SAW Duplexer

for B8 / Unbalanced / LR / 1612

Pinnacle PN: SA081612942MAT

Key Feature:

- √ **Band 8 LTE**
- √ **Low Insertion Loss**

1 Description

SA081612942MAT is a high-performance Surface Acoustic Wave (SAW) duplexer optimized for FDD LTE Band 8 applications operating in the range of 880-915 MHz / 925-960 MHz. It is designed to provide low insertion loss in Band 8, good isolation between TX and RX ports, and high rejection in the adjacent cellular bands for mobile devices.

SA081612942MAT 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:

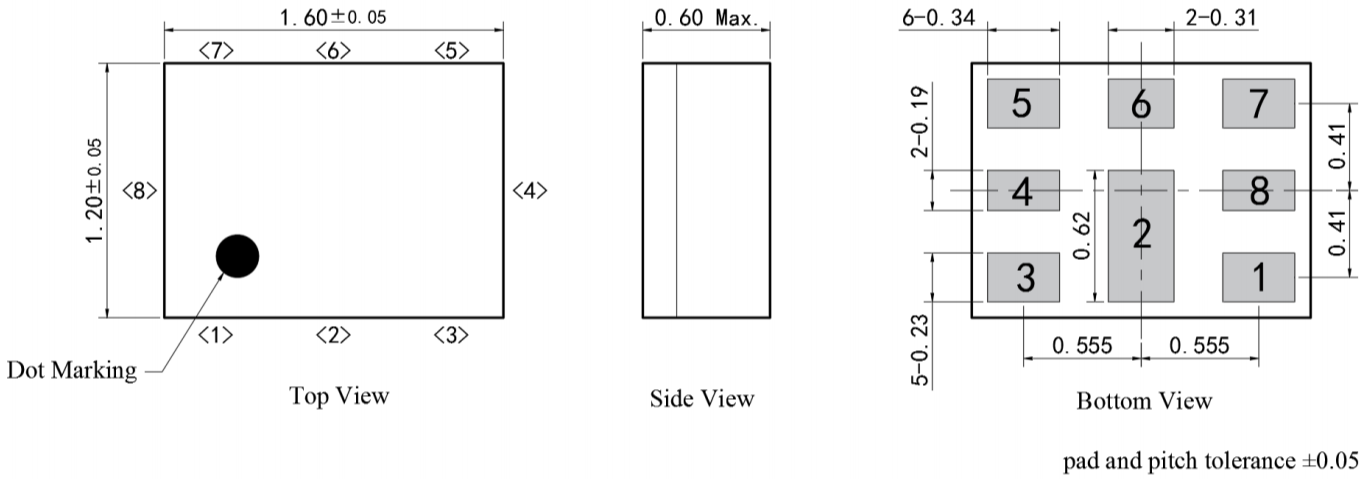
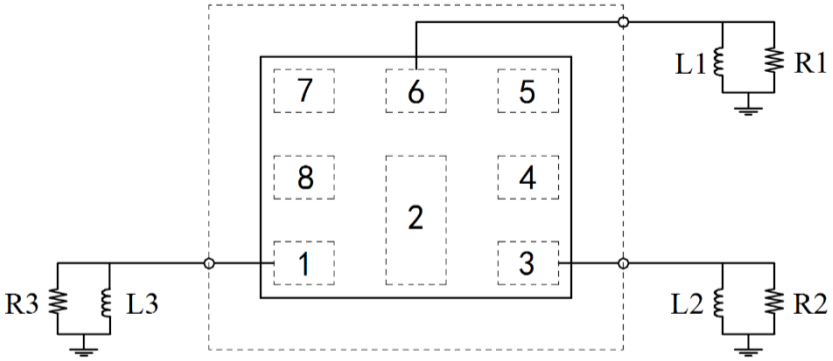


Figure 1: Drawing of Package with each tolerance range

3 Test Circuit



Top View

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

R1：50 Ohm	L1：6.8nH
R2：50 Ohm	L2：18nH
R3：50 Ohm	L3：22nH

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	℃
Storage Temperature	-40 to +85	℃
Input Power@ input port	Pin=29dBm Continuous wave for 5000h@+50 ℃	dBm
Approximate weight	2.8	mg
Moisture Sensitivity Levels	3	MSL
Maximum DC Voltage	3	V

6 Electrical Specifications

(At T_a=25°C, unless otherwise specified, as measured on the evaluation board of SA081612942MAT with feedline loss de-embedded.)

