



TAI-SAW TECHNOLOGY CO., LTD.

No. 3, Industrial 2nd Rd., Ping-Chen Industrial District,
Taoyuan, 324, Taiwan, R.O.C.

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Product Specifications Approval Sheet

Product Description: SAW DPX 1950 / 2140 MHz Band 1 SMD 1.8X1.4 mm (BW=60 MHz)

TST Part No.: TF0120D

Customer Part No.: _____

Customer signature required
Company: _____
Division: _____
Approved by : _____
Date: _____

Checked by: _____ Nina Chen *Nina Chen*

Approved by: _____ Kazuma Lee *Kazuma Lee*

Date: _____ 2022/03/31

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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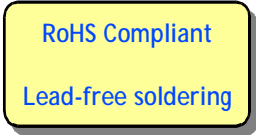
SAW DPX 1950 / 2140 MHz Band 1 SMD 1.8X1.4 mm (BW=60 MHz)

MODEL NO.:TF0120D

REV.3.0

A. MAXIMUM RATING:

1. Operating temperature range: -20 °C to +85 °C
2. Storage temperature range: -40 °C to +85 °C
3. Tx Input power : 29dBm (Ta=+50°C,50000h,CW)
- 3.1Rx Input power : 29dBm (Ta=+50°C, 50000h,CW)
4. Maximum DC Voltage: 0 V
5. Moisture Sensitivity Level: Level 3 (MSL 3)
6. ESD 50V(MM) 100V(HBM)



Electrostatic Sensitive Device (ESD)

B. ELECTRICAL CHARACTERISTICS:

Terminating impedance (Tx Port): 50 Ω (Single-ended)

Terminating impedance (Rx Port): 50 Ω (Single-ended)

Terminating impedance (Ant Port): 50 Ω (Single-ended)

Tx to ANT (f_{T0}=1950 MHz)

Parameters Description		Unit	Min	Typ	Max	Remarks
Insertion Loss		1920 ~ 1980 MHz	dB	-	1.9	2.5
Amplitude ripple		1920 ~ 1980 MHz	dB	-	0.4	1.0 (Over any 5MHz in-band)
VSWR	ANT	1920 ~ 1980 MHz	-	-	1.8	2.2
	Tx	1920 ~ 1980 MHz	-	-	1.6	2.0
Attenuation:						
10.00 ~ 1574.00 MHz		dB	32	38		
420.00 ~ 494.00 MHz		dB	45	52		
815.00 ~ 830.00 MHz		dB	37	43		
824.00 ~ 849.00 MHz		dB	37	43		
830.00 ~ 845.00 MHz		dB	37	43		
843.00 ~ 894.00 MHz		dB	37	42		
880.00 ~ 915.00 MHz		dB	35	42		
925.00 ~ 960.00 MHz		dB	35	41		
1226.00 ~ 1250.00 MHz		dB	32	38		
1447.90 ~ 1462.90 MHz		dB	32	37		
1475.00 ~ 1496.00 MHz		dB	32	37		
1496.00 ~ 1511.00 MHz		dB	32	37		
1559.00 ~ 1563.00 MHz		dB	32	38		
1565.42 ~ 1573.37 MHz		dB	32	37		

1573.37 ~ 1577.47 MHz	dB	32	37		
1577.47 ~ 1585.42 MHz	dB	32	38		
1597.55 ~ 1605.89 MHz	dB	32	38		
1605.88 ~ 1805.00 MHz	dB	32	38		
1805.00 ~ 1865.00 MHz	dB	21	28		
1865.00 ~ 1880.00 MHz	dB	20	25		
2110.00 ~ 2170.00 MHz	dB	42	47		
2400.00 ~ 2500.00 MHz	dB	37	40		
2620.00 ~ 2690.00 MHz	dB	30	36		
3840.00 ~ 3960.00 MHz	dB	18	24		
4900.00 ~ 5950.00 MHz	dB	10	18		
4905.00 ~ 5845.00 MHz	dB	10	19		
7680.00 ~ 7920.00 MHz	dB	5	13		

ANT to Rx ($f_{T0}=2140$ MHz)

Parameters Description		Unit	Min	Typ	Max	Remarks
Insertion Loss	2110 ~ 2170 MHz	dB	-	2.3	2.6	
Amplitude ripple	2110 ~ 2170 MHz	dB		0.4	1.0	(Over any 5MHz in-band)
VSWR	ANT	2110 ~ 2170 MHz		2.1	2.3	
	Rx			-	2.0	
Attenuation:						
1.00 ~ 1920.00 MHz	dB	32	40			
190.00 MHz	dB	50	74			
718.00 ~ 748.00 MHz	dB	40	51			
814.00 ~ 849.00 MHz	dB	40	50			
880.00 ~ 915.00 MHz	dB	40	49			
1427.00 ~ 1447.00 MHz	dB	37	43			
1447.00 ~ 1463.00 MHz	dB	37	43			
1730.00 ~ 1790.00 MHz	dB	37	42			
1710.00 ~ 1785.00 MHz	dB	37	42			
1920.00 ~ 1980.00 MHz	dB	48	56			
1980.00 ~ 2015.00 MHz	dB	40	47			
2015.00 ~ 2075.00 MHz	dB	10	32			
2255.00 ~ 6130.00 MHz	dB	23	32			
2400.00 ~ 2500.00 MHz	dB	40	46			
2500.00 ~ 2570.00 MHz	dB	40	46			
4030.00 ~ 4150.00 MHz	dB	45	54			
4220.00 ~ 4340.00 MHz	dB	45	53			
4900.00 ~ 5950.00 MHz	dB	25	34			
5950.00 ~ 6130.00 MHz	dB	23	32			
6130.00 ~ 6330.00 MHz	dB	20	29			
6330.00 ~ 6510.00 MHz	dB	15	27			

