

SAW Duplexer

for B5 / Unbalanced / LR / 1612

Pinnacle PN: SA051612881MAT

Key Feature:

✓ Band 5 LTE

✓ Low Insertion Loss

1 Description

SA051612881MAT is a high-performance Surface Acoustic Wave (SAW) duplexer optimized for FDD LTE Band 5 applications operating in the range of 824-849 MHz / 869-894 MHz. It is designed to provide low insertion loss in Band 5, good isolation between TX and RX ports, and high rejection in the adjacent cellular bands for mobile devices.

SA051612881MAT uses advanced Chip Scale Package (CSP) technology and is housed in an industry-standard, 8-pin 1.6 mm x 1.2 mm package with a low profile of 0.6 mm max.

2 Package & Dimensions:

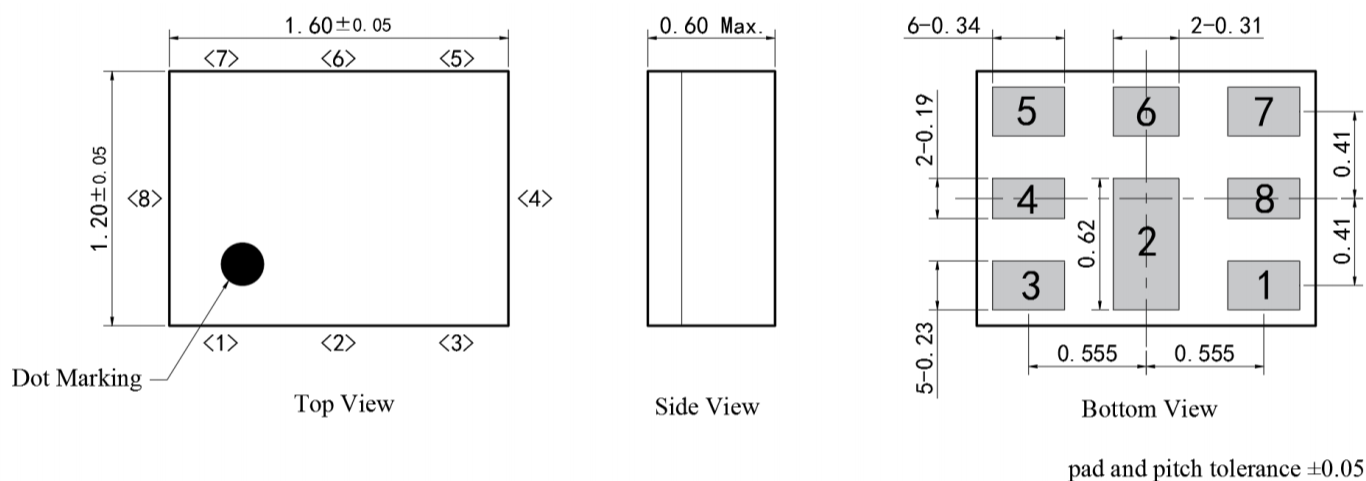


Figure 1: Drawing of Package with each tolerance range

3 Test Circuit

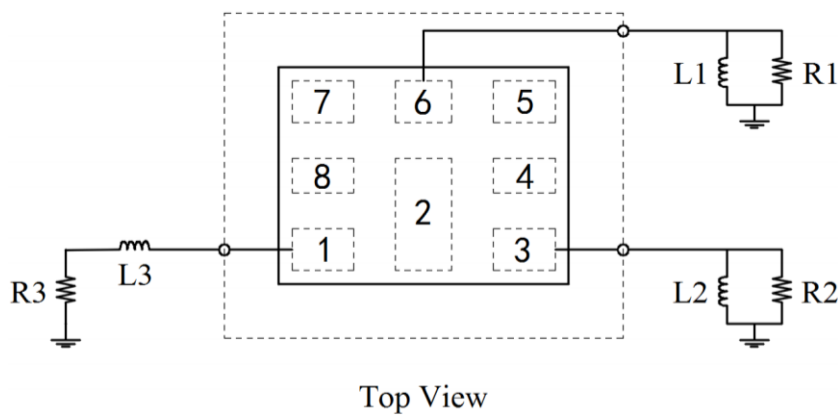


Figure 2: Schematic of matching circuit. External matching components required as below.

R1: 50 Ohm	L1: 6.8nH
R2: 50 Ohm	L2: 8.2nH
R3: 50 Ohm	L3: 8.2nH

4 Pin configuration

- 1 RX
- 3 TX
- 6 Ant
- 2, 4,5,7,8 To be grounded

5 Absolute Maximum Ratings

Parameter	Rating	Unit
Operating Temperature	-30 to +85	°C
Storage Temperature	-40 to +85	°C
Input Power@ input port	Pin=30dBm Continuous wave for 5000h@+50 °C	dBm
Approximate weight	2.8	mg
Moisture Sensitivity Levels	3	MSL
Maximum DC Voltage	3	V

6 Electrical Specifications

(At $T_a=25^{\circ}\text{C}$, unless otherwise specified, as measured on the evaluation board of SA051612881MAT with feedline loss de-embedded.)