TX→ANT					
Parameter	**Conditions**	**Min**	**Typ.**	**Max**	**Unit**
Insertion Loss	880 - 915 MHz	-	1.9	2.4	dB
Passband Ripple	880 - 915 MHz	-	1.3	1.7	dB
Attenuation	10 - 862 MHz	24	27	-	dB
	925 - 960 MHz	45	51	-	dB
	1559 - 1606 MHz	22	25	-	dB
	1680 - 1830 MHz	21	24	-	dB
	1805 - 1990 MHz	20	23	-	dB
	2110 - 2200 MHz	18	21	-	dB
	2400 - 2500 MHz	15	19	-	dB
	3300 - 4200 MHz	6	8	-	dB
VSWR(TX)	880 - 915 MHz	-	1.6	1.9	-
VSWR(ANT)	880 - 915 MHz	-	1.6	1.9	-

ANT→RX					
Parameter	**Conditions**	**Min**	**Typ.**	**Max**	**Unit**
Insertion Loss	925 - 960 MHz	-	2.1	2.7	dB
Passband Ripple	925 - 960 MHz	-	1.6	2.0	dB
Attenuation	10 - 880 MHz	35	40	-	dB
	880 - 915 MHz	47	53	-	dB
	1710 - 1785 MHz	32	37	-	dB
	1850 - 1910 MHz	45	51	-	dB
	1920 - 1980 MHz	45	52	-	dB
	2300 - 2690 MHz	35	41	-	dB
	2401 - 2483 MHz	40	44	-	dB
	4900 - 5950 MHz	33	38	-	dB
VSWR(ANT)	925 - 960 MHz	-	1.8	2.1	-
VSWR(RX)	925 - 960 MHz	-	1.8	2.1	-

TX→RX					
Parameter	**Conditions**	**Min**	**Typ.**	**Max**	**Unit**
Isolation	880 - 915 MHz	52	56	-	dB
	925 - 960 MHz	53	55	-	dB

7 Recommended Soldering Profile

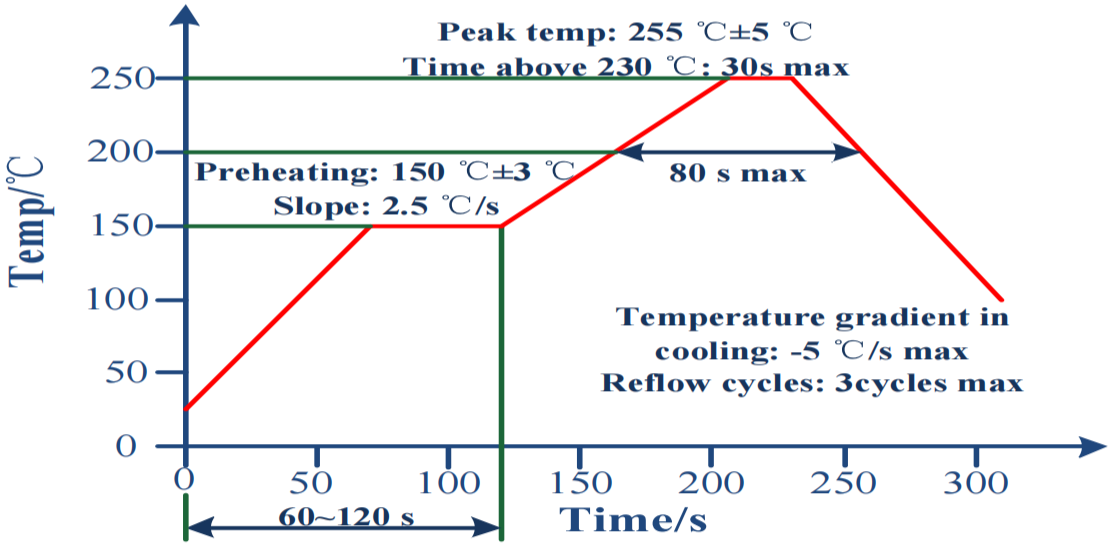


Figure 3 : Recommended Reflow profile for convection and infrared soldering-lead-free solder.

