



# 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

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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.: TF0120DA

Customer Part No.: \_\_\_\_\_

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

Checked by: \_\_\_\_\_ Anne Chen *Anne Chen*

Approved by: \_\_\_\_\_ Andy Yu *Andy Yu*

Date: \_\_\_\_\_ 11 / 08 / 2017

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.:TF0120DA

REV.1.0

## 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 : 10dBm
4. Maximum DC Voltage: 0 V
5. Moisture Sensitivity Level: Level 3 (MSL 3)
6. ESD 50V(MM) 100V(HBM)

RoHS Compliant  
Lead free  
Lead-free soldering

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<sub>T0</sub>=1950 MHz)

Parameters Description		Unit	Min	Typ	Max	Remarks
Insertion Loss	1920 ~ 1980 MHz	dB	-	1.7	2.5	
Amplitude ripple	1920 ~ 1980 MHz	dB	-	0.4	1.0	(Over any 5MHz in-band)
VSWR	ANT		-	1.6	2.2	
	Tx		-	1.5	2.0	
<b>Attenuation:</b>						
10.00 ~ 1574.00 MHz		dB	32	36		
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	37		
1447.90 ~ 1462.90 MHz		dB	32	36		
1475.00 ~ 1496.00 MHz		dB	32	36		
1496.00 ~ 1511.00 MHz		dB	32	36		
1559.00 ~ 1563.00 MHz		dB	32	36		
1565.42 ~ 1573.37 MHz		dB	32	36		

1573.37 ~ 1577.47 MHz	dB	32	36		
1577.47 ~ 1585.42 MHz	dB	32	36		
1597.55 ~ 1605.89 MHz	dB	32	37		
1605.88 ~ 1805.00 MHz	dB	32	37		
1805.00 ~ 1865.00 MHz	dB	21	26		
1865.00 ~ 1880.00 MHz	dB	20	24		
2110.00 ~ 2170.00 MHz	dB	42	45		
2400.00 ~ 2500.00 MHz	dB	37	39		
2620.00 ~ 2690.00 MHz	dB	30	34		
3840.00 ~ 3960.00 MHz	dB	18	23		
4900.00 ~ 5950.00 MHz	dB	10	21		
4905.00 ~ 5845.00 MHz	dB	10	21		
7680.00 ~ 7920.00 MHz	dB	5	16		

**ANT to Rx (f<sub>T0</sub>=2140 MHz)**

Parameters Description		Unit	Min	Typ	Max	Remarks
Insertion Loss	2110 ~ 2170 MHz	dB	-	2.2	2.6	
Amplitude ripple	2110 ~ 2170 MHz	dB		0.4	1.0	(Over any 5MHz in-band)
VSWR	ANT	2110 ~ 2170 MHz	-	1.9	2.3	
	Rx			1.8	2.3	
<b>Attenuation:</b>						
1.00 ~ 1920.00 MHz	dB	32	42			
190.00 MHz	dB	50	75			
718.00 ~ 748.00 MHz	dB	40	52			
814.00 ~ 849.00 MHz	dB	40	50			
880.00 ~ 915.00 MHz	dB	40	49			
1427.00 ~ 1447.00 MHz	dB	37	44			
1447.00 ~ 1463.00 MHz	dB	37	44			
1730.00 ~ 1790.00 MHz	dB	37	43			
1710.00 ~ 1785.00 MHz	dB	37	43			
1920.00 ~ 1980.00 MHz	dB	48	51			
1980.00 ~ 2015.00 MHz	dB	40	48			
2015.00 ~ 2075.00 MHz	dB	10	34			
2255.00 ~ 6130.00 MHz	dB	23	41			
2400.00 ~ 2500.00 MHz	dB	40	47			
2500.00 ~ 2570.00 MHz	dB	40	47			
4030.00 ~ 4150.00 MHz	dB	45	52			
4220.00 ~ 4340.00 MHz	dB	45	52			
4900.00 ~ 5950.00 MHz	dB	25	43			
5950.00 ~ 6130.00 MHz	dB	23	41			
6130.00 ~ 6330.00 MHz	dB	20	38			
6330.00 ~ 6510.00 MHz	dB	15	36			

