

SAW Duplexer 1880.0 / 1960.0MHz

Model: TF0127A

Part No: MP07408

Rev. No: 2

A. MAXIMUM RATING:

Electrostatic Sensitive Device (ESD)

1. Operating temperature range: -30°C to +85°C
2. Storage temperature range: -30°C to +85°C
3. Tx Input power: 29dBm (Ta = +50°C, 50kh,CW) min 15dBm (CW @100000h and 85°C).
- 3.1 Rx Input power: 15dBm (Ta = +50°C, 50kh, CW)
4. Maximum DC Voltage: ±3V
5. Moisture Sensitivity Level: Level 1 (MSL 1)
6. ESD 50V (MM), 150V(HBM)

B. ELECTRICAL CHARACTERISTICS:

1. Terminating impedance (Tx Port): 50Ω (Single-ended)
2. Terminating impedance (Rx Port): 100 + 2.2nH x 2 Ω (Balanced)
3. Terminating impedance (Ant Port): 50 // 4.3nH Ω (Single-ended)

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

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

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

Parameters Description		Unit	Min	Typ	Max	Remarks
Insertion Loss	1930.48 ~ 1989.52MHz	dB(*1)		2.9	3.3	-20 to+85°C
	1930.48 ~ 1989.52MHz (*2)	dB(*1)		2.5	3.0	-20 to+85°C
	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°C
1850.48 ~ 1909.52MHz (*2)		dB	47	52	-	-20 to+85°C
1850.625 ~ 1909.375MHz (*3)		dB	47	50		

Tx to Rx

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

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

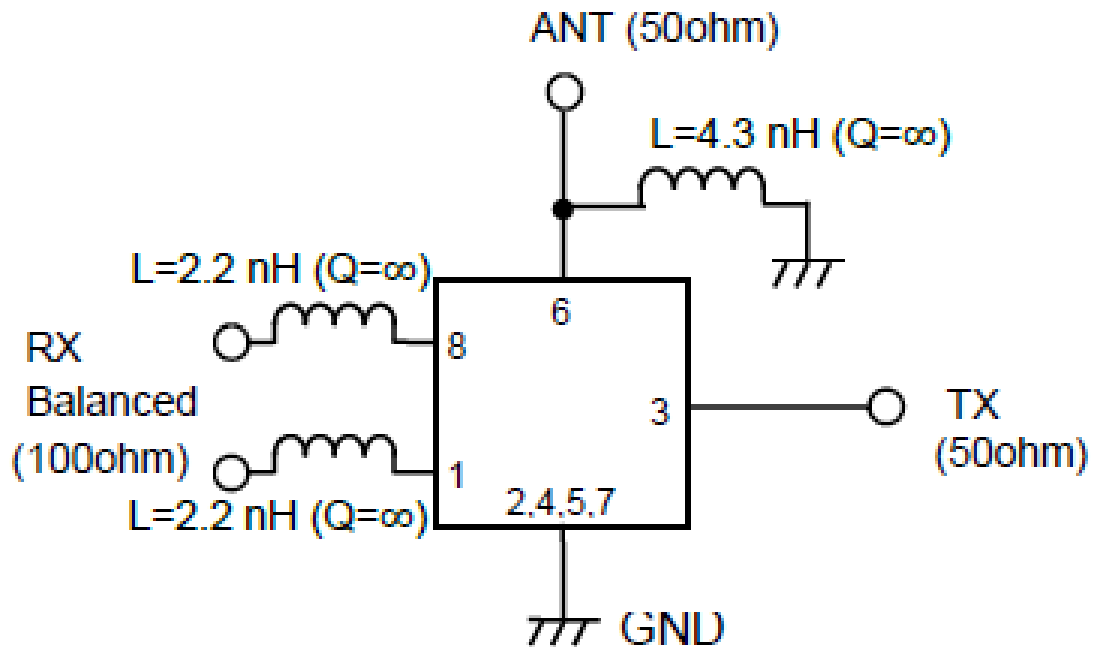
(*2) The integrated loss over any 3.84MHz (±1.92MHz) channel within the band.

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

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C. EVALUATION CIRCUIT:

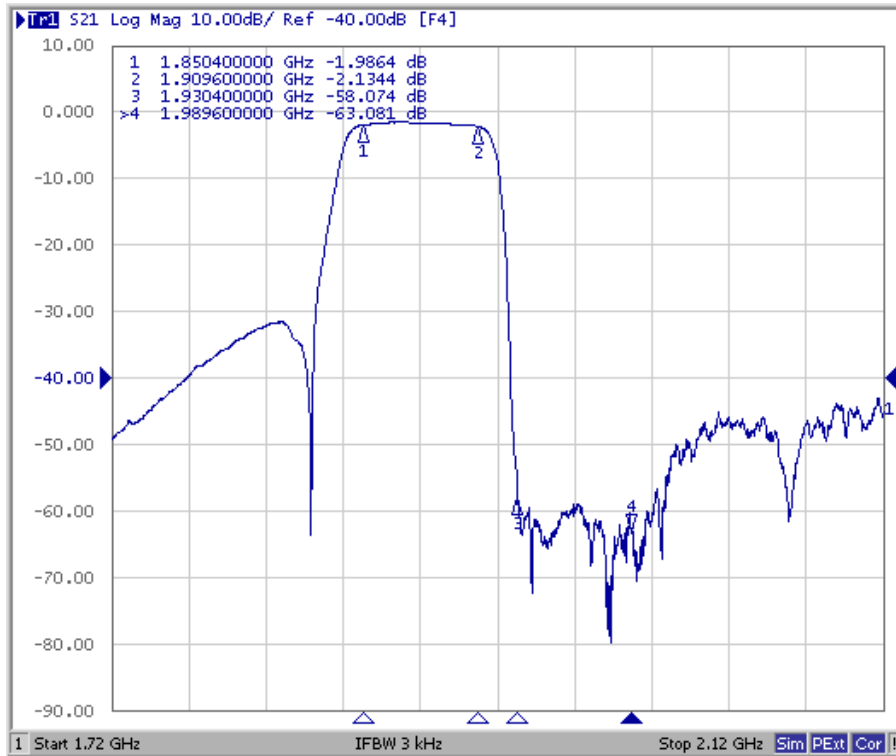


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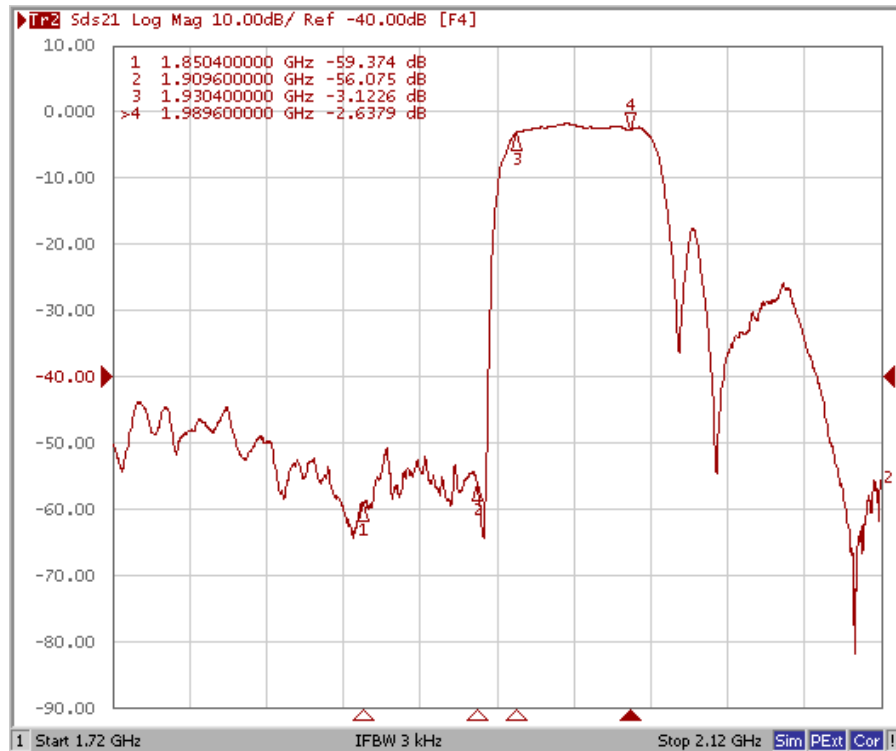
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D. FREQUENCY CHARACTERISTICS:

Tx to Ant



Ant to Rx

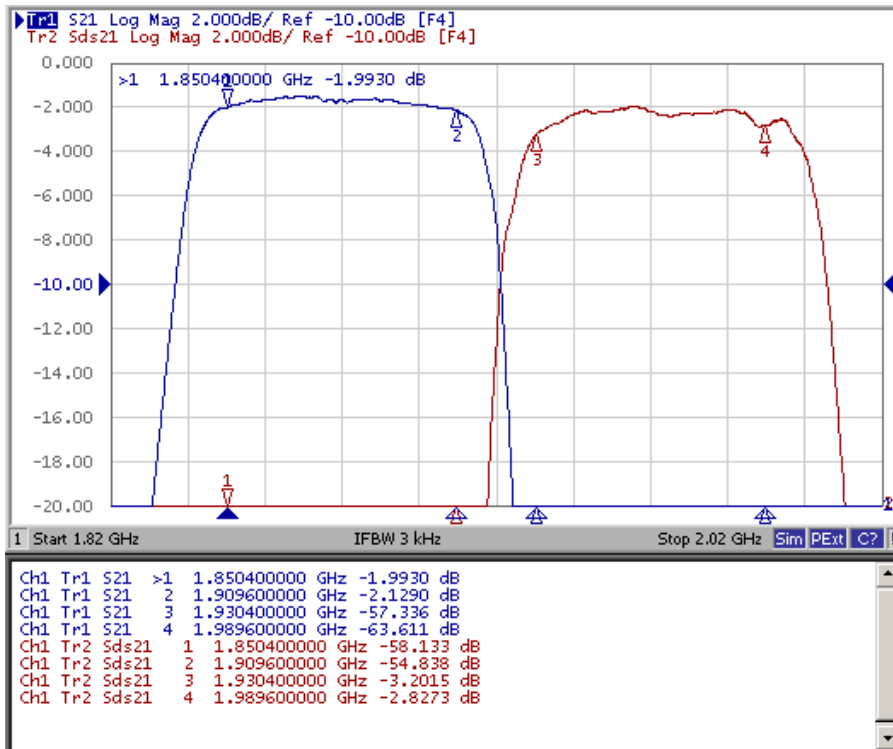


Data excludes loss that comes from the test board.