Tx to Rx

Parameters Description		Unit	Min	Typ	Max	Remarks
Isolation	1574.00 ~ 1577.00 MHz	dB	40	56	-	
	1920.00 ~ 1980.00 MHz	dB	50	53	-	
	2110.00 ~ 2170.00 MHz	dB	50	54		
	3830.00 ~ 3970.00 MHz	dB	35	52		
	5750.00 ~ 5950.00 MHz	dB	23	33		

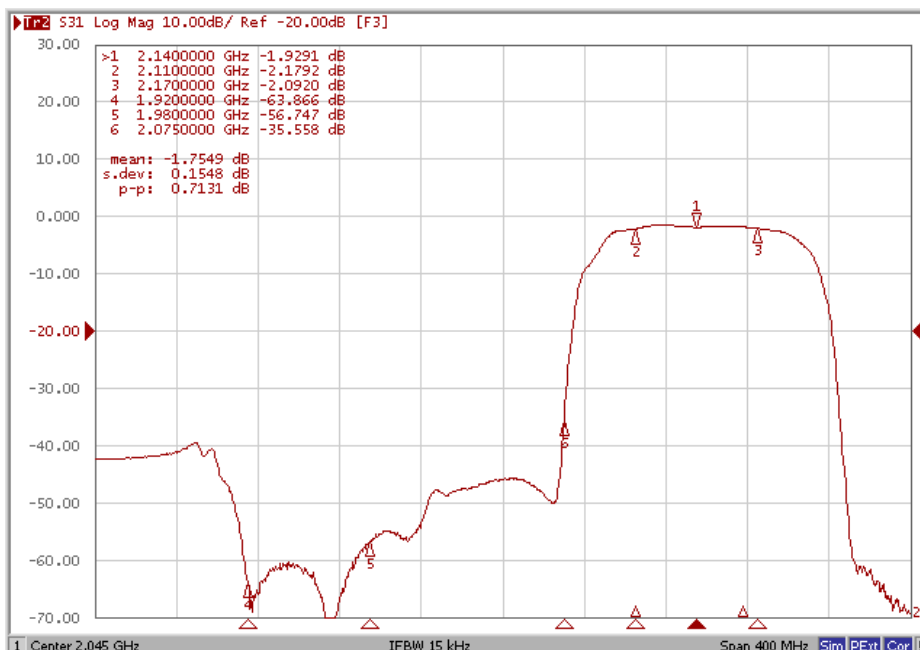
Notes : (1) With Matching Network

C. FREQUENCY CHARACTERISTICS:

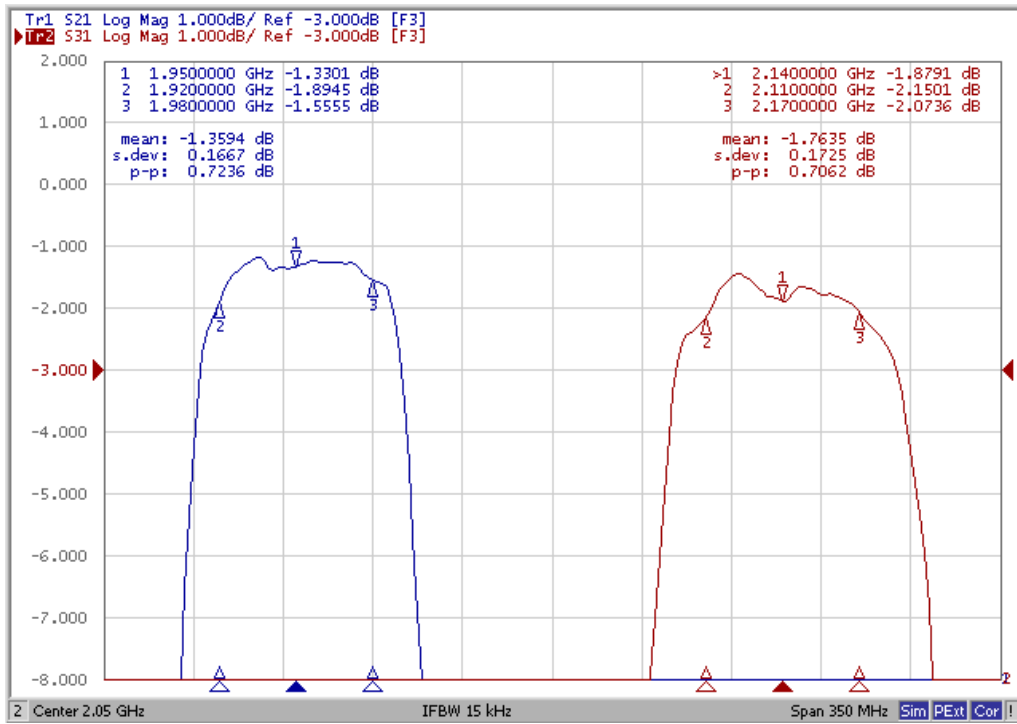
Tx to Ant



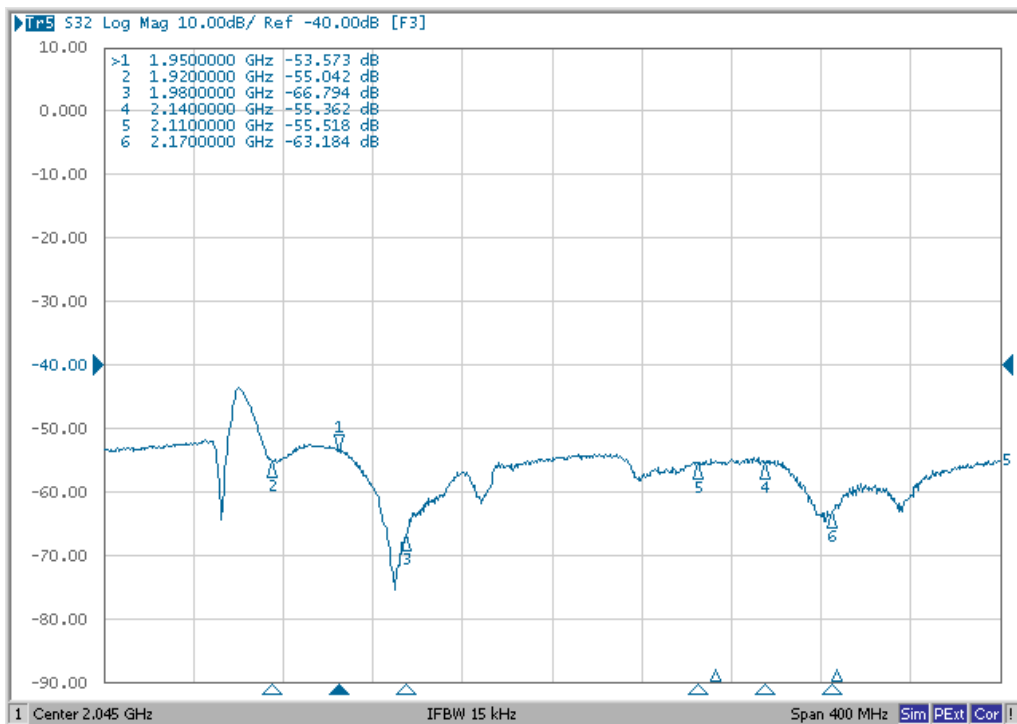
Ant to Rx