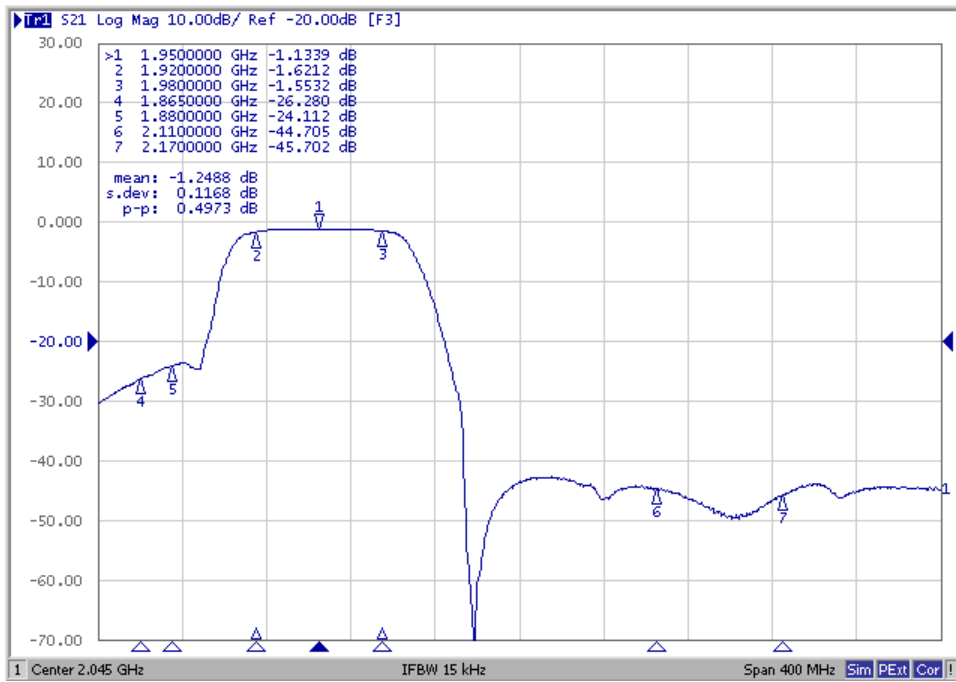
### Tx to Rx

Parameters Description	Unit	Min	Typ	Max	Remarks	
Isolation	1574.00 ~ 1577.00 MHz	dB	40	55	-	
	1920.00 ~ 1980.00 MHz	dB	52	55	-	
	2110.00 ~ 2170.00 MHz	dB	50	53		
	3830.00 ~ 3970.00 MHz	dB	35	48		
	5750.00 ~ 5950.00 MHz	dB	23	41		