8 Frequency Characteristics

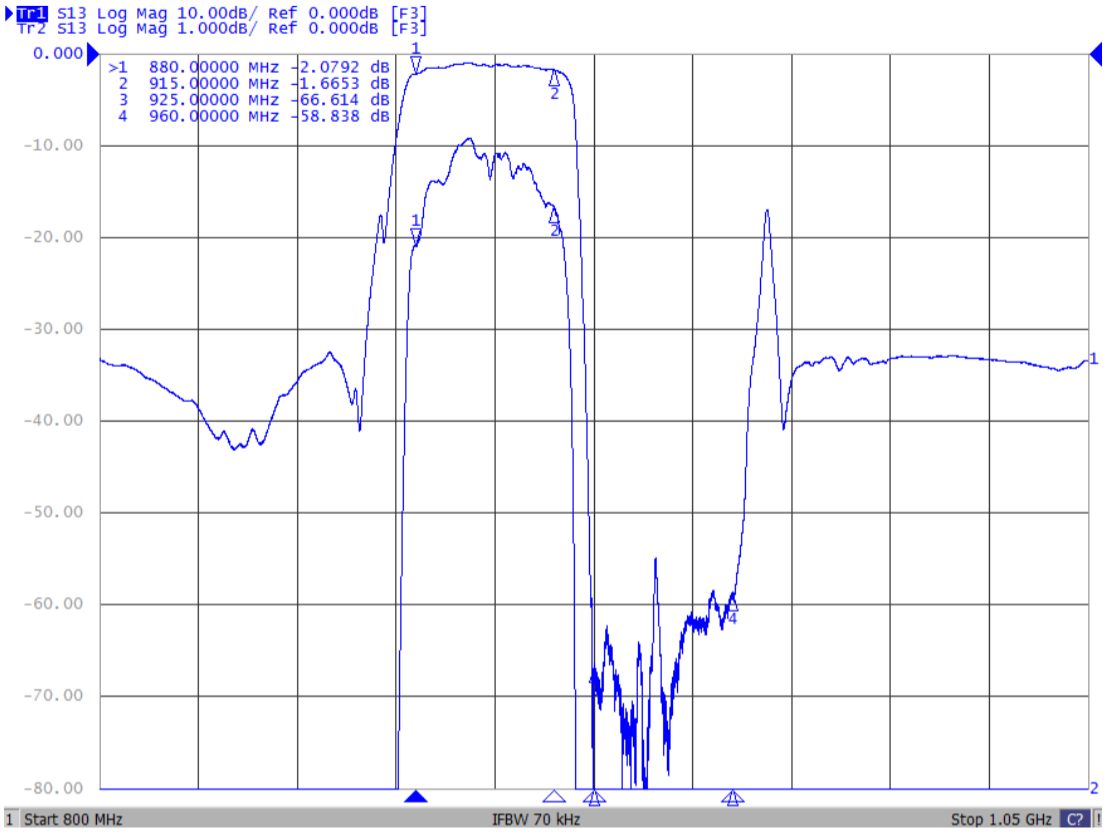


Figure 4: TX→ANT

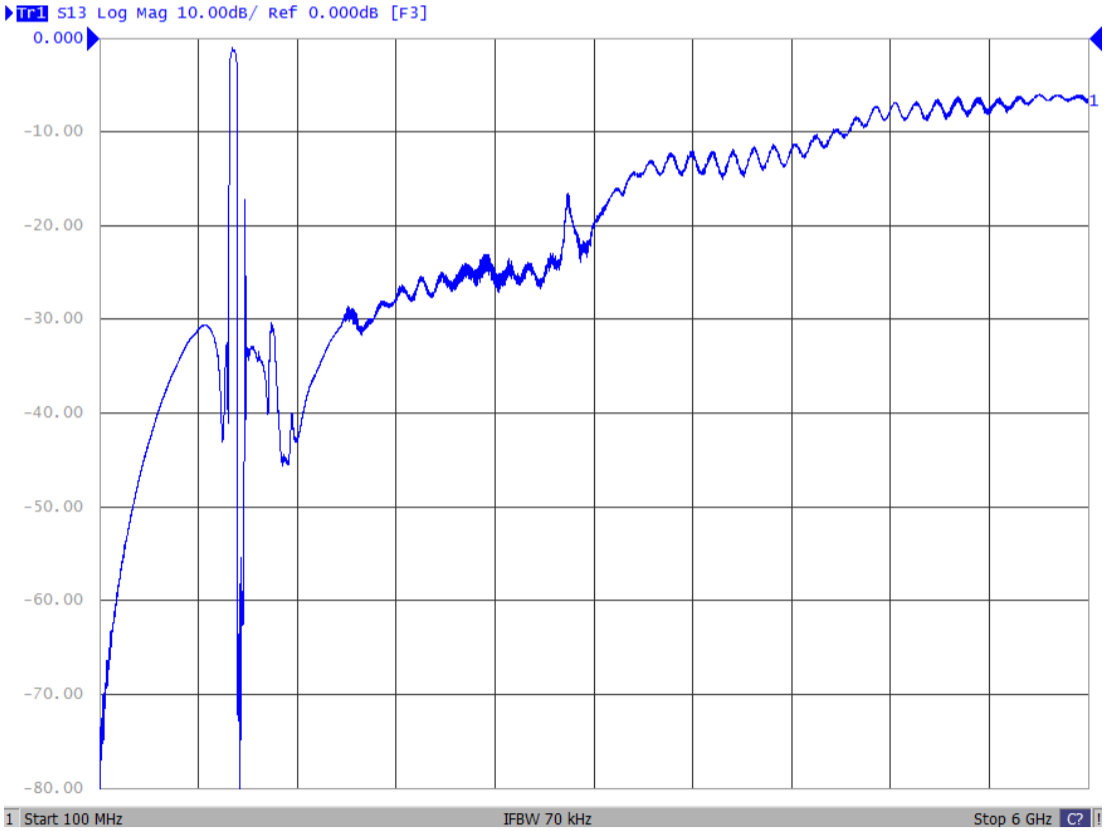


Figure 5: TX→ANT (Wide Band)