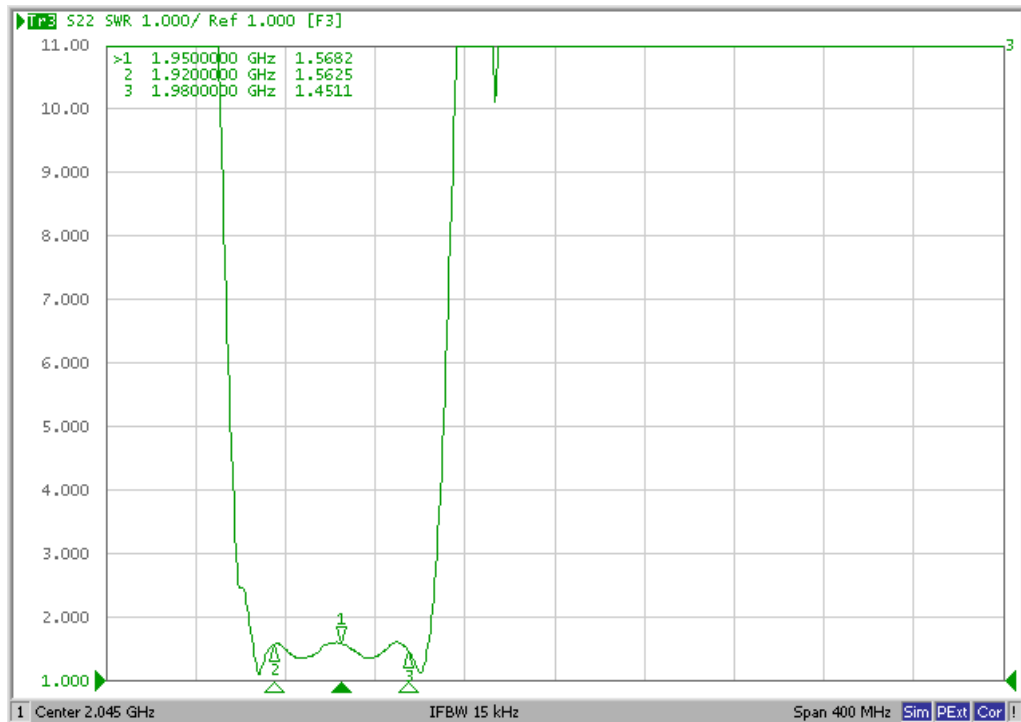
Ripple Deviation



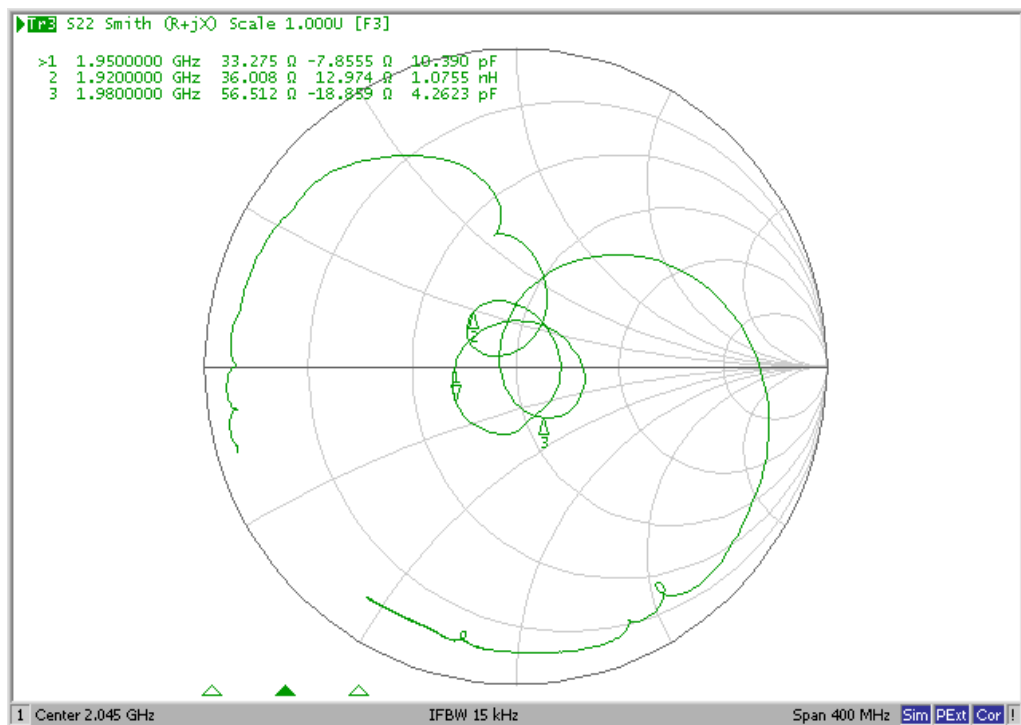
Isolation



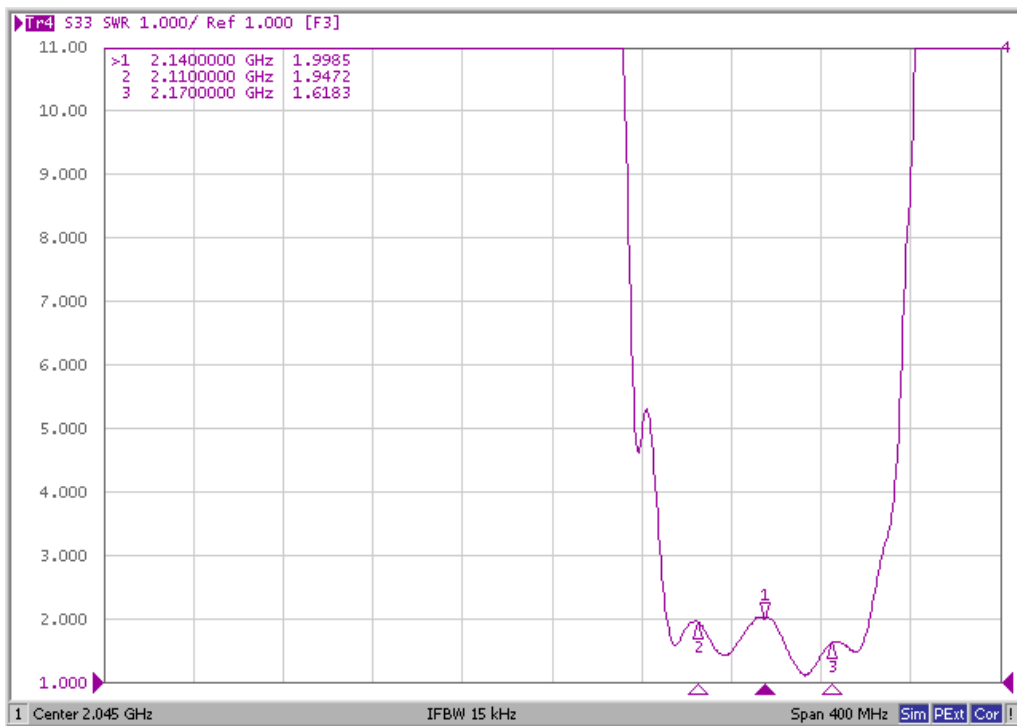
VSWR (Tx Port)



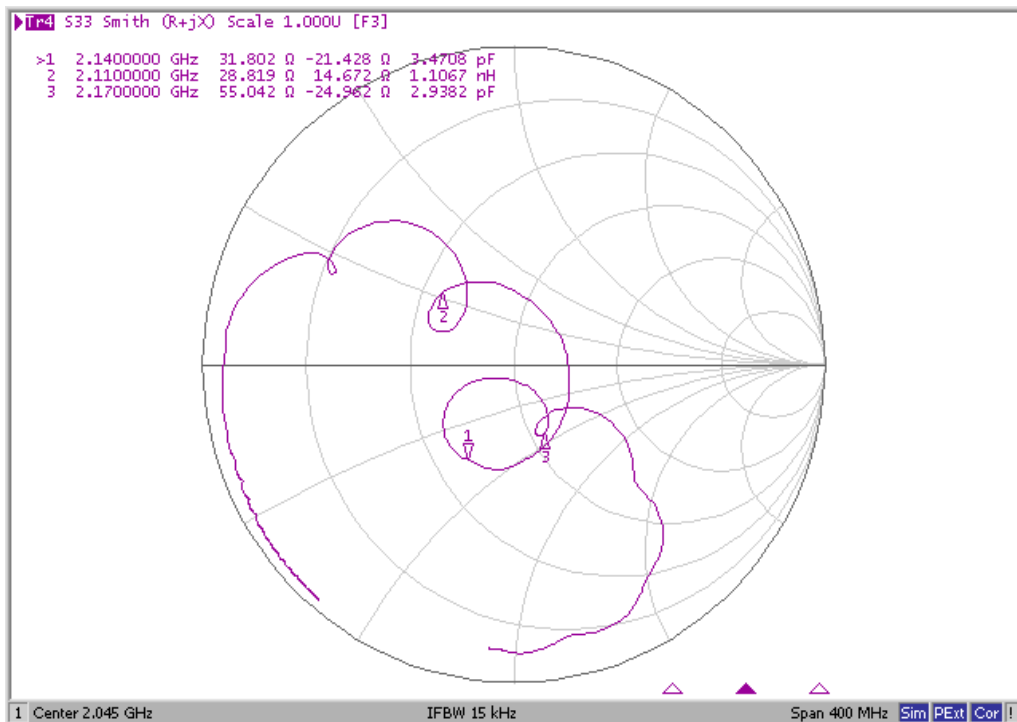
Smith Chart (Tx Port)