TX→ANT					
Parameter	Conditions	Min	Typ.	Max	Unit
Insertion Loss	824 - 849 MHz	-	1.8	2.3	dB
Passband Ripple	824 - 849 MHz	-	0.8	1.2	dB
Attenuation	10 - 494 MHz	32	39	-	dB
	494 - 764 MHz	24	27	-	dB
	764 - 804 MHz	24	29	-	dB
	869 - 894 MHz	42	49	-	dB
	1559 - 1606 MHz	36	40	-	dB
	1648 - 1698 MHz	32	36	-	dB
	1805 - 1880 MHz	28	32	-	dB
	1850 - 1980 MHz	28	31	-	dB
	2110 - 2170 MHz	25	29	-	dB
	2401 - 2483 MHz	25	28	-	dB
	4900 - 5950 MHz	6	10	-	dB
				-	
				-	
VSWR(TX)	824 - 849 MHz	-	1.6	1.9	-
VSWR(ANT)	824 - 849 MHz	-	1.5	1.8	-

ANT→RX					
Parameter	Conditions	Min	Typ.	Max	Unit
Insertion Loss	869 - 894 MHz	-	1.7	2.3	dB
Passband Ripple	869 - 894 MHz	-	1	1.5	dB
Attenuation	10 - 804 MHz	25	29	-	dB
	824 - 849 MHz	42	47	-	dB
	920 - 979 MHz	14	18	-	dB
	1710 - 1785 MHz	47	53	-	dB
	1850 - 1910 MHz	48	54	-	dB
	1920 - 1980 MHz	48	55	-	dB
	2401 - 2483 MHz	48	57	-	dB
	4900 - 5950 MHz	40	47	-	dB
VSWR(ANT)	869 - 894 MHz	-	1.7	2.0	-
VSWR(RX)	869 - 894 MHz	-	1.7	2.0	-

TX→RX					
Parameter	Conditions	Min	Typ.	Max	Unit
Isolation	824 - 849 MHz	53	55	-	dB
	869 - 894 MHz	54	56	-	dB

7 Recommended Soldering Profile

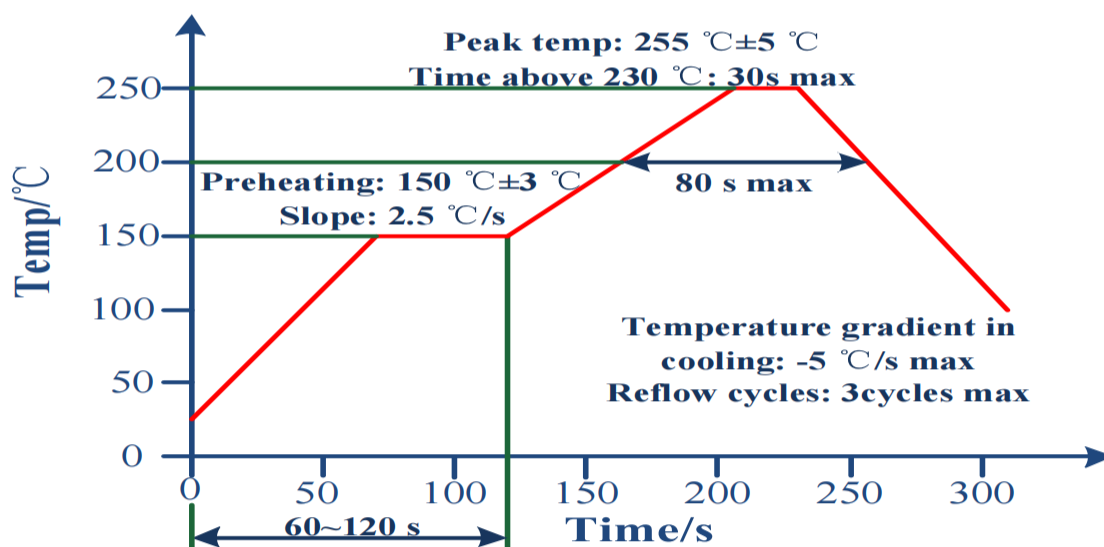


Figure 3 : Recommended Reflow profile for convection and infrared soldering-lead-free solder.