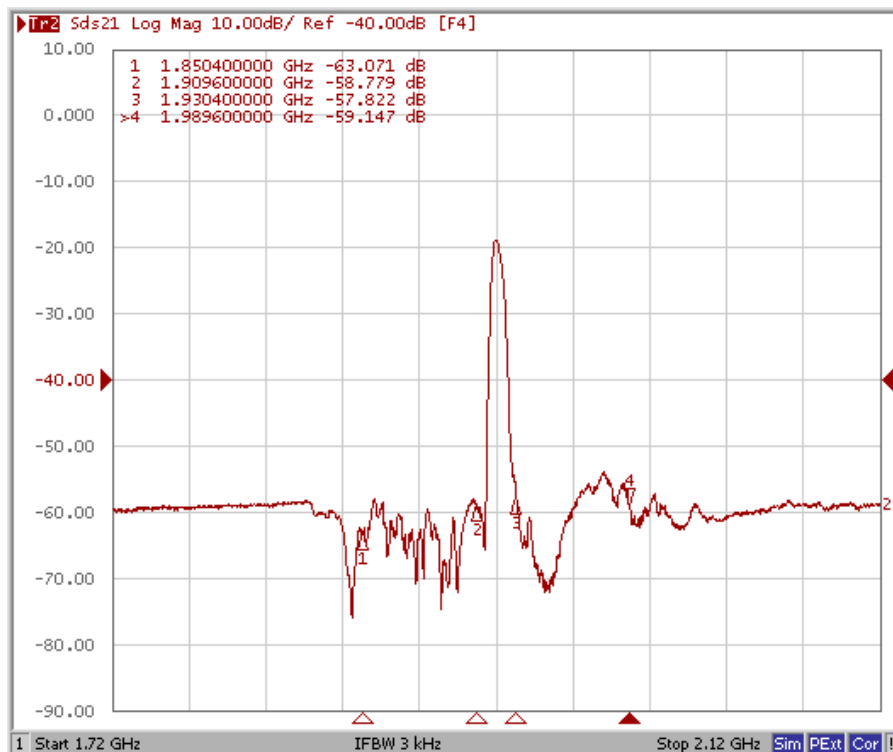
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Tx to Ant ,Ant to Rx



Tx to Rx Isolation

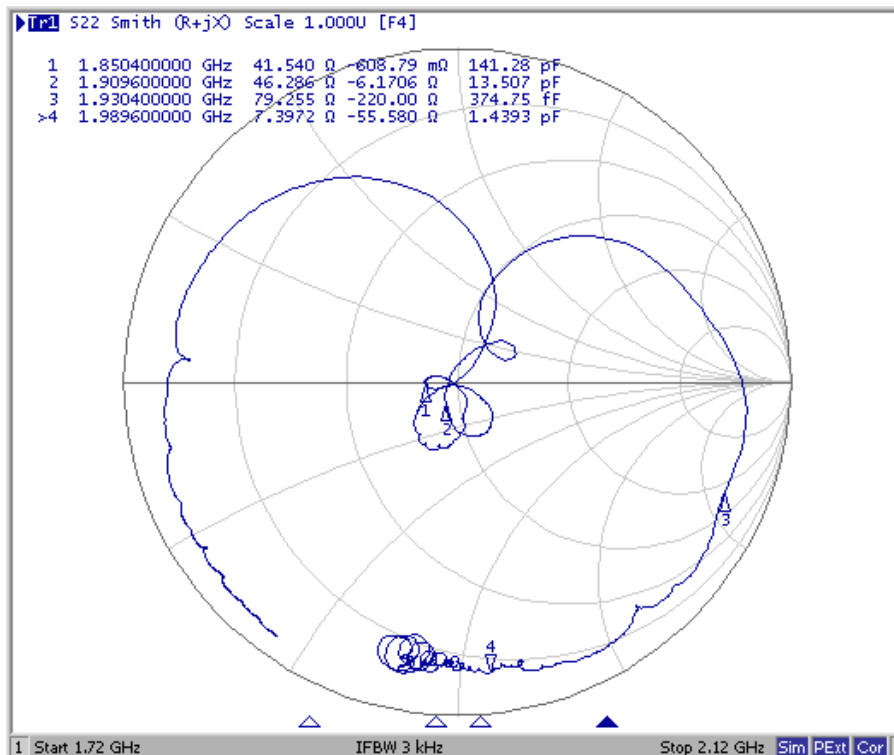
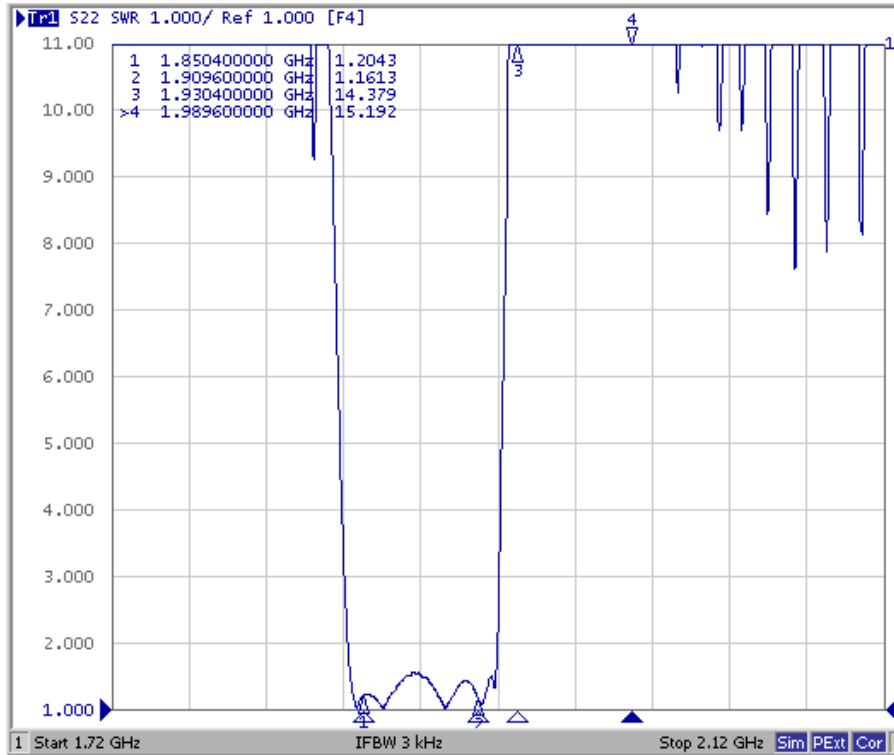