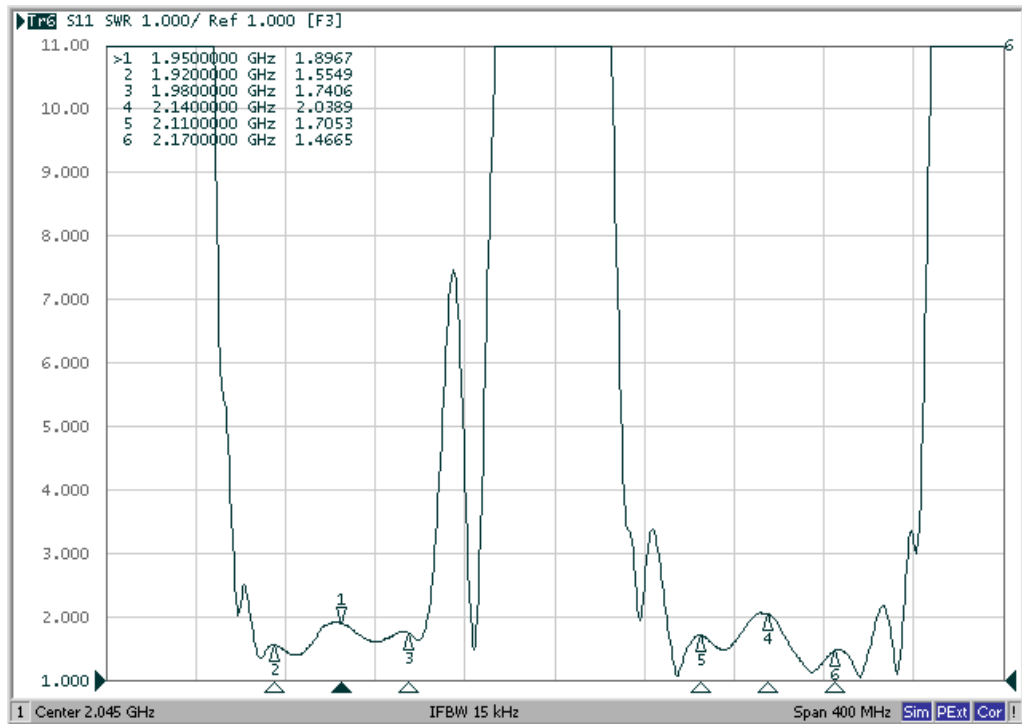
VSWR (Rx Port)



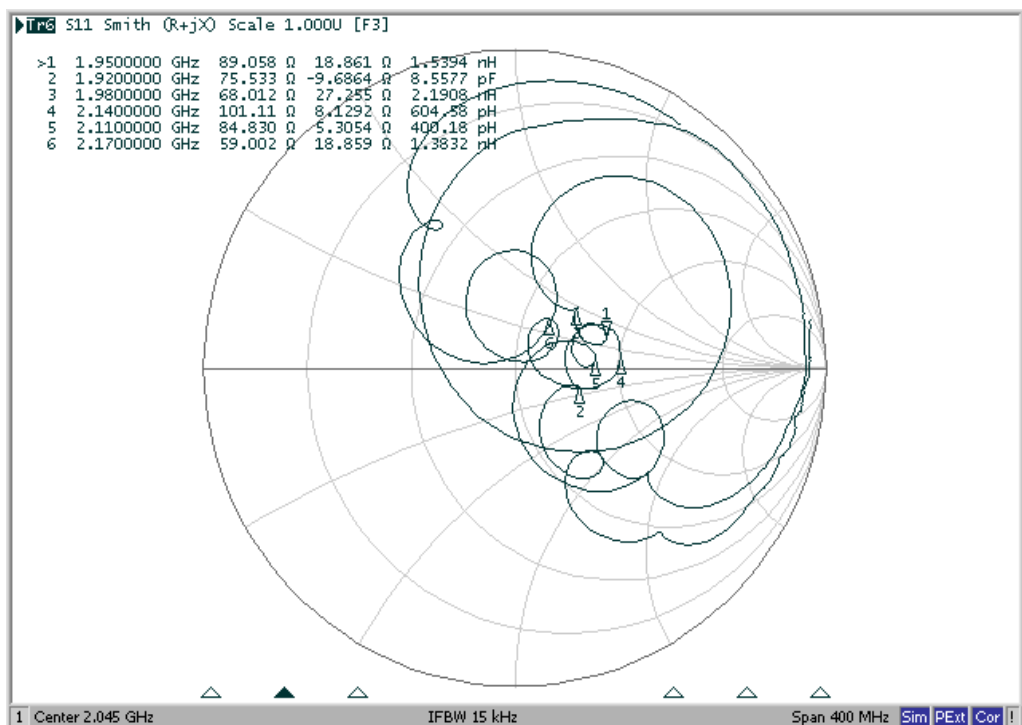
Smith Chart (Rx Port)



