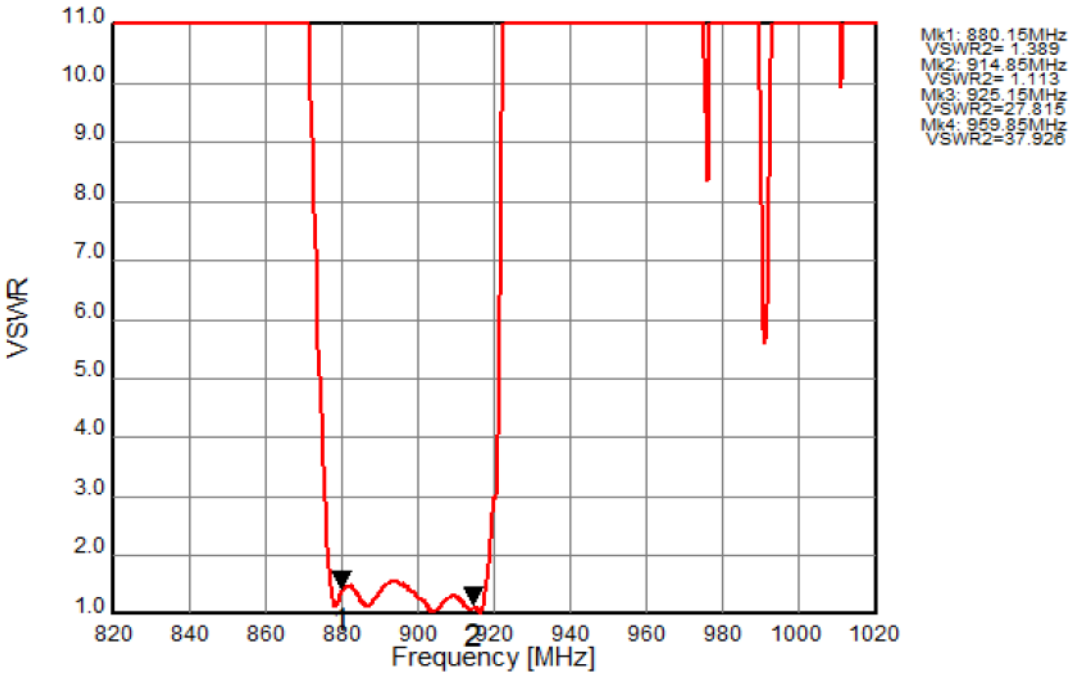
Tx to Ant, Ant to Rx

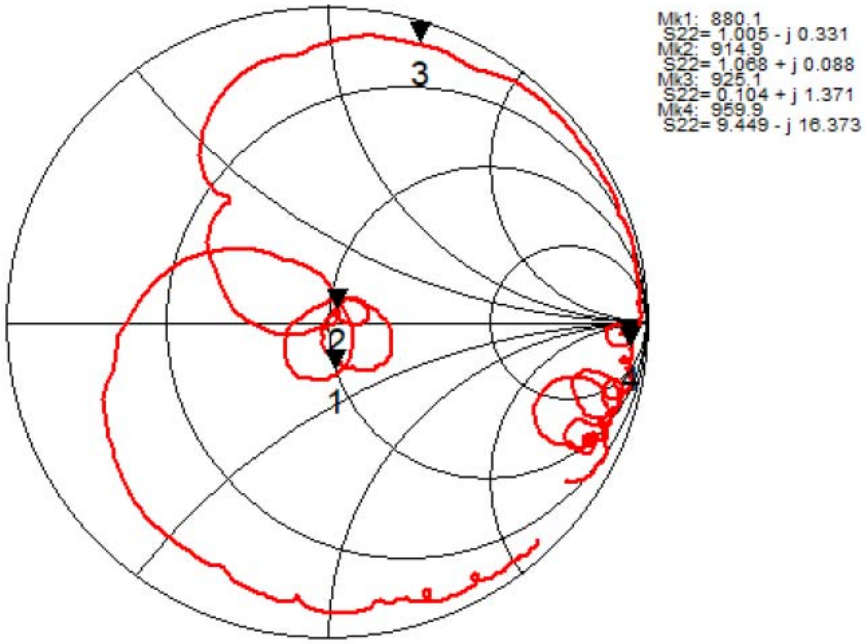


Tx to Rx Isolation

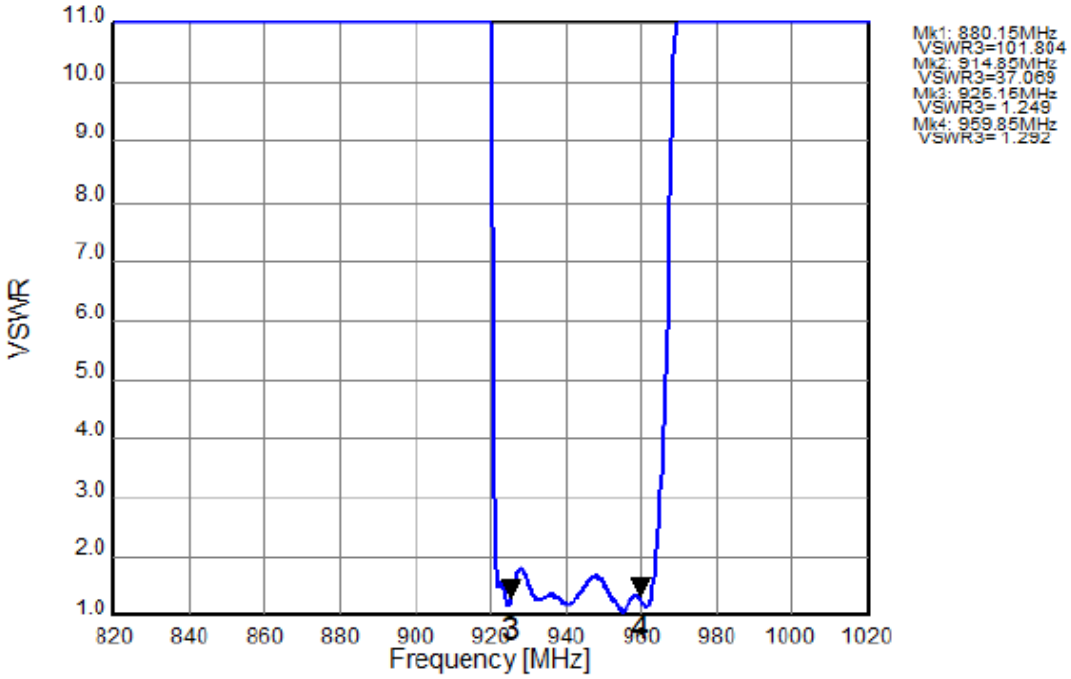


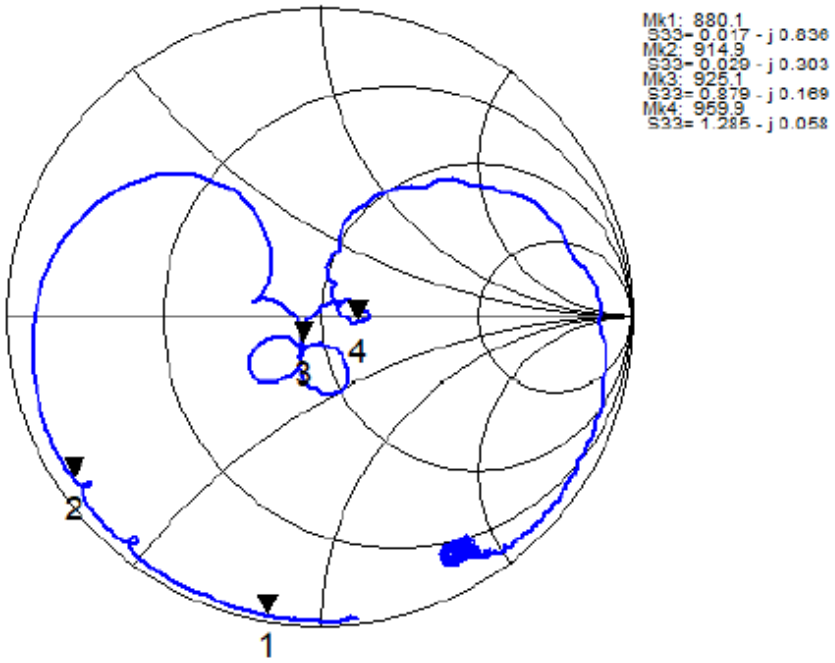