**Notes :** (1) With Matching Network

### C. FREQUENCY CHARACTERISTICS:

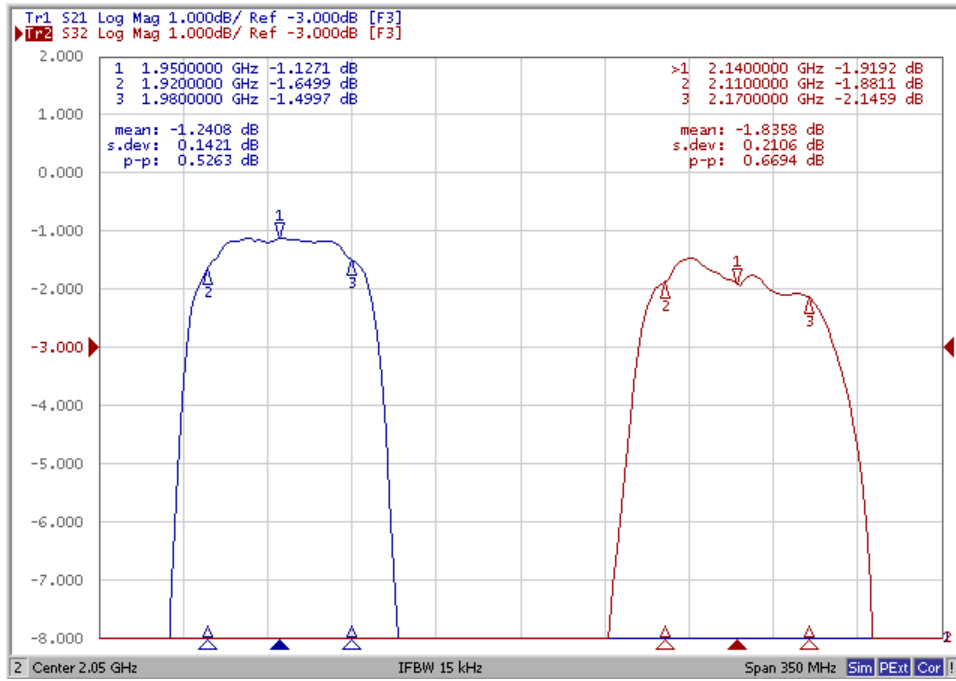
#### Tx to Ant



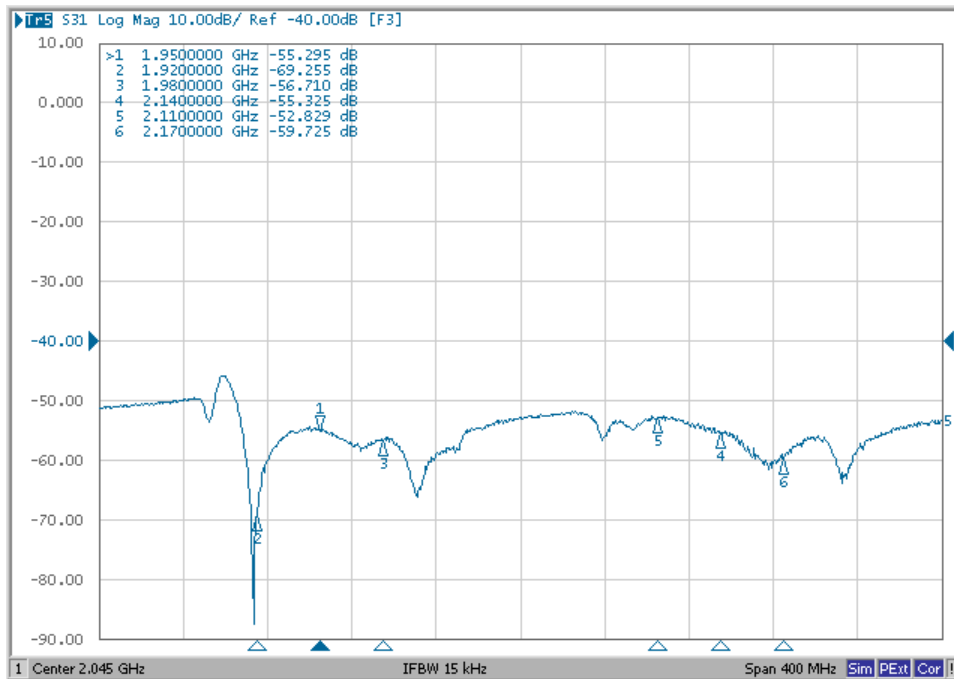
#### Ant to Rx



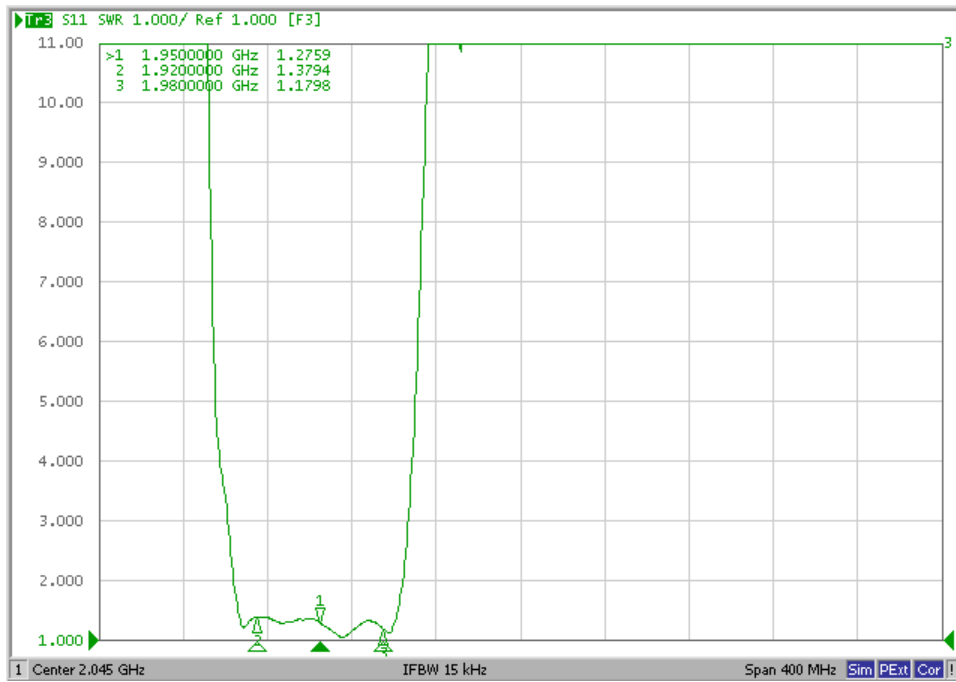