Data excludes loss that comes from the test board

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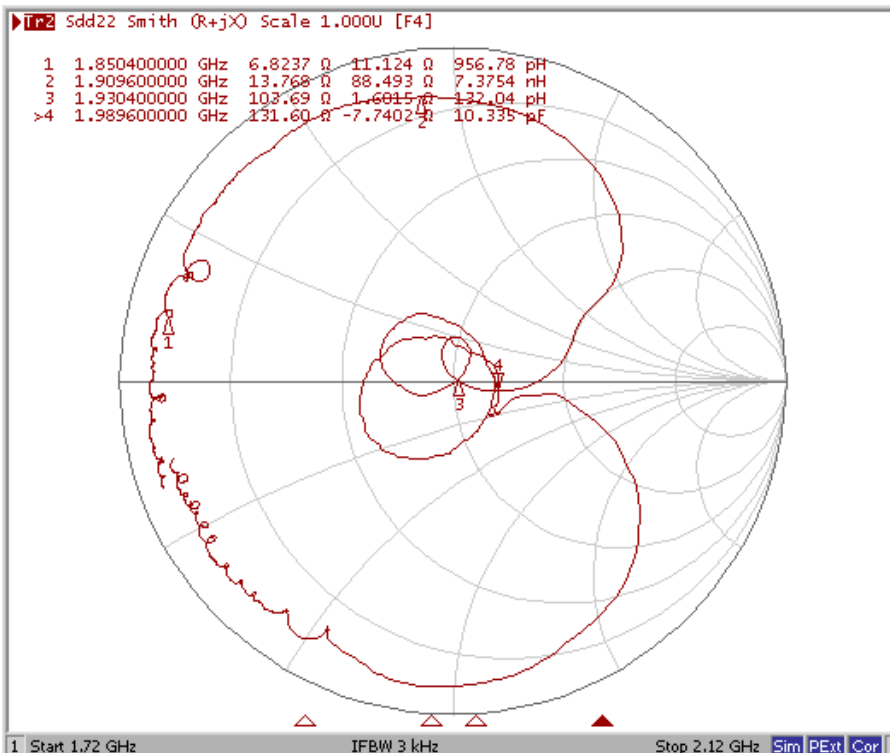
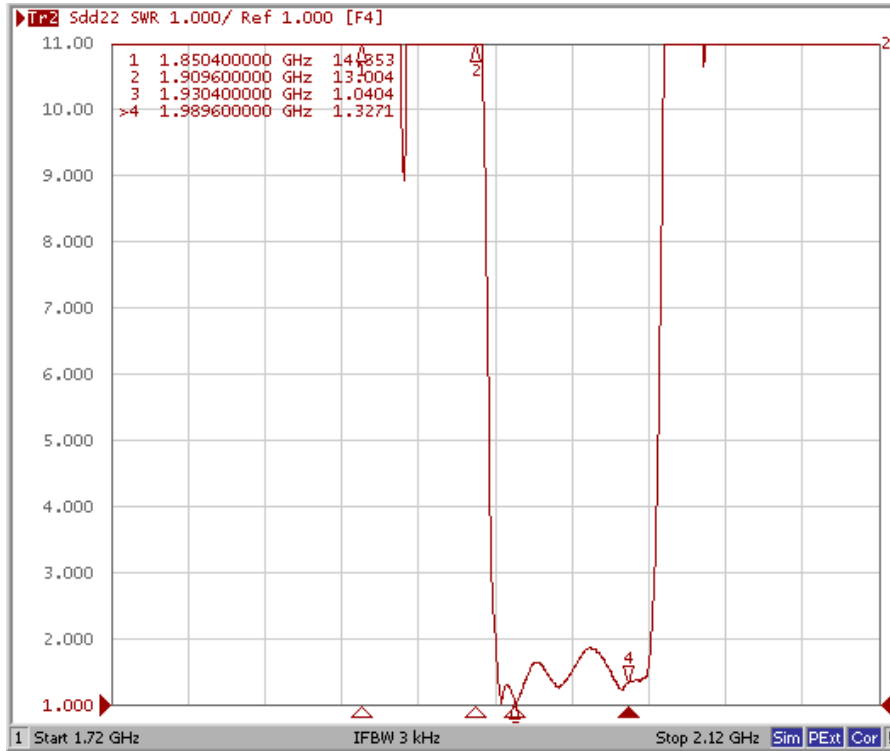
Tx Port