8 Frequency Characteristics

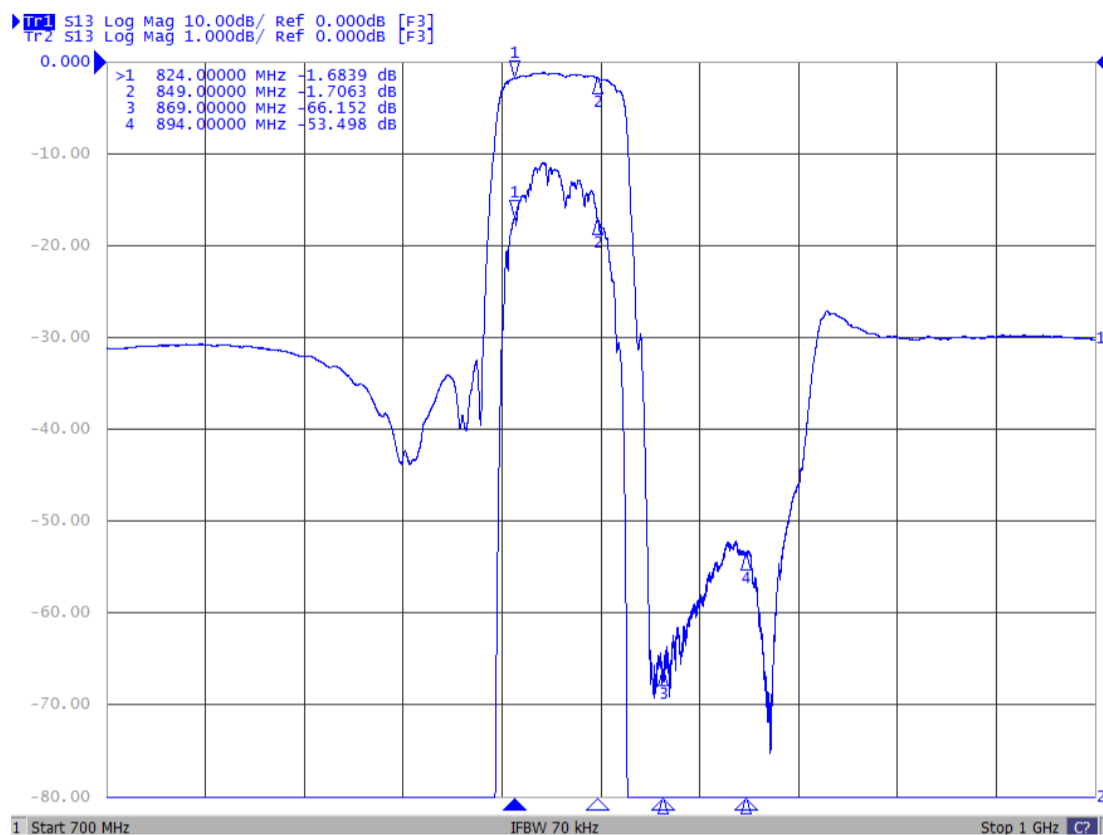


Figure 4: TX→ANT

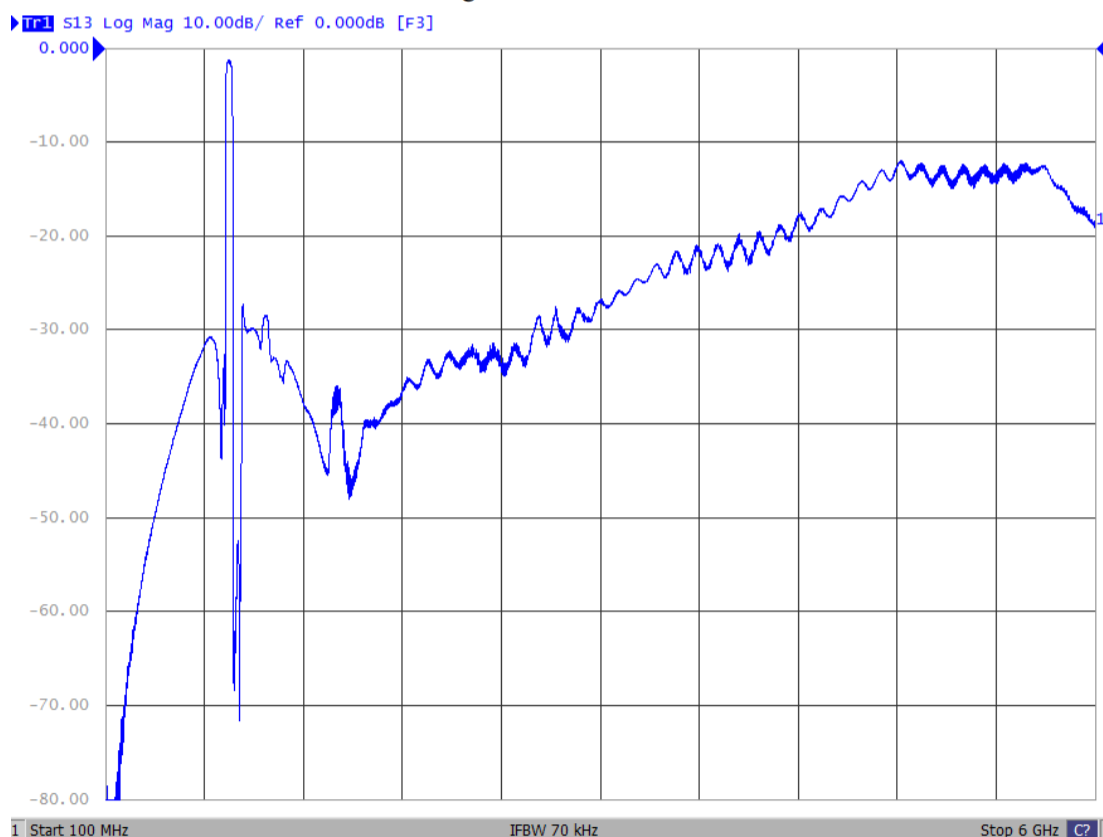


Figure 5: TX→ANT (Wide Band)