Tx Port


Mk1: 880.15MHz
VSWR2= 1.389
Mk2: 914.85MHz
VSWR2= 1.113
Mk3: 925.15MHz
VSWR2=27.815
Mk4: 959.85MHz
VSWR2=37.926
VSWR
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
820
840
860
880
900
920
940
960
980
1000
1020
1
2
Frequency [MHz]

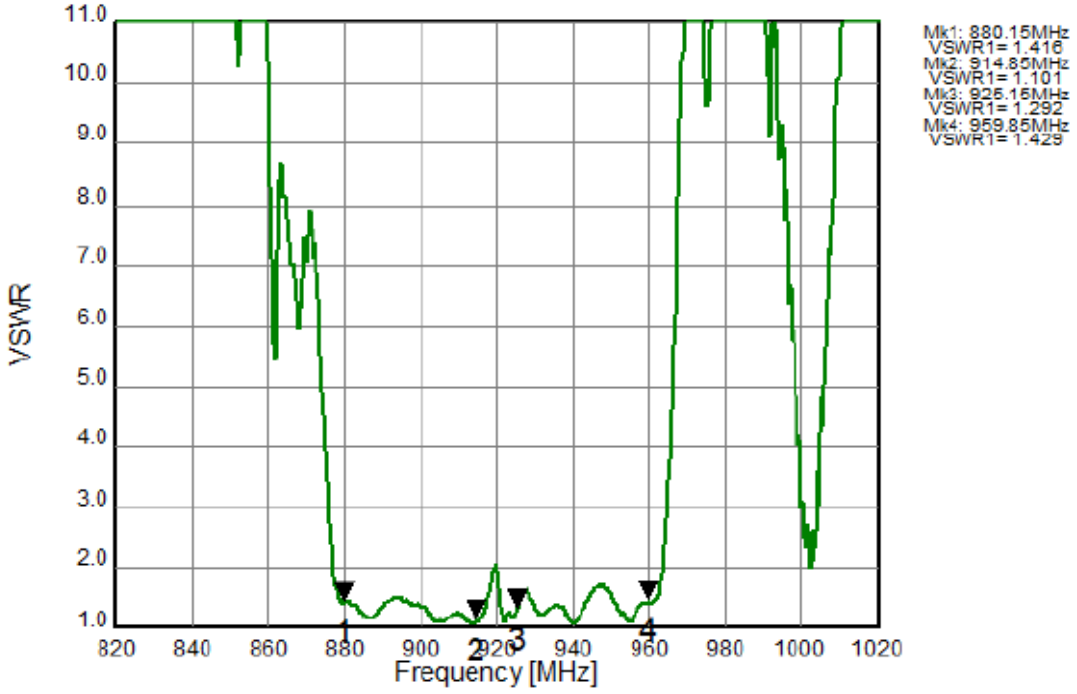

Mk1: 880.1
S22= 1.005 - j 0.331
Mk2: 914.9
S22= 1.068 + j 0.088
Mk3: 925.1
S22= 0.104 + j 1.371
Mk4: 959.9
S22= 9.449 - j 16.373
3
2
1