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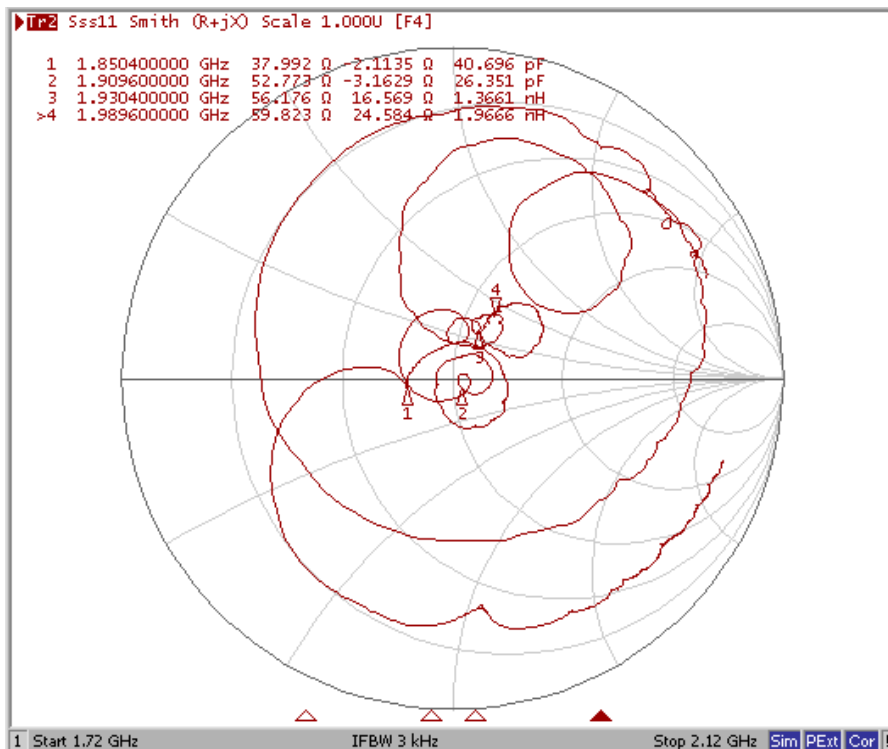
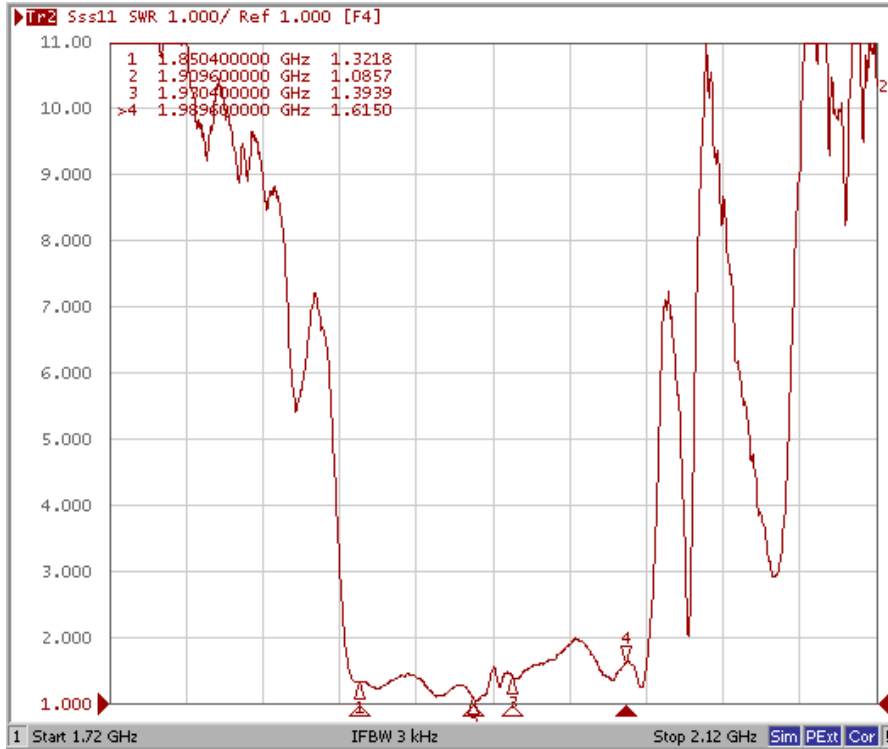
Rx Port



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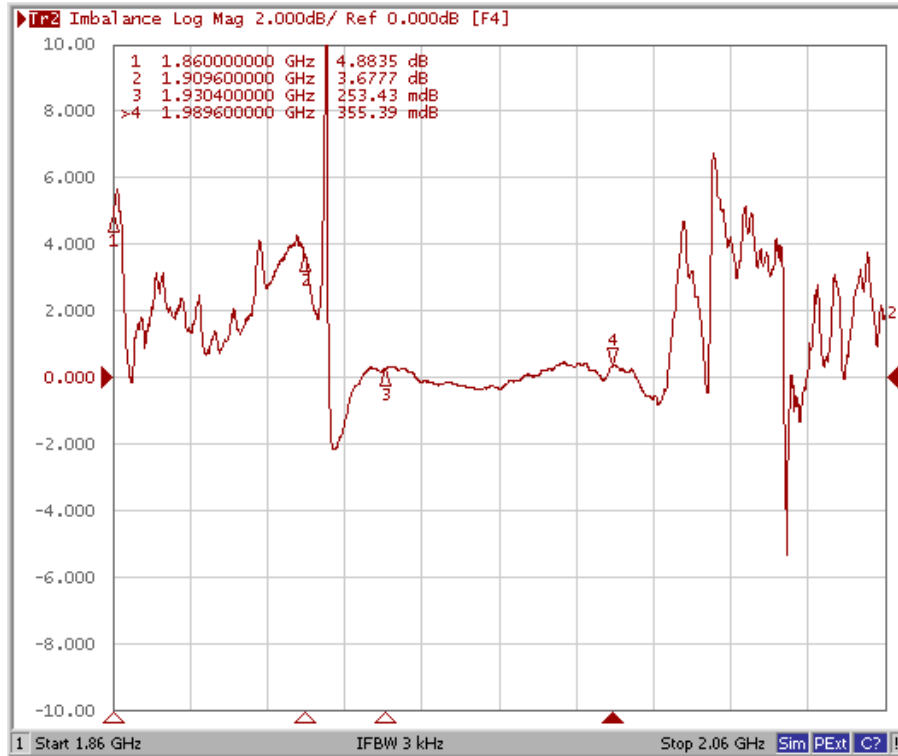
Ant Port