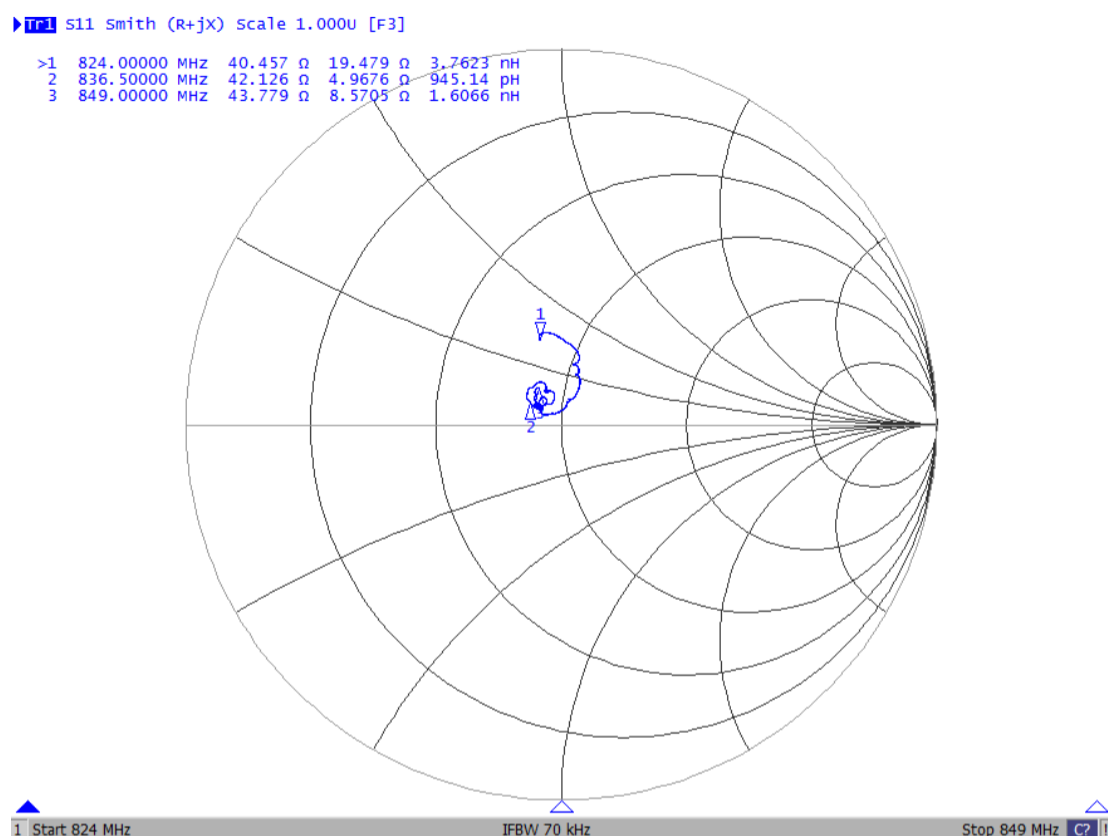


Figure 6: Smith for ANT

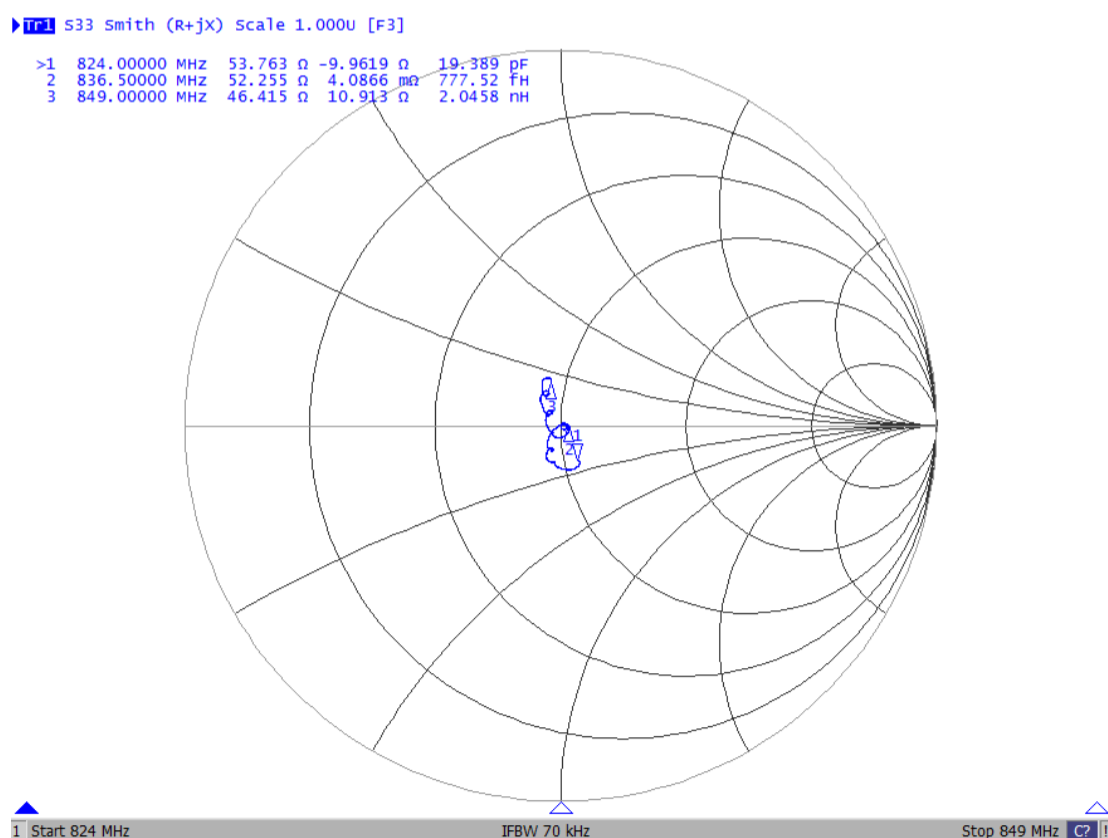


Figure 7: Smith for TX