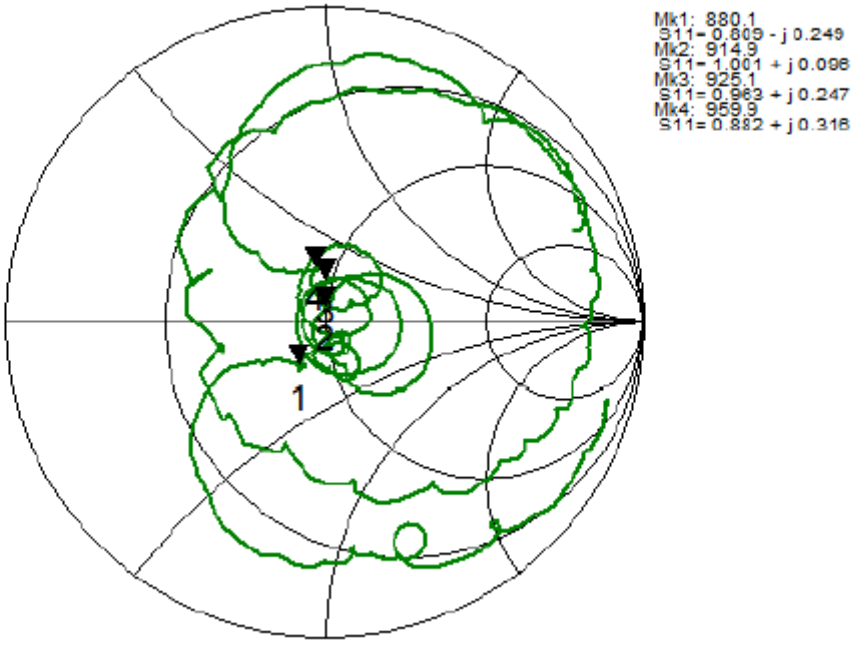
Rx Port


Mk1: 880.15MHz
VSWR3=101.804
Mk2: 914.85MHz
VSWR3=37.069
Mk3: 925.15MHz
VSWR3= 1.249
Mk4: 959.85MHz
VSWR3= 1.292
VSWR
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
820
840
860
880
900
920
940
960
980
1000
1020
Frequency [MHz]
3
4