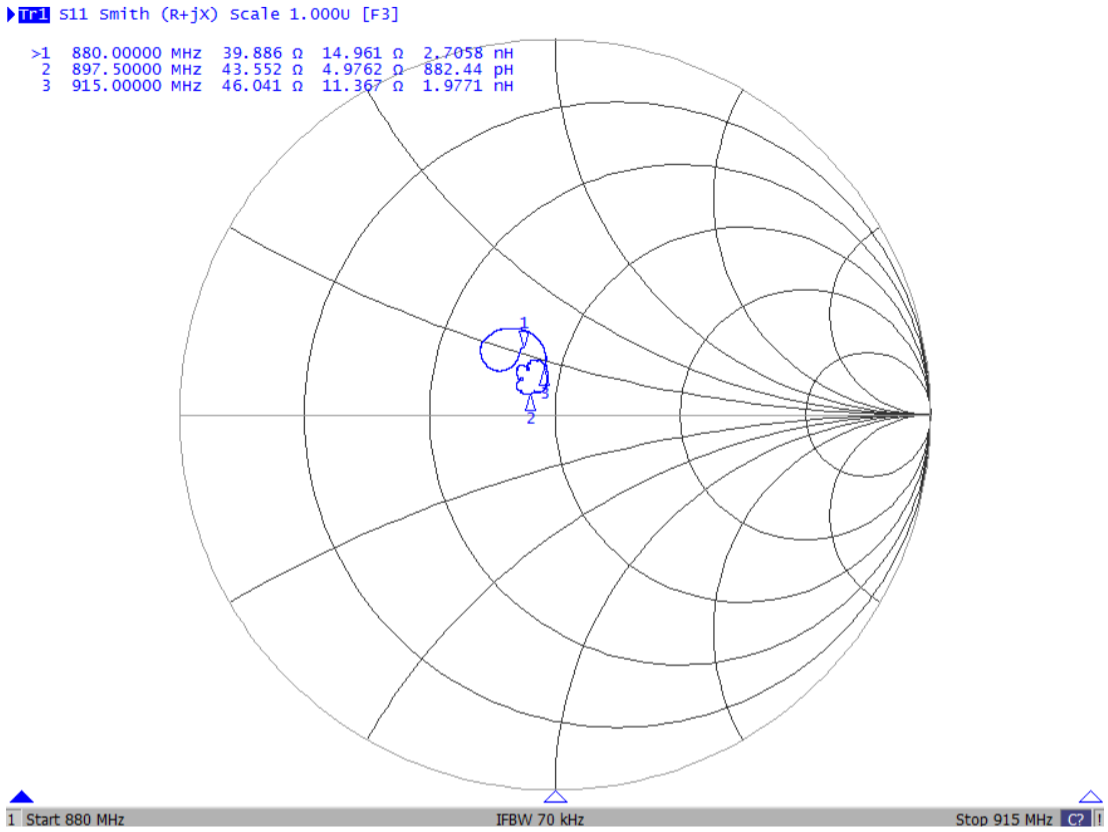


Figure 6: Smith for ANT

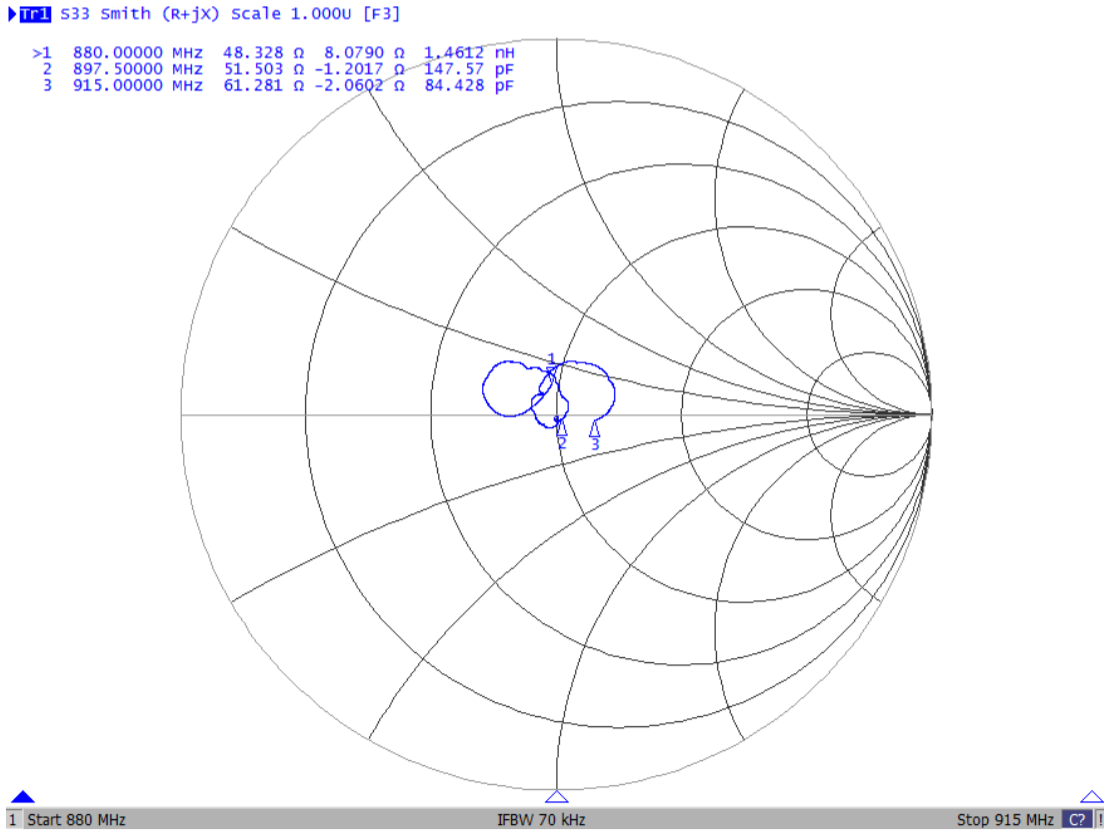