## Ripple Deviation



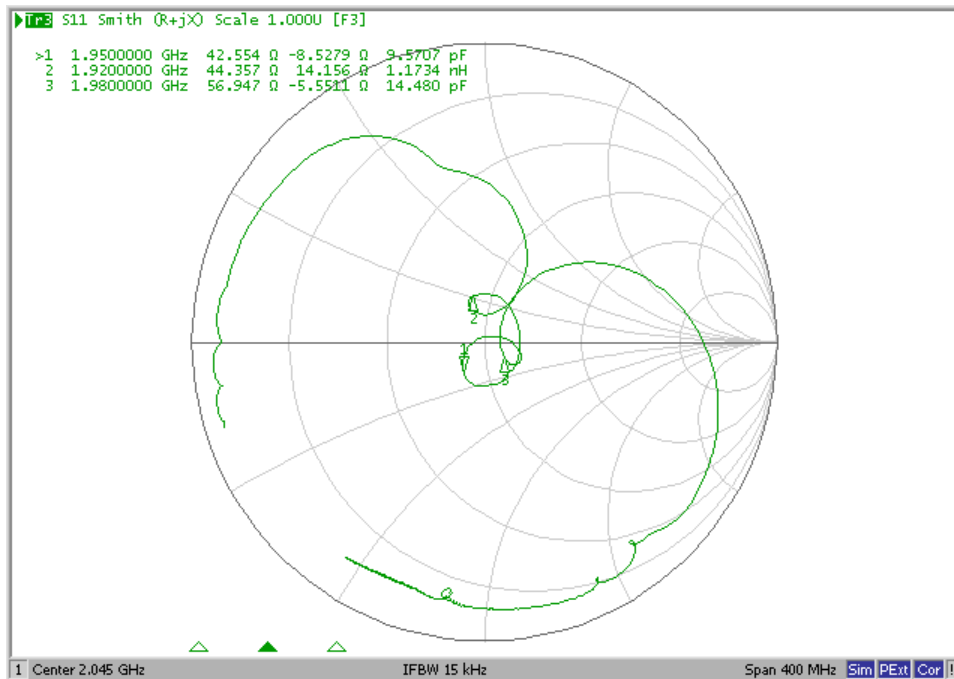
## Isolation



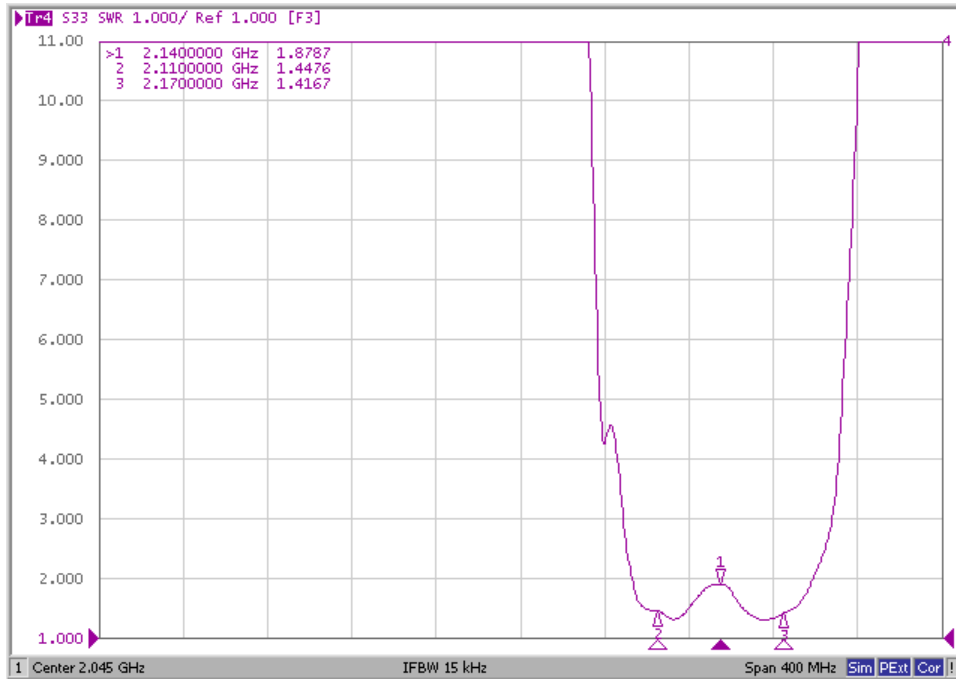
## VSWR (Tx Port)



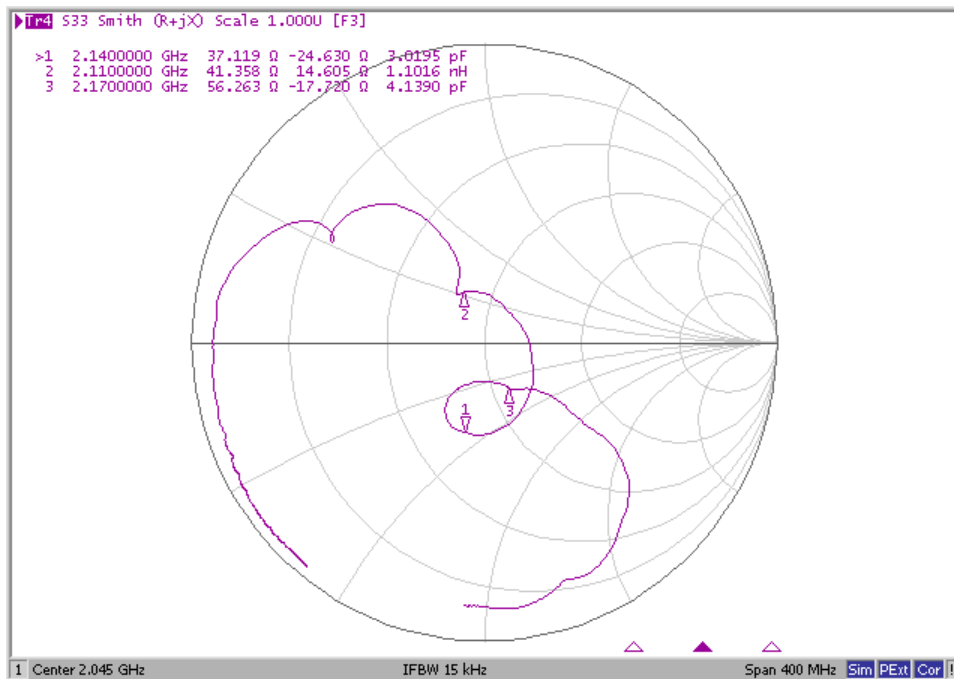
## Smith Chart (Tx Port)