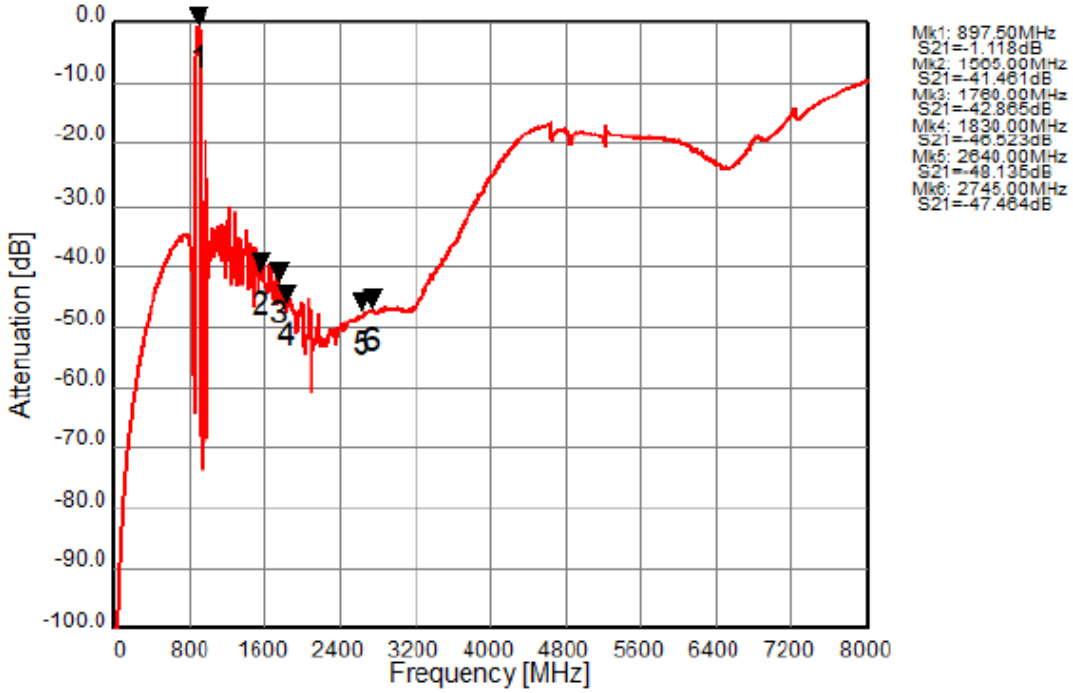

Mk1: 880.1
S33= 0.017 - j 0.636
Mk2: 914.9
S33= 0.029 - j 0.303
Mk3: 925.1
S33= 0.879 - j 0.169
Mk4: 959.9
S33= 1.285 - j 0.058
1
2
3
4

Ant Port

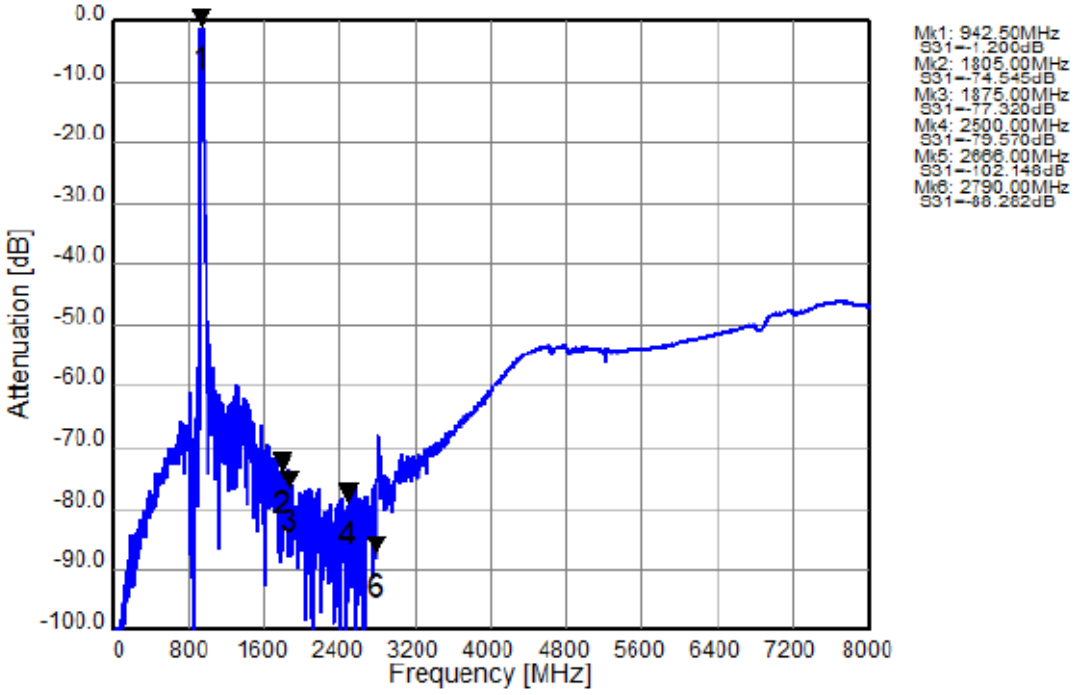

Mk1: 880.15MHz
VSWR1= 1.416
Mk2: 914.85MHz
VSWR1= 1.101
Mk3: 925.15MHz
VSWR1= 1.292
Mk4: 959.85MHz
VSWR1= 1.429
VSWR
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
820
840
860
880
900
920
940
960
980
1000
1020
Frequency [MHz]
1
2
3
4


Mk1: 880.1
S11= 0.809 - j 0.249
Mk2: 914.9
S11= 1.001 + j 0.098
Mk3: 925.1
S11= 0.963 + j 0.247
Mk4: 959.9
S11= 0.882 + j 0.318
1