Figure 7: Smith for TX

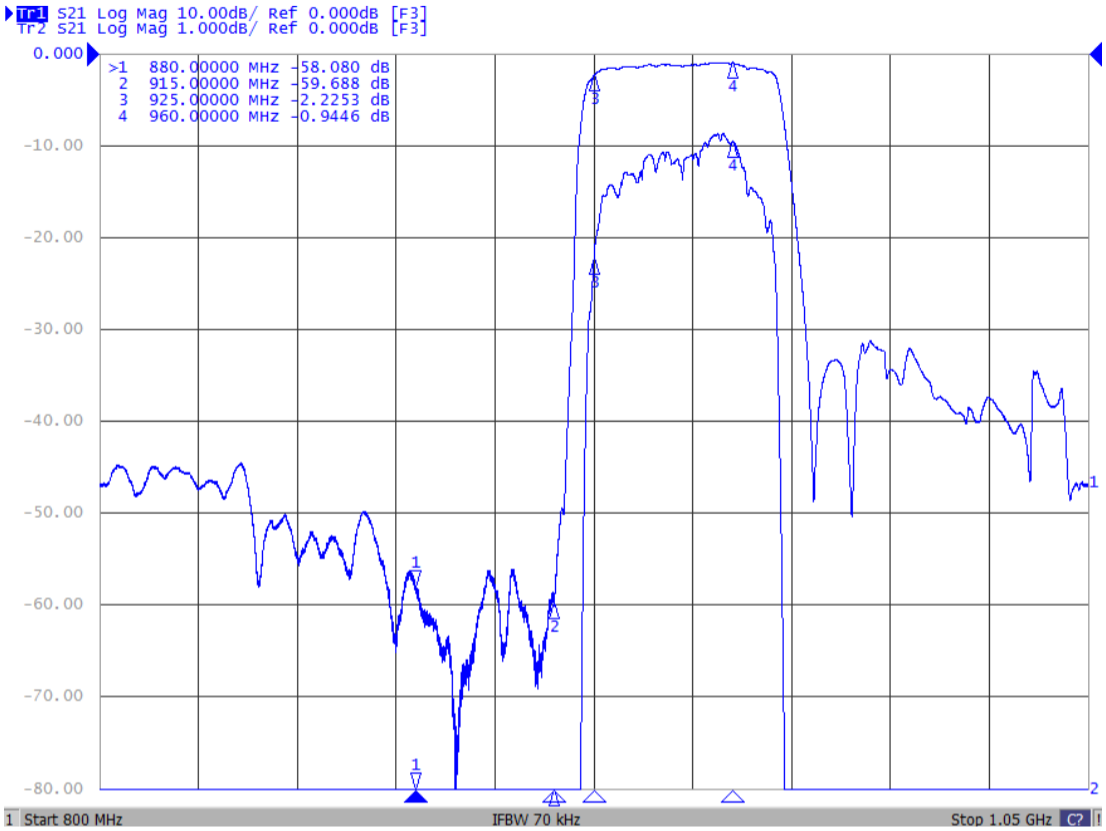