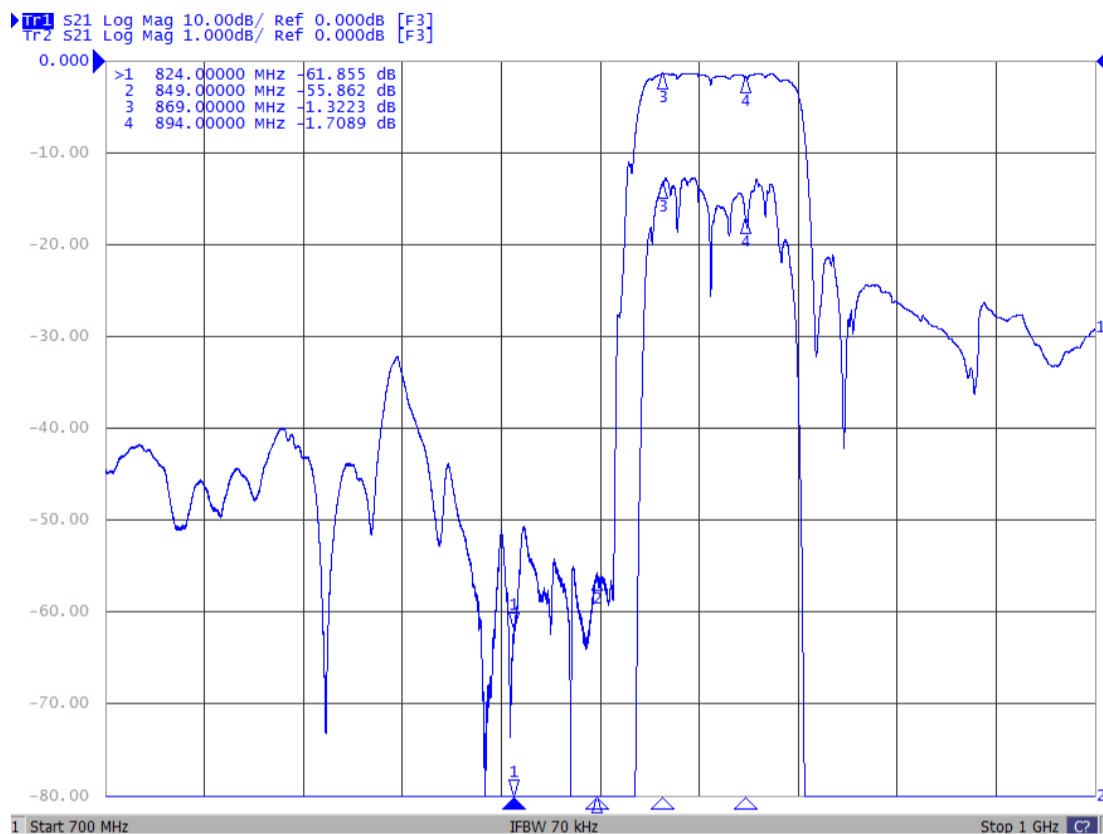


Figure 8:ANT→RX

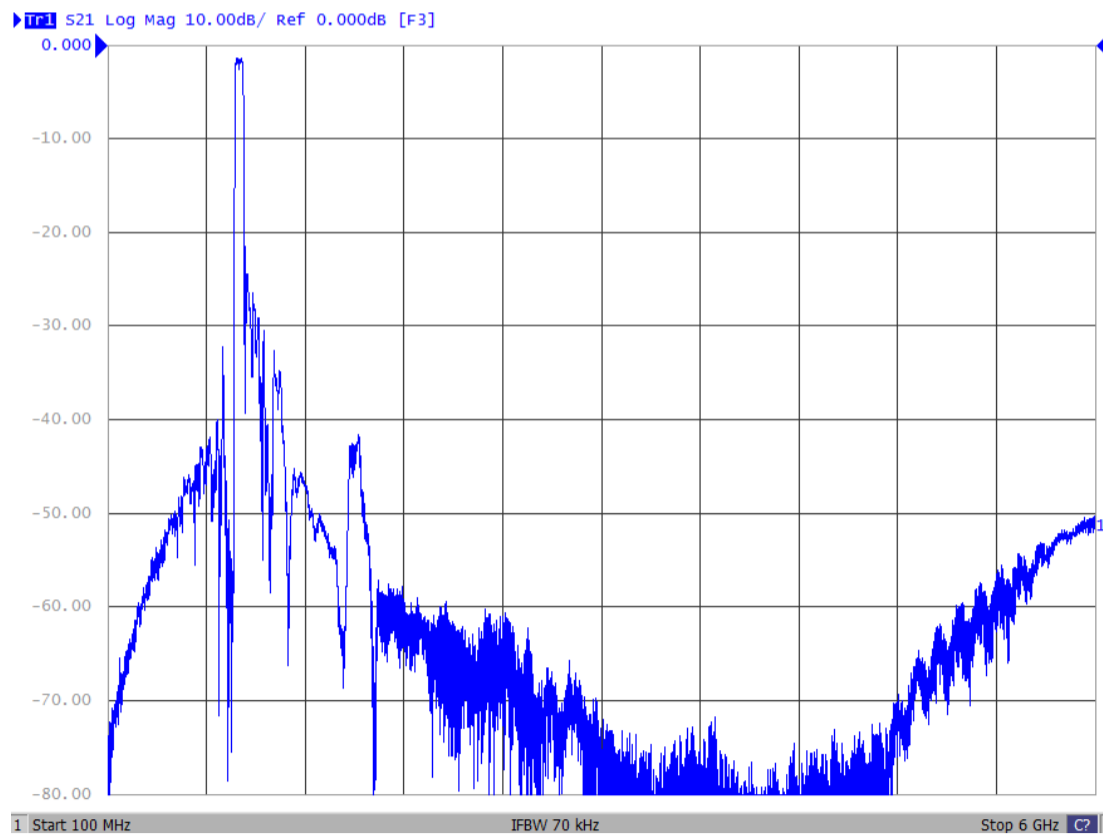


Figure 9:ANT→RX (Wide Band)