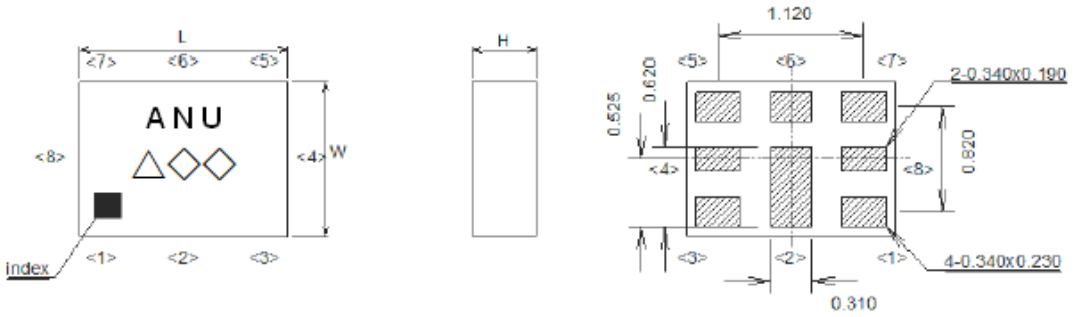
Tx to Ant(Wide span)



Ant to Rx(Wide span)



E. Package Drawing and Pin Description



<Top View> <Side View> <Bottom View>

Unit : mm
1 to 8 : Pin No.

Marking name: ANU (Part Symbol)

△: Trace Code.(2020 May → s,……, 2023 Dec → m)

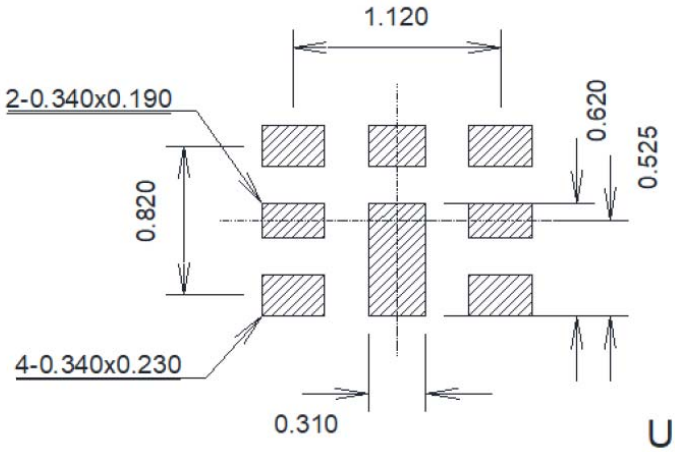
◇◇: Lot Code.

Product Trace Code.Follow below table.(4-year cycle)

L = 1.6 +/- 0.1 mm
W = 1.2 +/- 0.1 mm
H = 0.44 mm Max

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	n	p	q	r	s	t	u	v	w	x	y	z
2021	A	B	C	D	E	F	G	H	J	K	L	M
2022	N	P	Q	R	S	T	U	V	W	X	Y	Z
2023	a	b	c	d	e	f	g	h	j	k	l	m