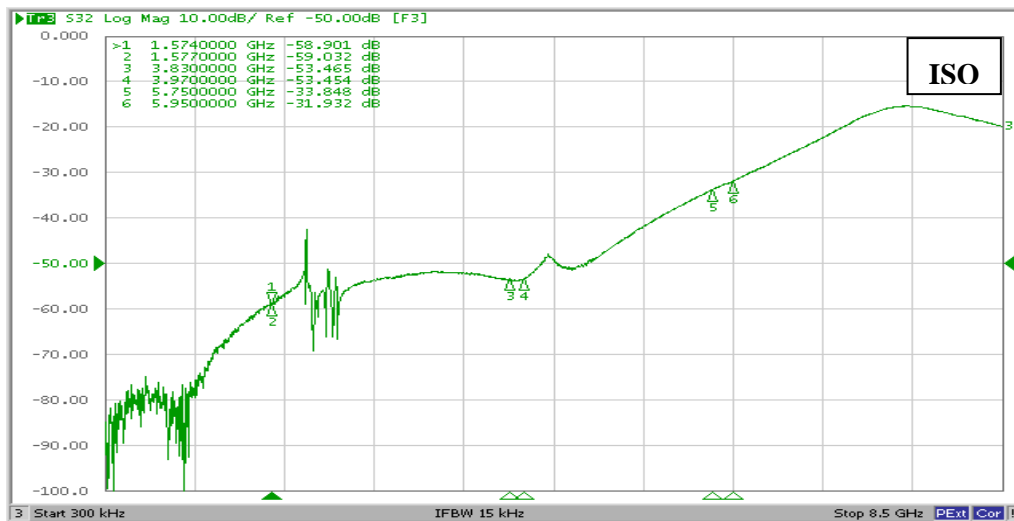
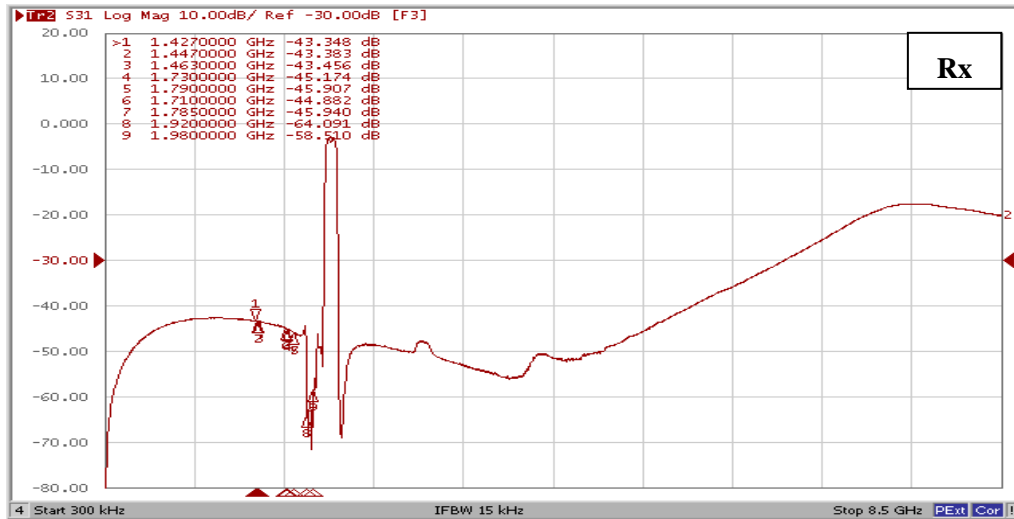
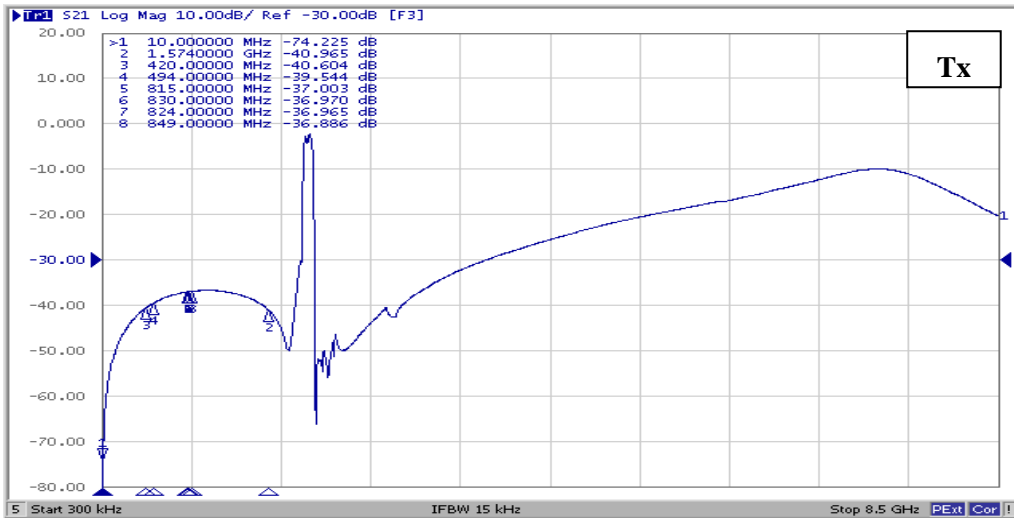
VSWR (ANT Port)