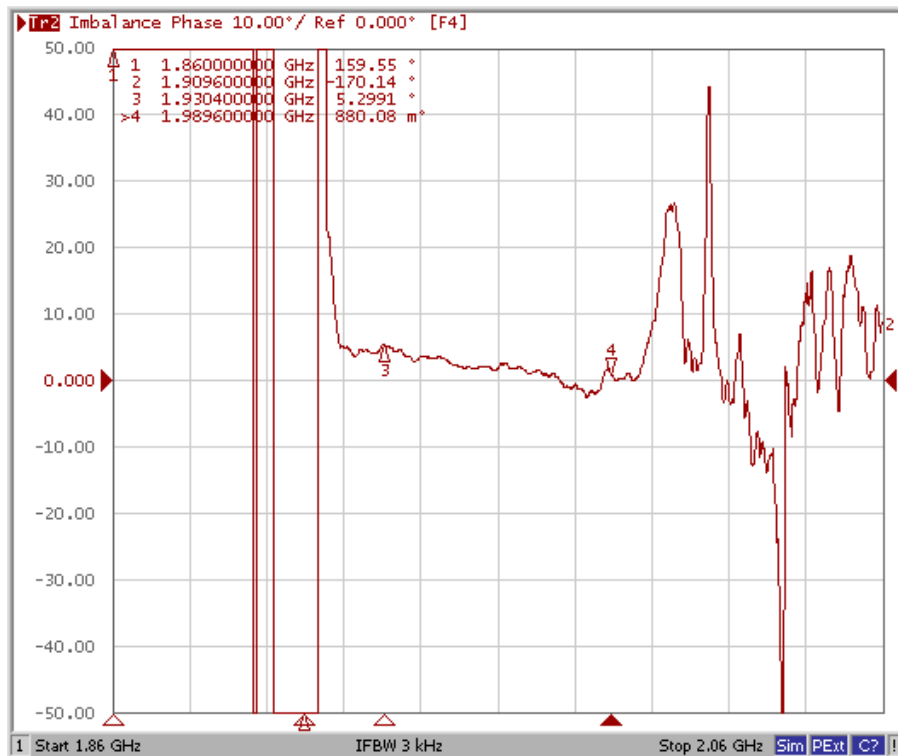
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Ant to Rx (Amplitude balance)



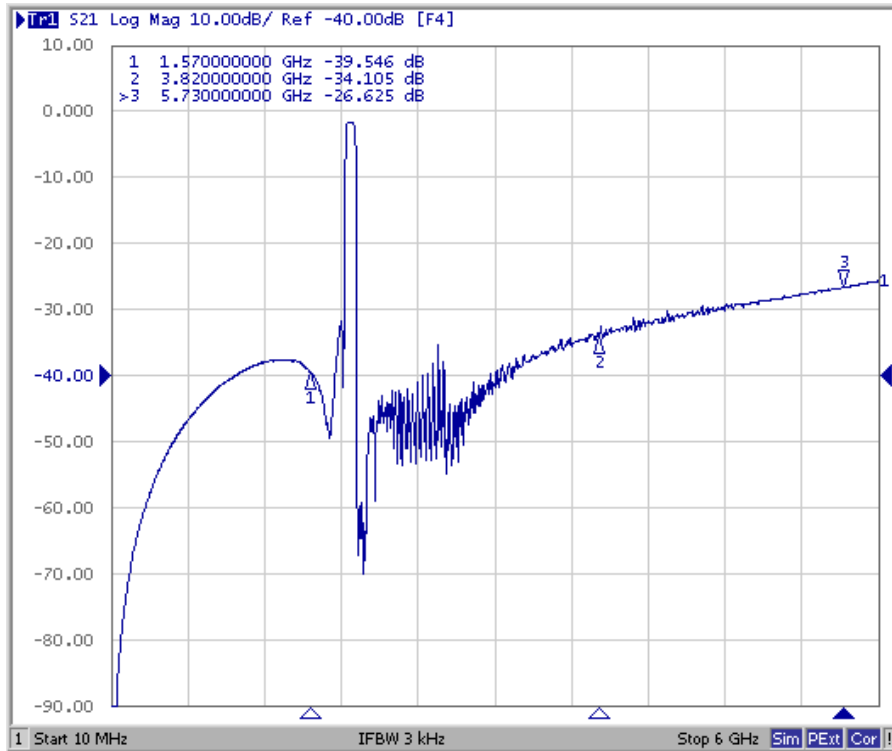
Ant to Rx (Phase balance)