F.PCB Mounting Pattern

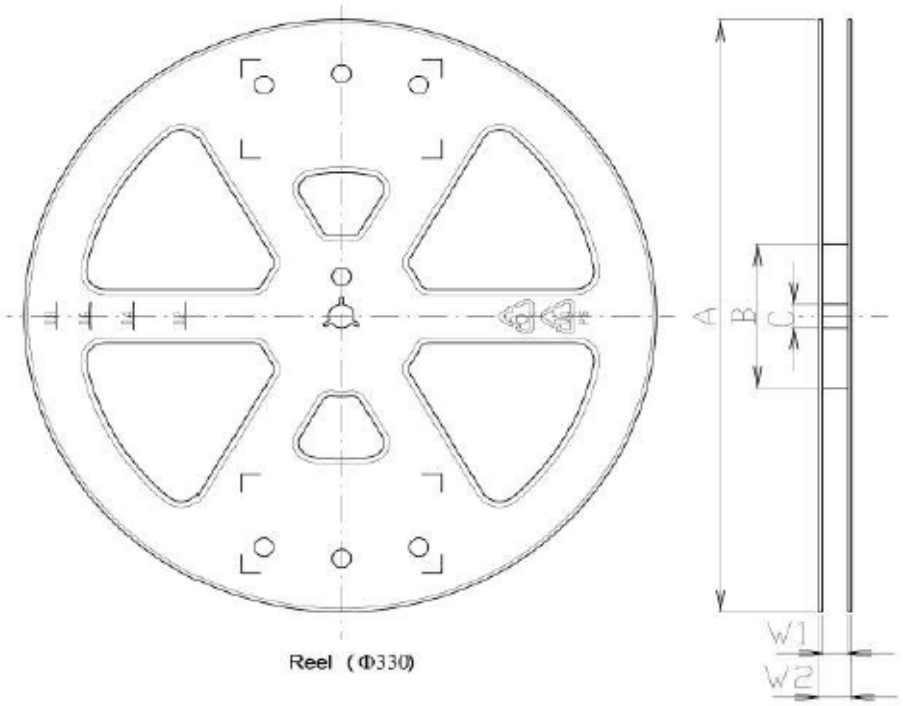


Unit : mm

Pin No.	Symbol	Function
1	Rx	Receiver
2	GND	Ground
3	Tx	Transmitter
4	GND	Ground
5	GND	Ground
6	ANT	Antenna
7	GND	Ground
8	GND	Ground

Notes:
- All units are in mm unless otherwise stated
- General Tolerance
  - Linear: X.XXX = ±0.050mm
  - X.XX = ±0.10mm
- Terminations
  - Au: 0.10 um min.
  - Pd: 0.10 um min.
  - Ni: 2~5 um
- Pin 1 indicated by 0.100 mm Chamfer

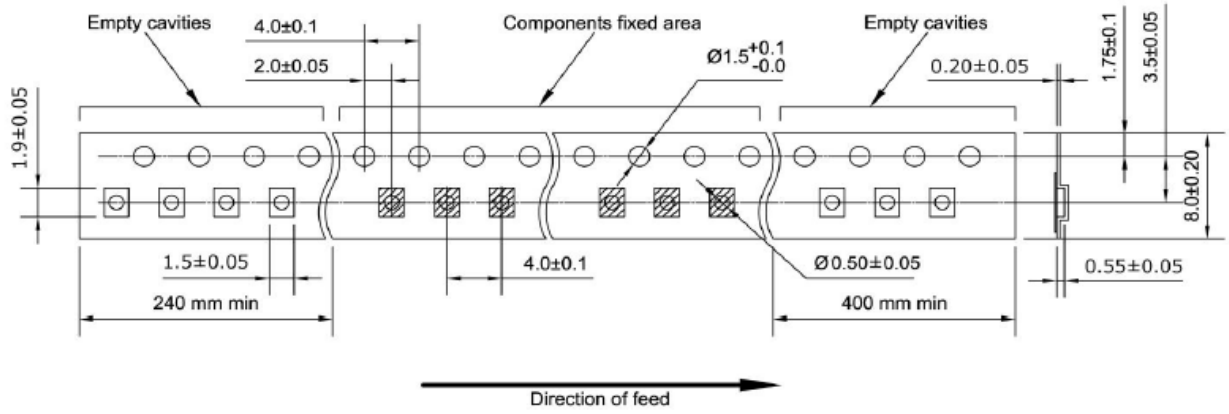
G. Reel Dimension



Order	Code	Quantity (pcs./reel)	A	B	C	W1	W2	Tape Pitch
Standard	Y	15,000	φ330	φ100	φ13 ±0.2	9.4 ±1.0	13.4 ±1.0	4.0 ±0.1
Option	Z	3,000	φ180	φ60	φ13 ±0.2	9 +1.0/-0.0	11.4 ±1.0	4.0 ±0.1

Unit:mm

Dimensions of Tape (Standard)



H. Recommended Solder 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 260℃+0/-5℃ peak (20~40sec).
4. Time: 2 times.