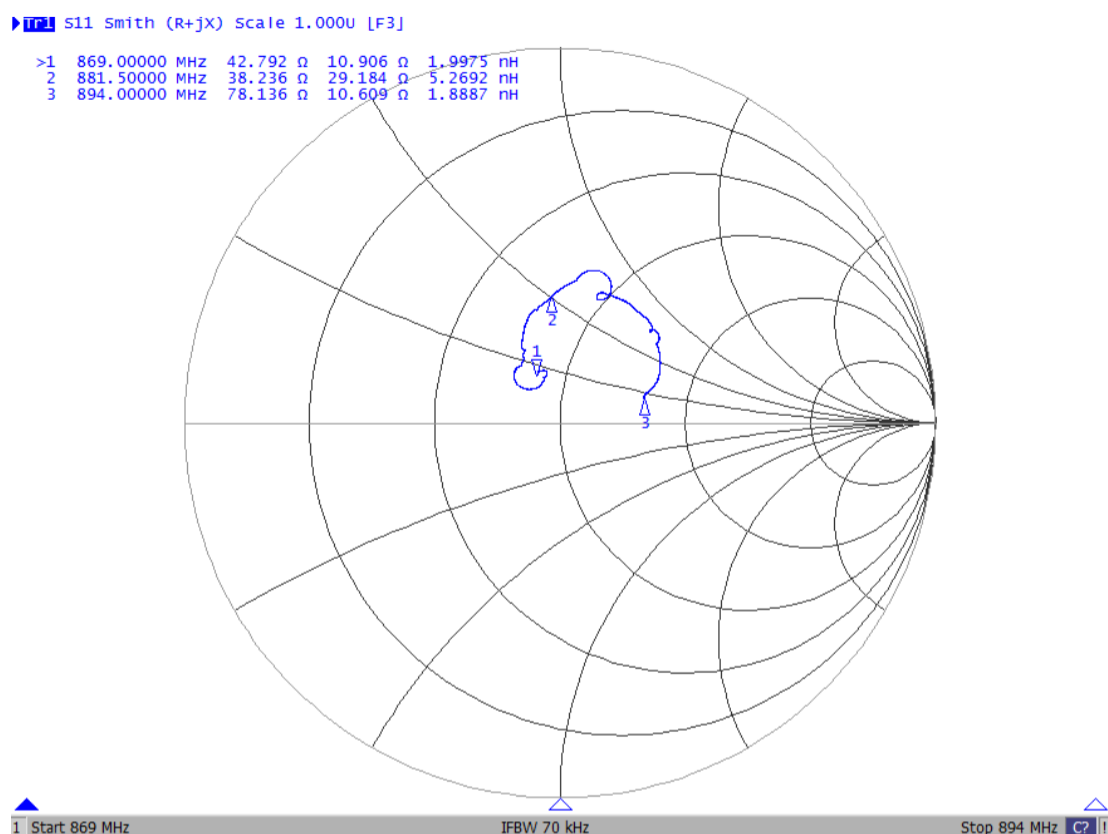


Figure 10: Smith for ANT

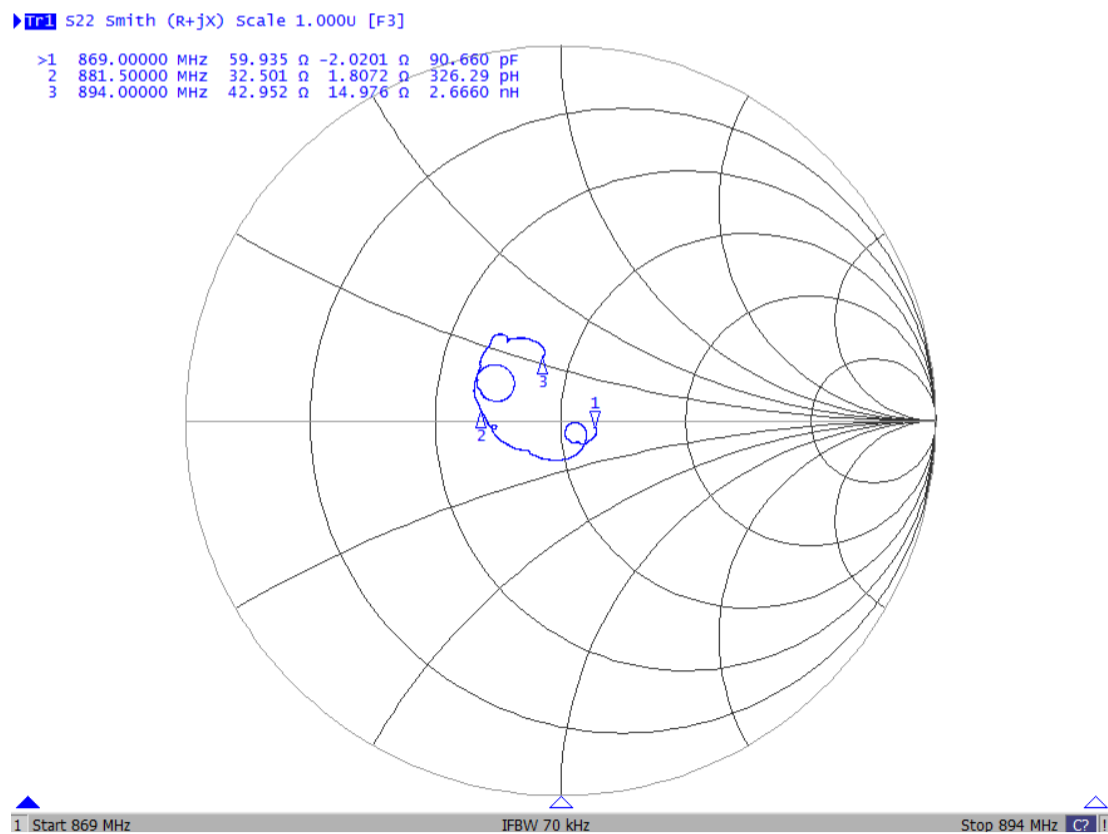


Figure 11: Smith for RX

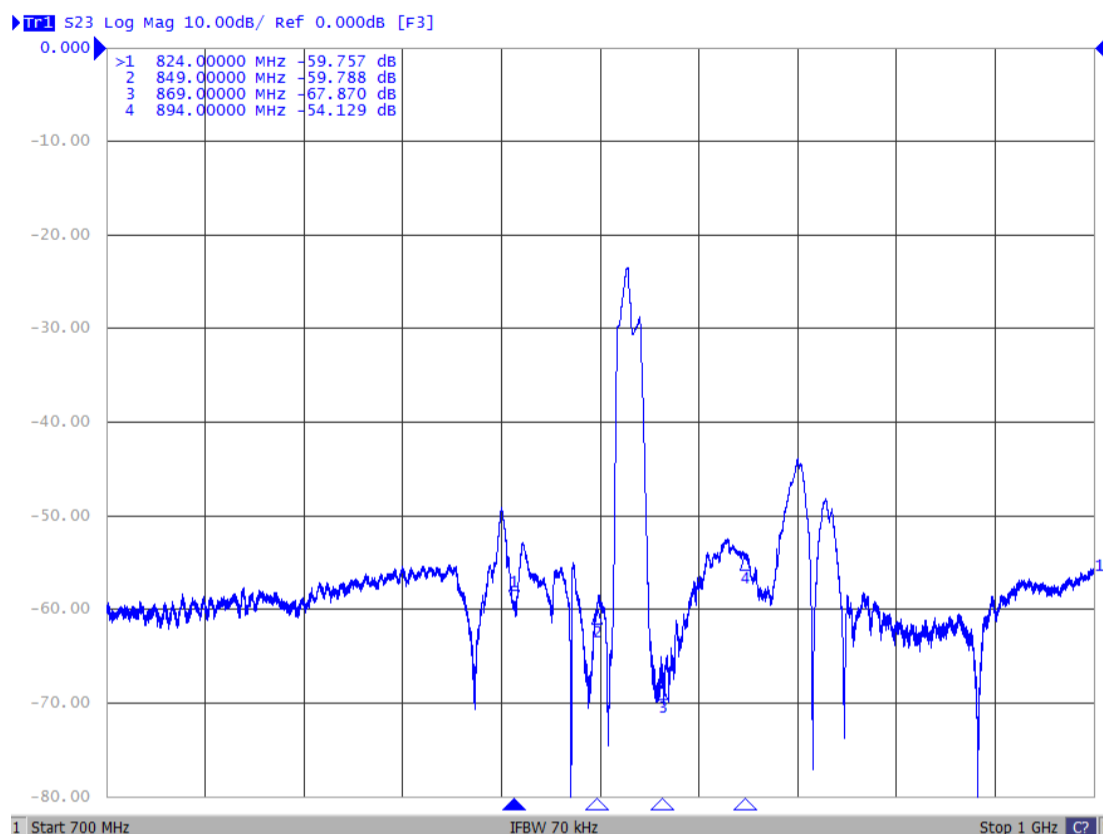


Figure 12:TX→RX

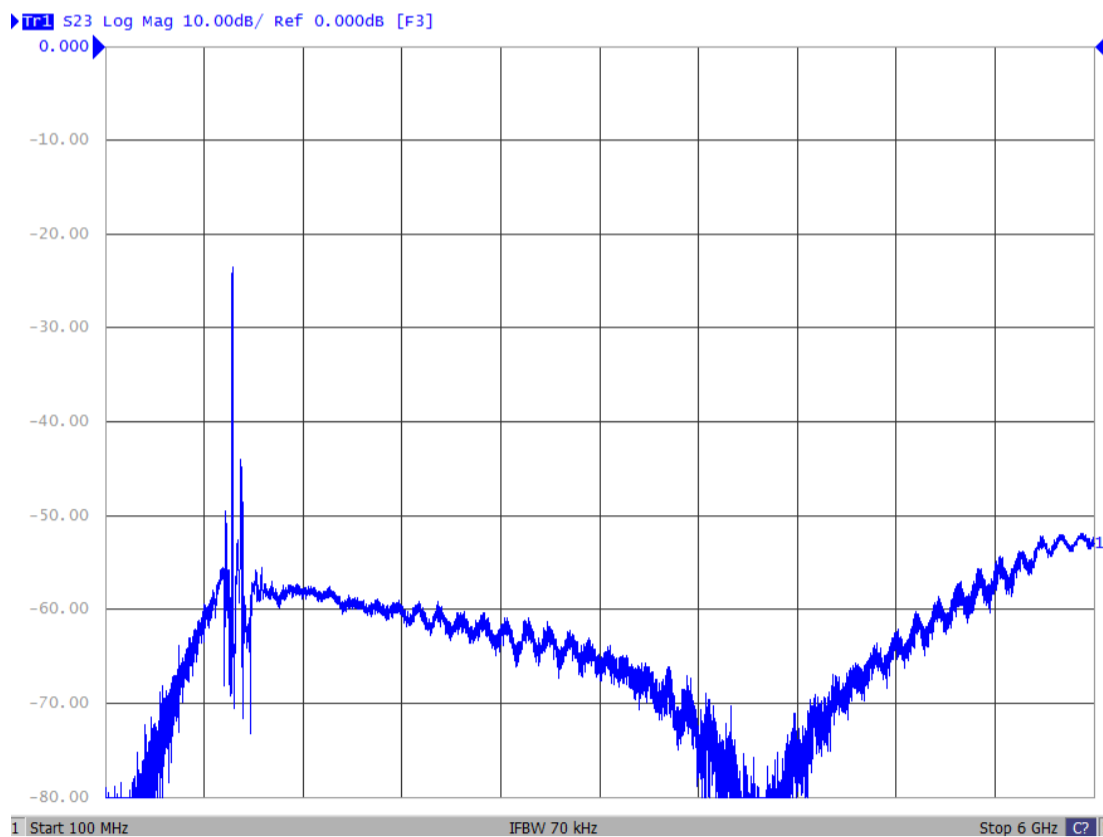