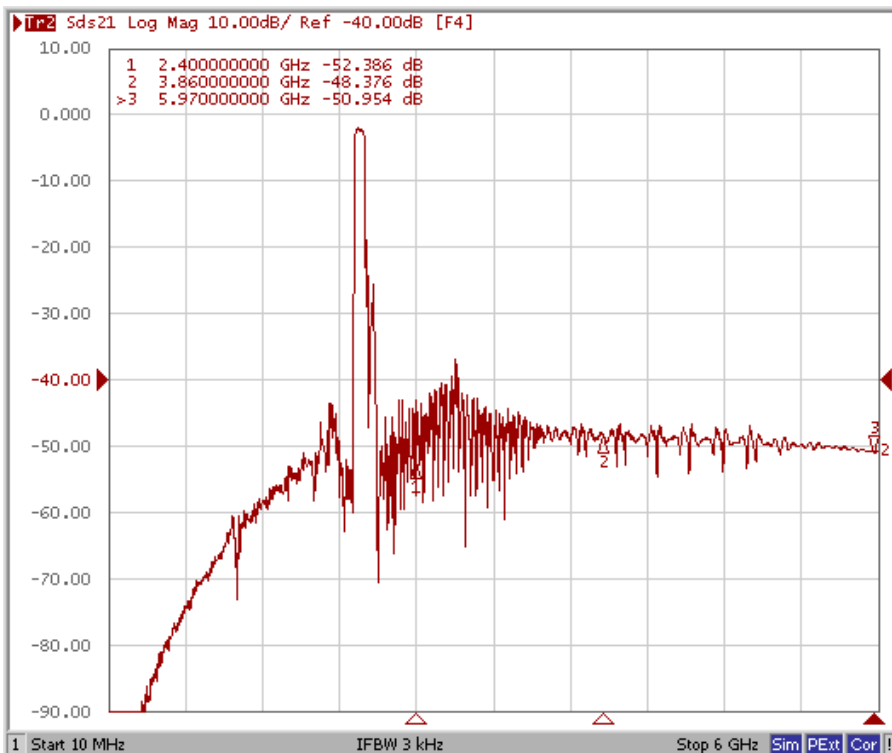
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Tx to Ant (Wide span)



Ant to Rx (Wide span)

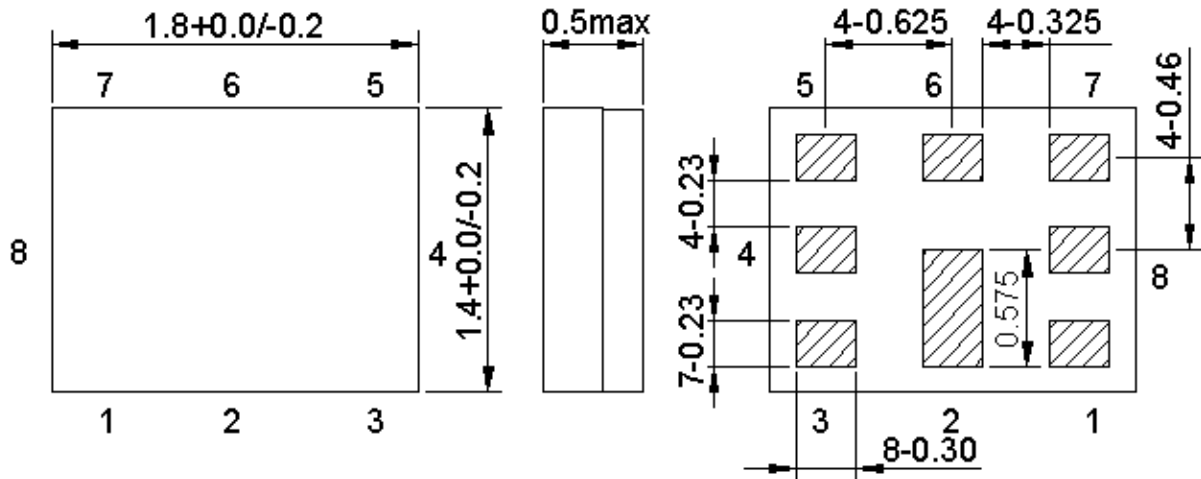


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E. OUTLINE DRAWING:

(Mass Production)



Pin Configuration

Pin No.	Pin name	Description
1	Rx	Receiver Pin (balanced)
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	Rx	Receiver Pin (balanced)

Figure 1. Dimensions and Pin assignment

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F. FOOTPRINT:

Recommended foot print pattern

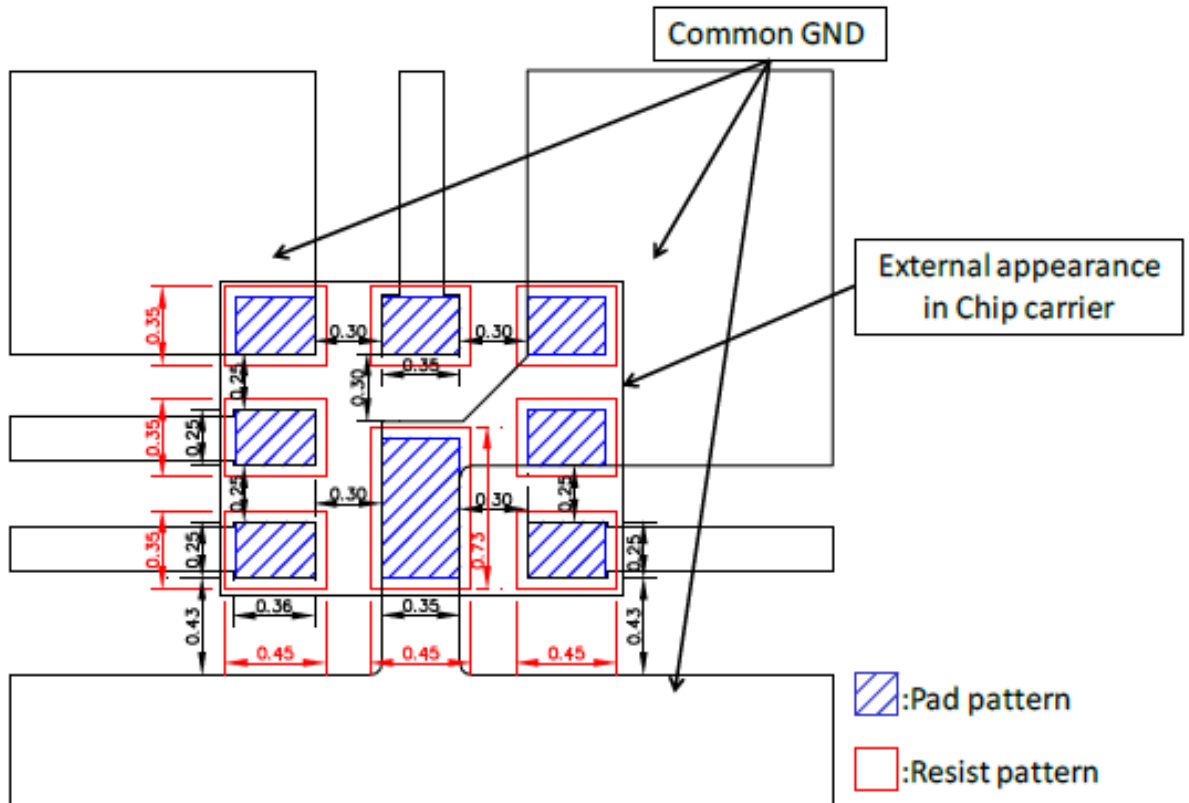


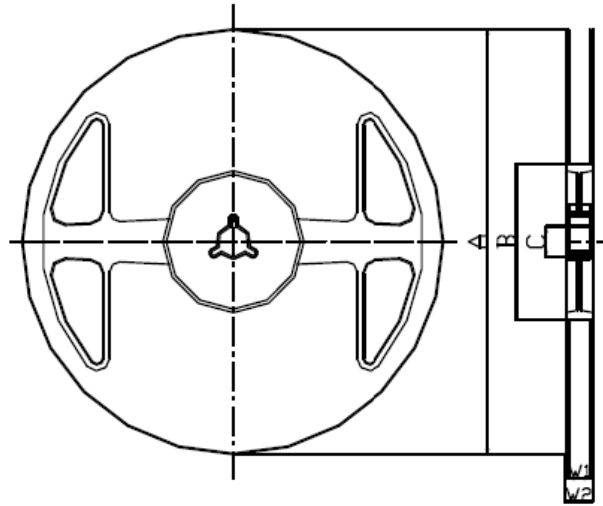
Figure 2. Recommended foot print pattern

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G. PACKING:

1. Reel Dimension



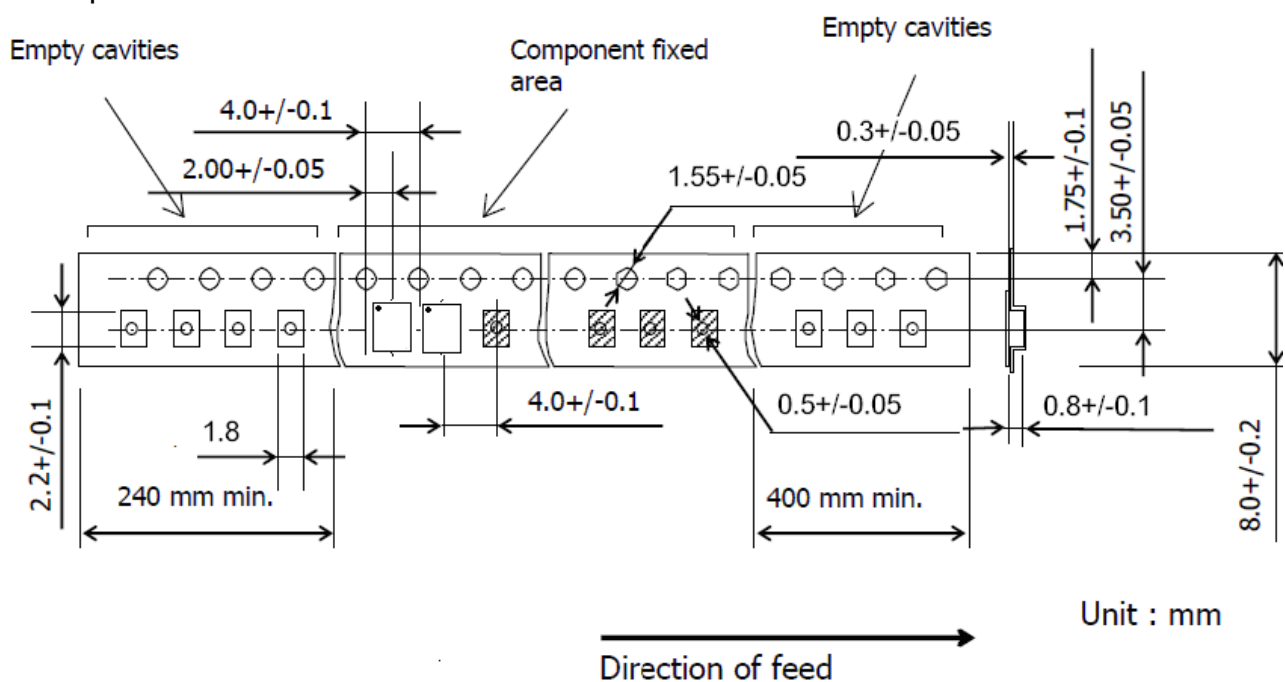
Materials of Reel

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

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

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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. 10 sec).
4. Time: 2 times.