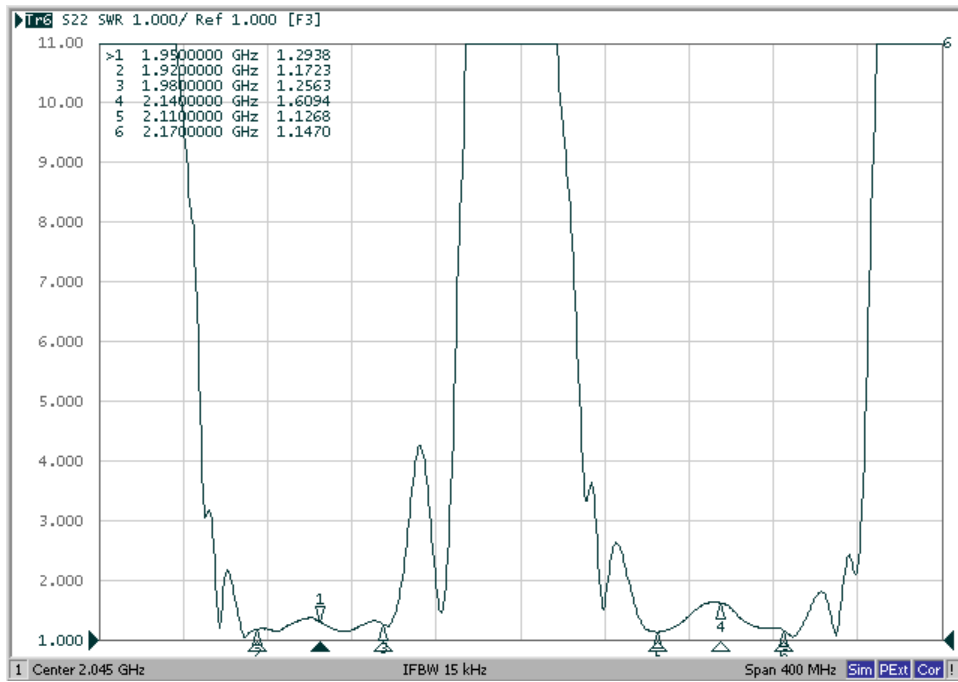
## VSWR (Rx Port)



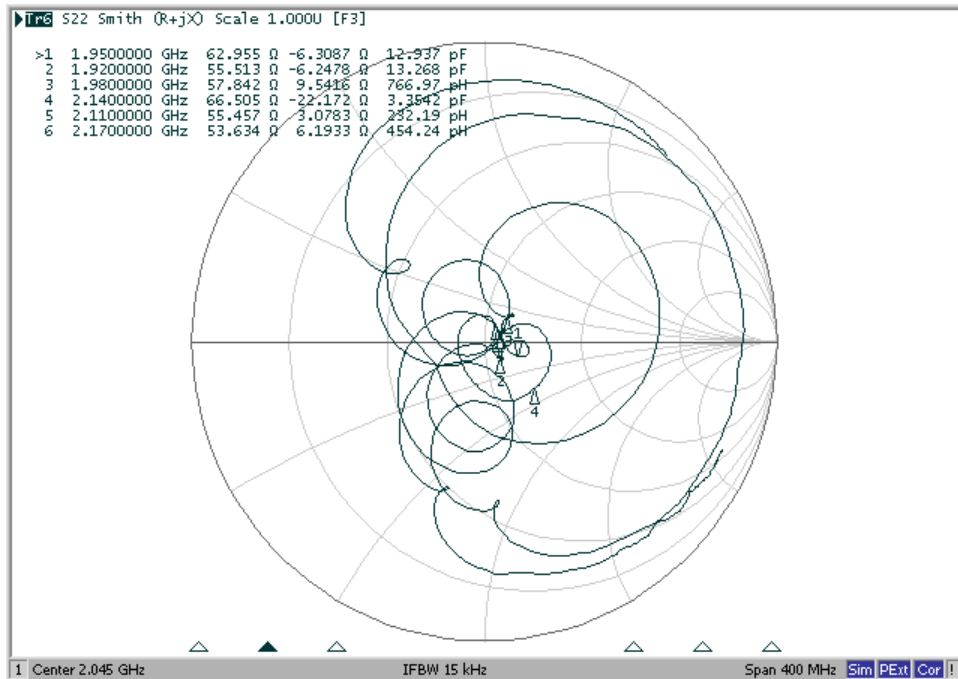
## Smith Chart (Rx Port)