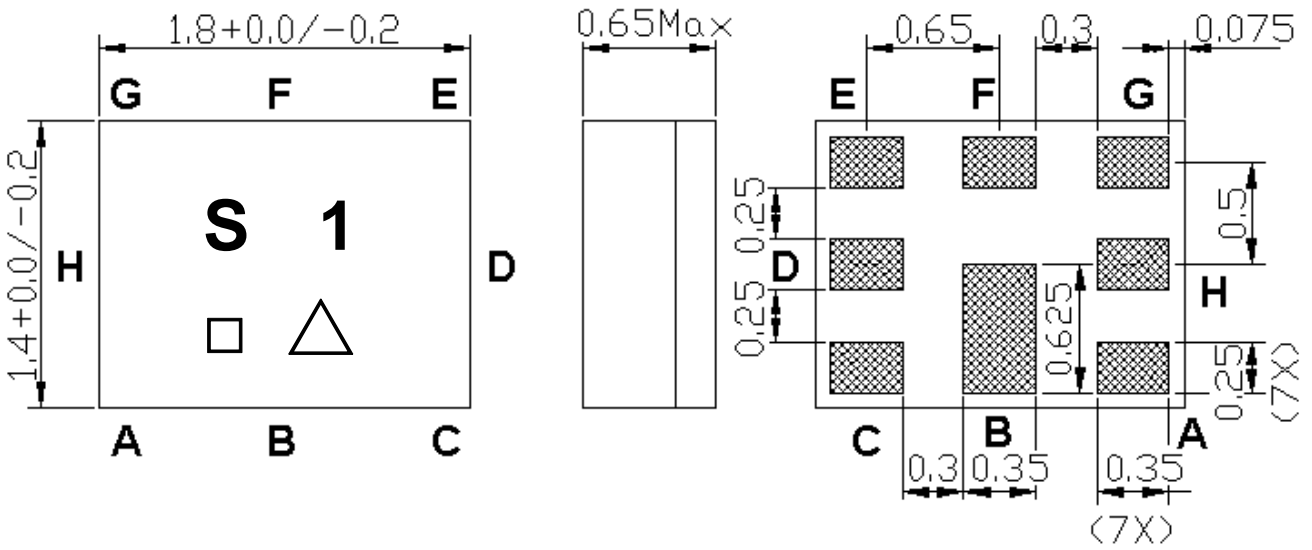
Smith Chart (ANT Port)



Wide Span



D. OUTLINE DRAWIN:
(Mass Production)

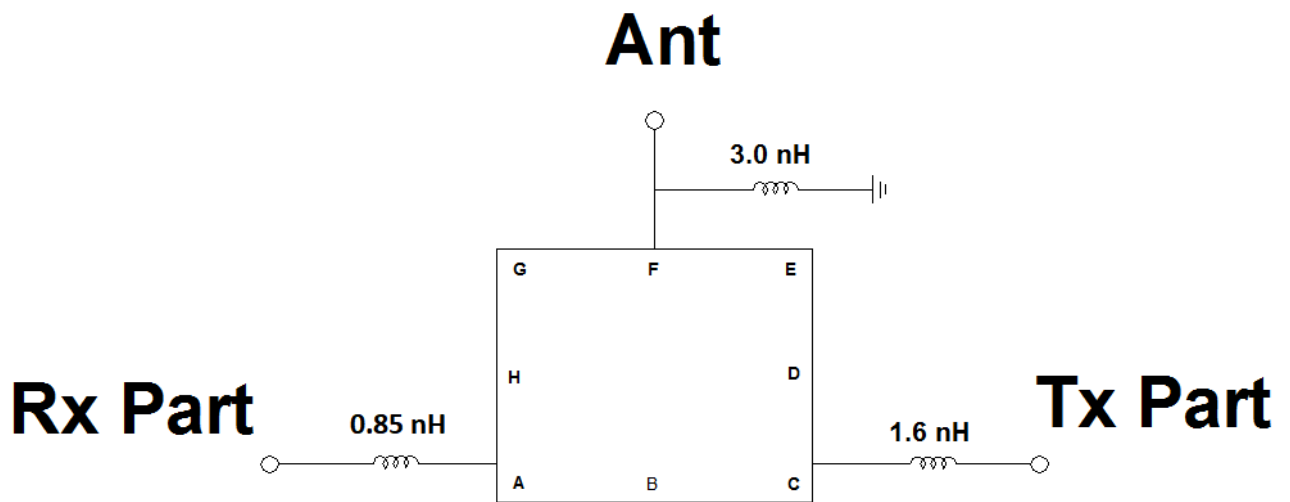


Marking Descriptions	
S	Marking name
1	Band Class
□	Series Number : 1 or 8
△	Date Code(Year+Month)

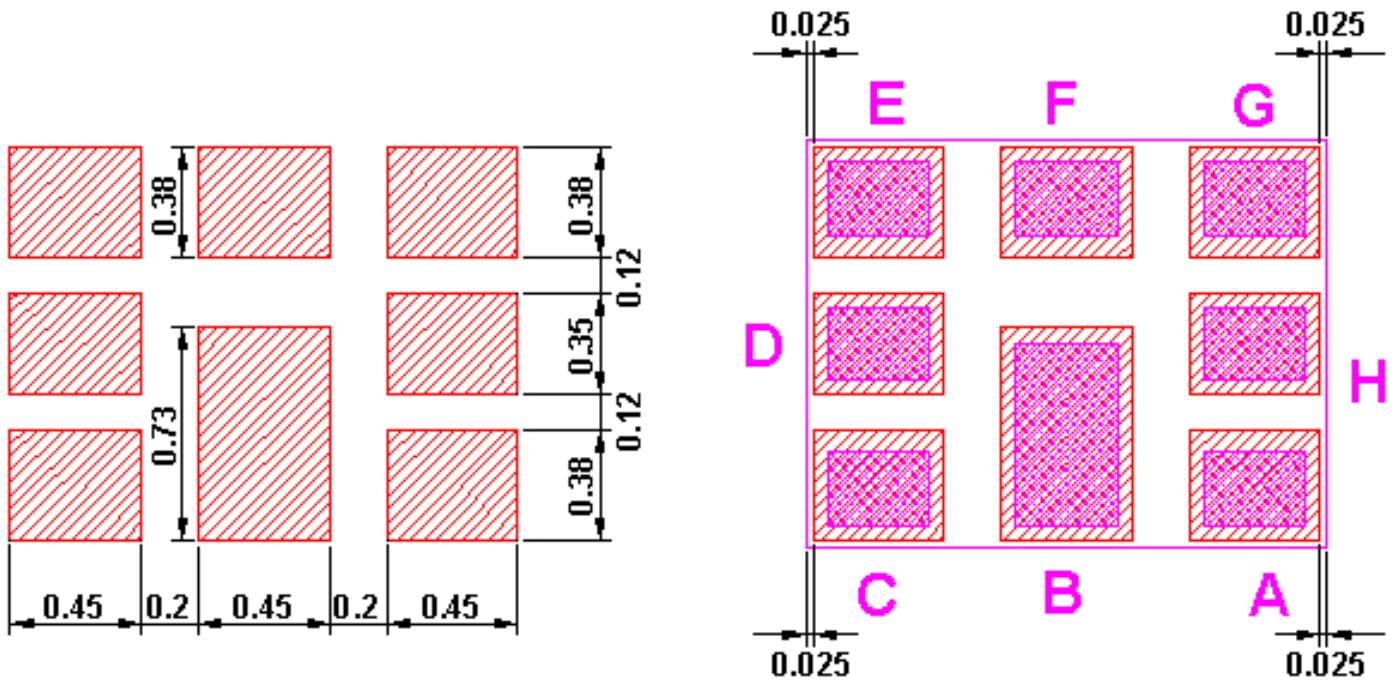
Pin Description	
B,D,E,G,H	Ground
F	Ant
C	Tx (1950.0MHz)
A	Rx (2140.0MHz)