Figure 13:TX→RX (Wide Band)

9 Packaging

9.1 Tape

Tensile Strength of Carrier Tape: Carrier tape 10N or more; Cover tape 5N or more. Packaging quantities: 5000 PCS / Reel.

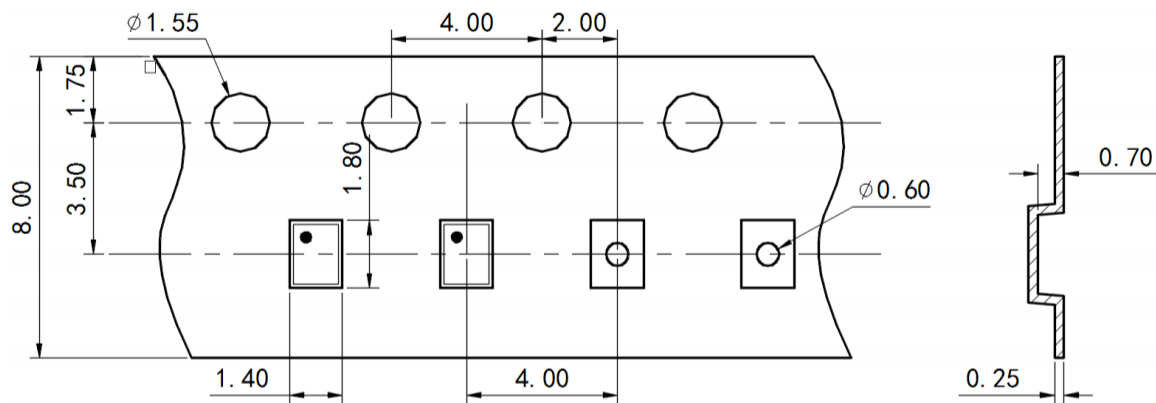