## VSWR (ANT Port)

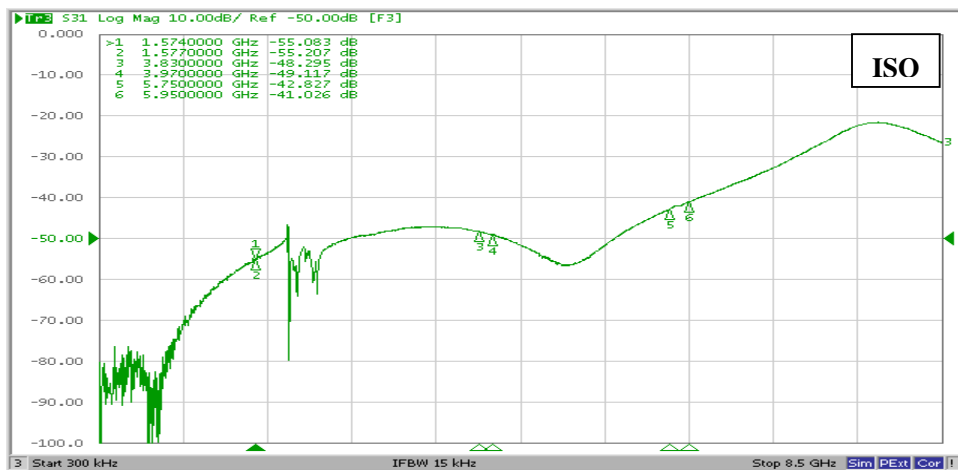
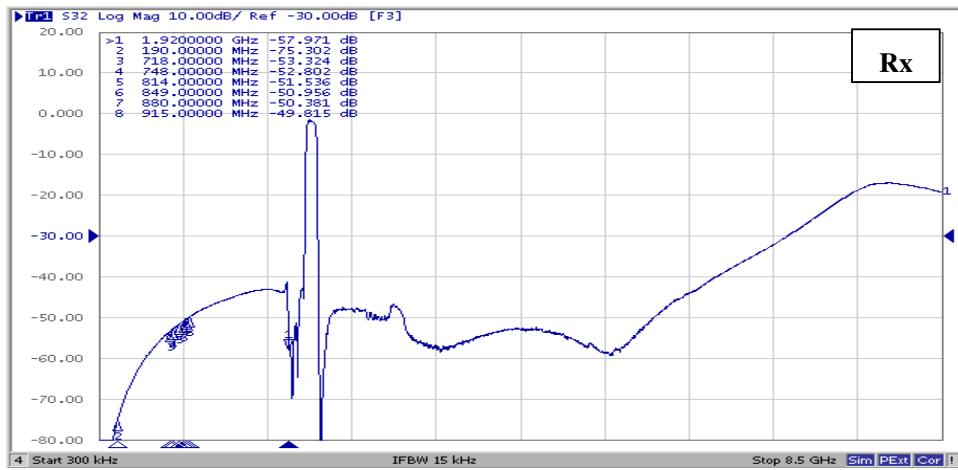
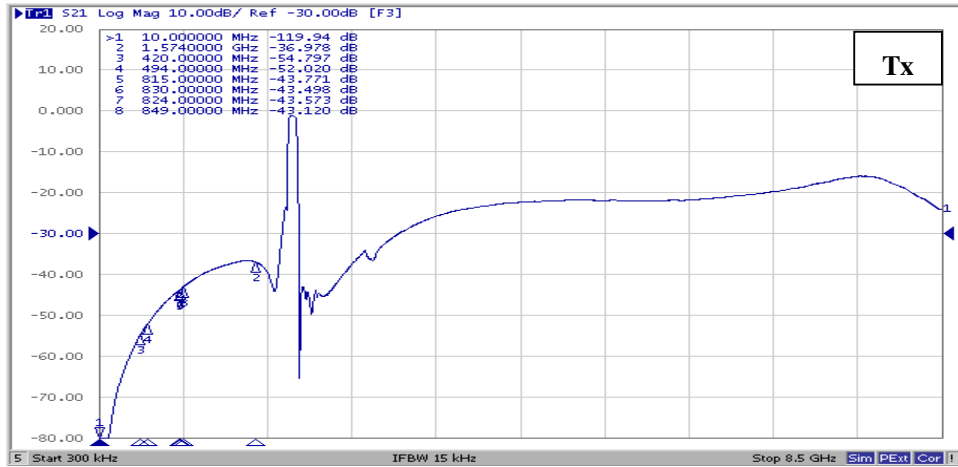