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

E. Evaluation Circuit



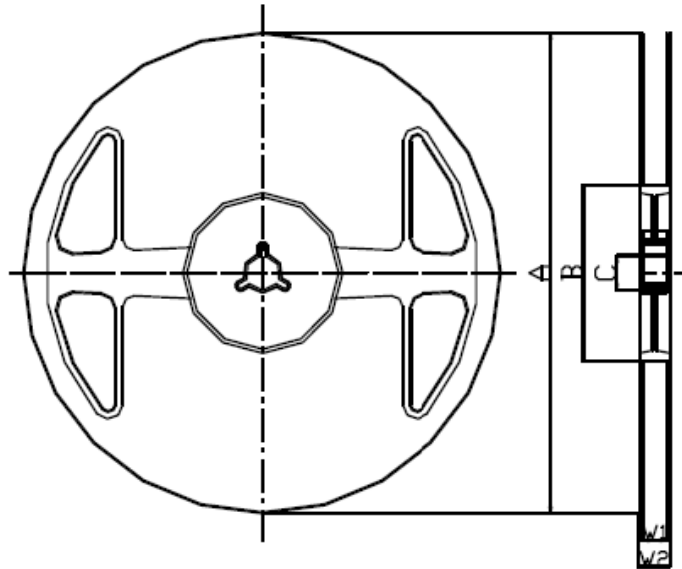
F. FOOTPRINT:



G. PACKING:

1. REEL DIMENSION

(Please refer to FR-75D10 for packing quantity)



Materials of Reel

Material : Polystyrene + Carbon

Characteristics : Conforms to EIAJ-ET-7200A

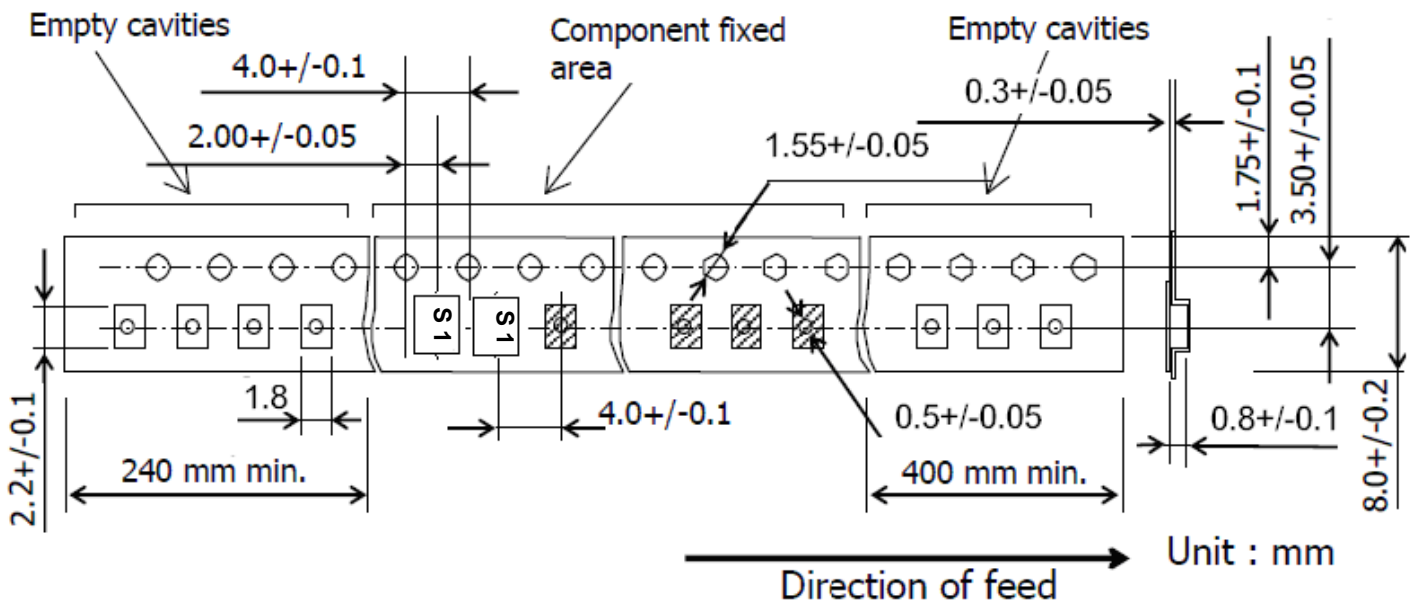
Color : Black

Surface resistance (reference value) : $10^9\Omega/\text{sq}$ Max.

Unit : mm

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

2. TAPE DIMENSION



H. RECOMMENDED REFLOW PROFILE :

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