Figure 14: Drawing of tape with tape dimensions according above (mm.).

9.2 Reel with diameter of 178mm

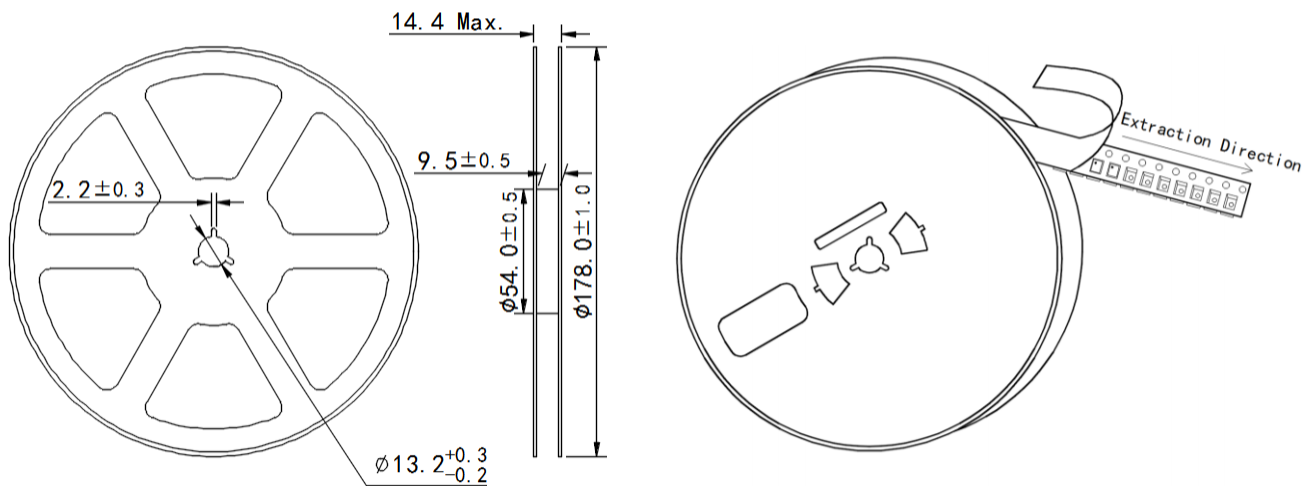


Figure 15: Drawing of reel with diameter of 178mm.