## Smith Chart (ANT Port)

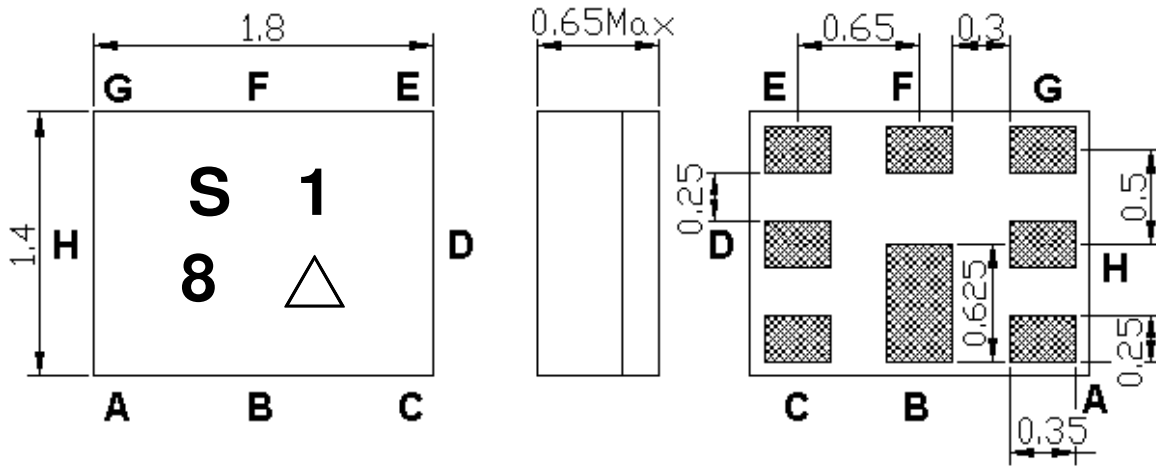




# Wide Span



**D.OUTLINE DRAWIN:  
(Mass Production)**



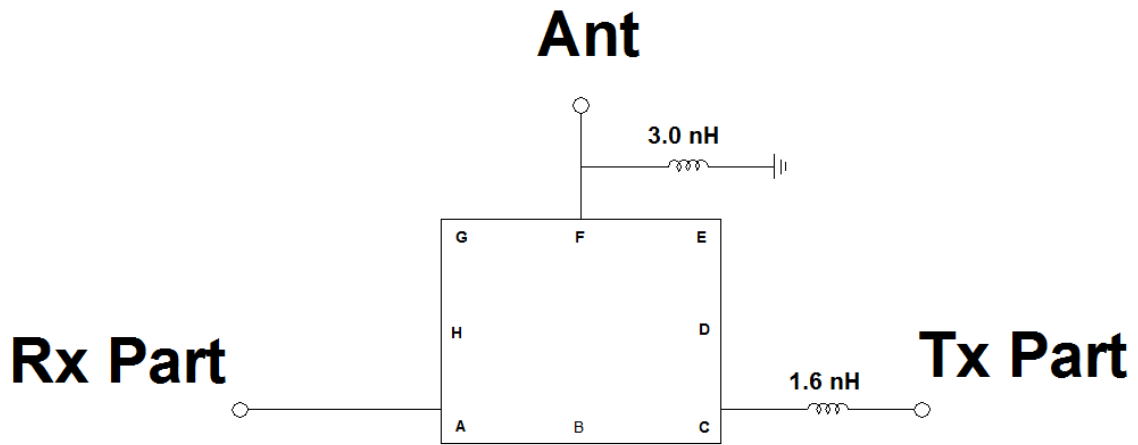
Marking Descriptions	
S	Marking name
1	Band Class
8	Series Number
△	Date Code(Year+Month)

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

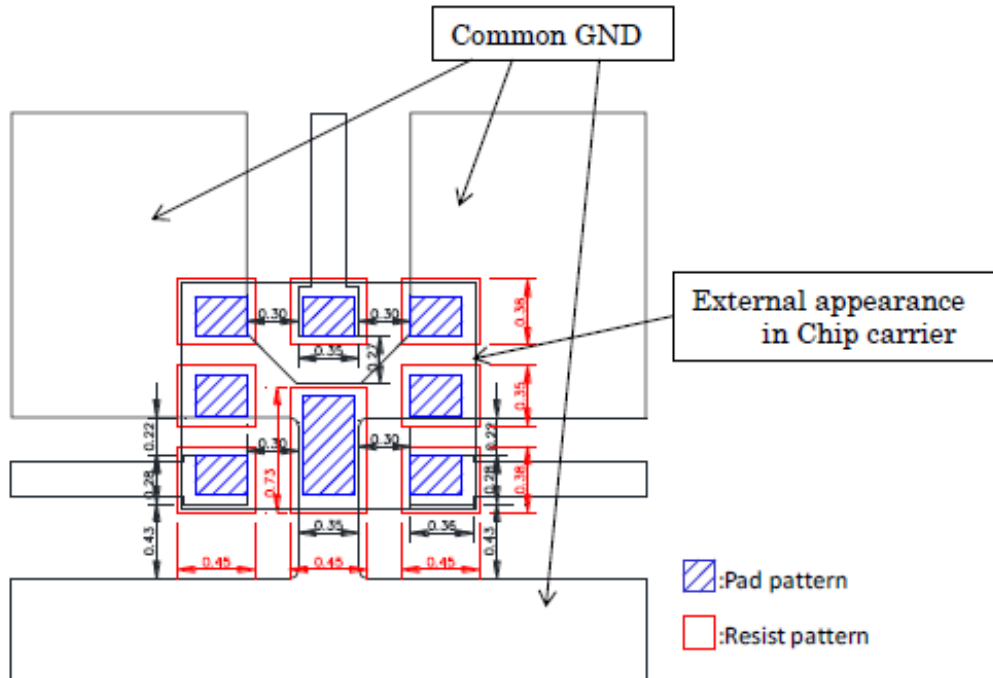
**Date Code ( year+month)**

Year	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2013	A	B	C	D	E	F	G	H	J	K	L	M
2014	N	P	Q	R	S	T	U	V	W	X	Y	Z
2015	a	b	c	d	e	f	g	h	j	k	l	m
2016	n	p	q	r	s	t	u	v	w	x	y	z
2017	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>J</u>	<u>K</u>	<u>L</u>	<u>M</u>
2018	<u>N</u>	<u>P</u>	<u>Q</u>	<u>R</u>	<u>S</u>	<u>T</u>	<u>U</u>	<u>V</u>	<u>W</u>	<u>X</u>	<u>Y</u>	<u>Z</u>
2019	<u>a</u>	<u>b</u>	<u>c</u>	<u>d</u>	<u>e</u>	<u>f</u>	<u>g</u>	<u>h</u>	<u>i</u>	<u>k</u>	<u>l</u>	<u>m</u>
2020	<u>n</u>	<u>p</u>	<u>q</u>	<u>r</u>	<u>s</u>	<u>t</u>	<u>u</u>	<u>v</u>	<u>w</u>	<u>x</u>	<u>y</u>	<u>z</u>

### E. Evaluation Circuit



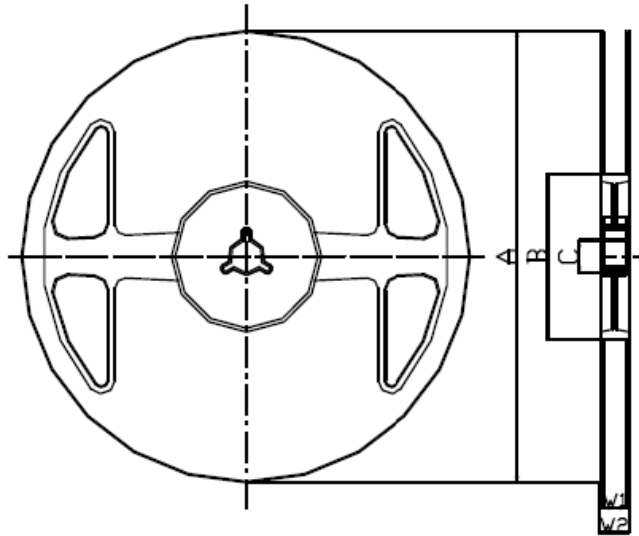
### F. FOOTPRINT:



**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

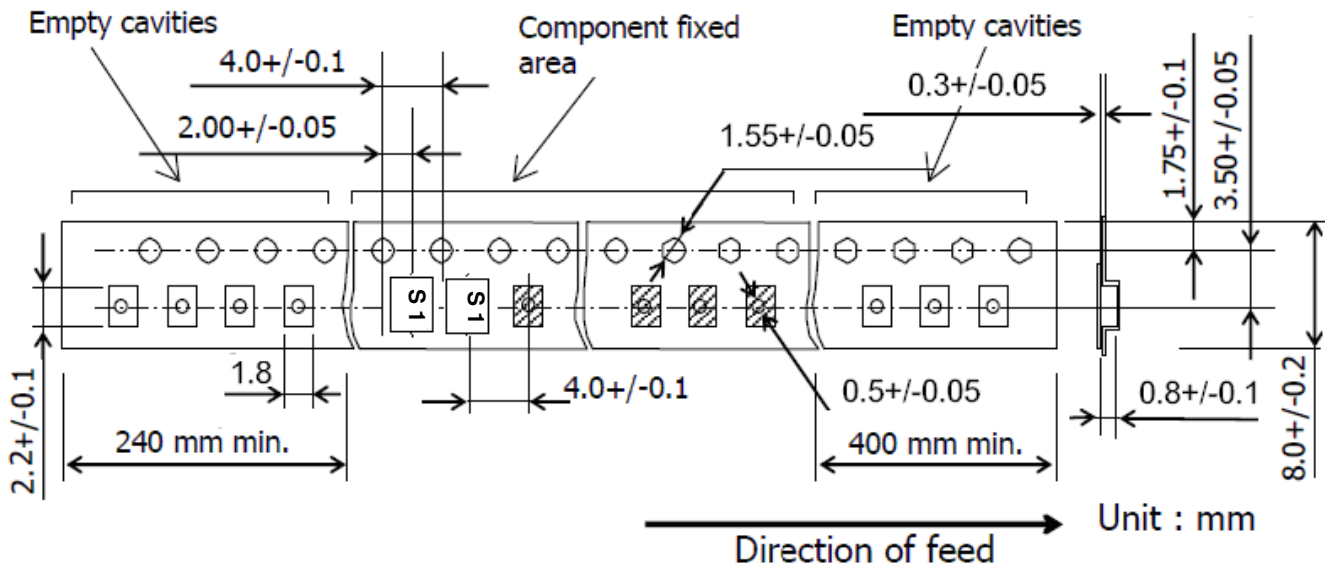
Color : Black

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**



Unit : mm

## 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.