Figure 8:ANT→RX

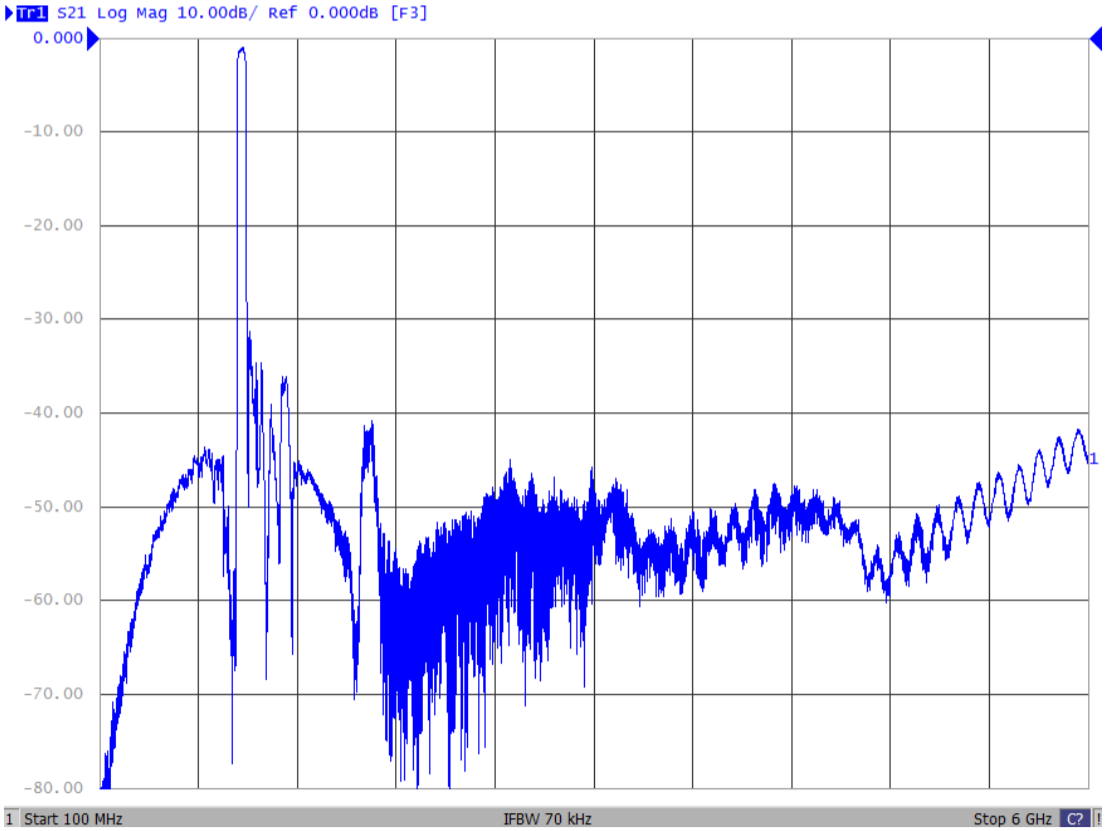


Figure 9:ANT→RX (Wide Band)

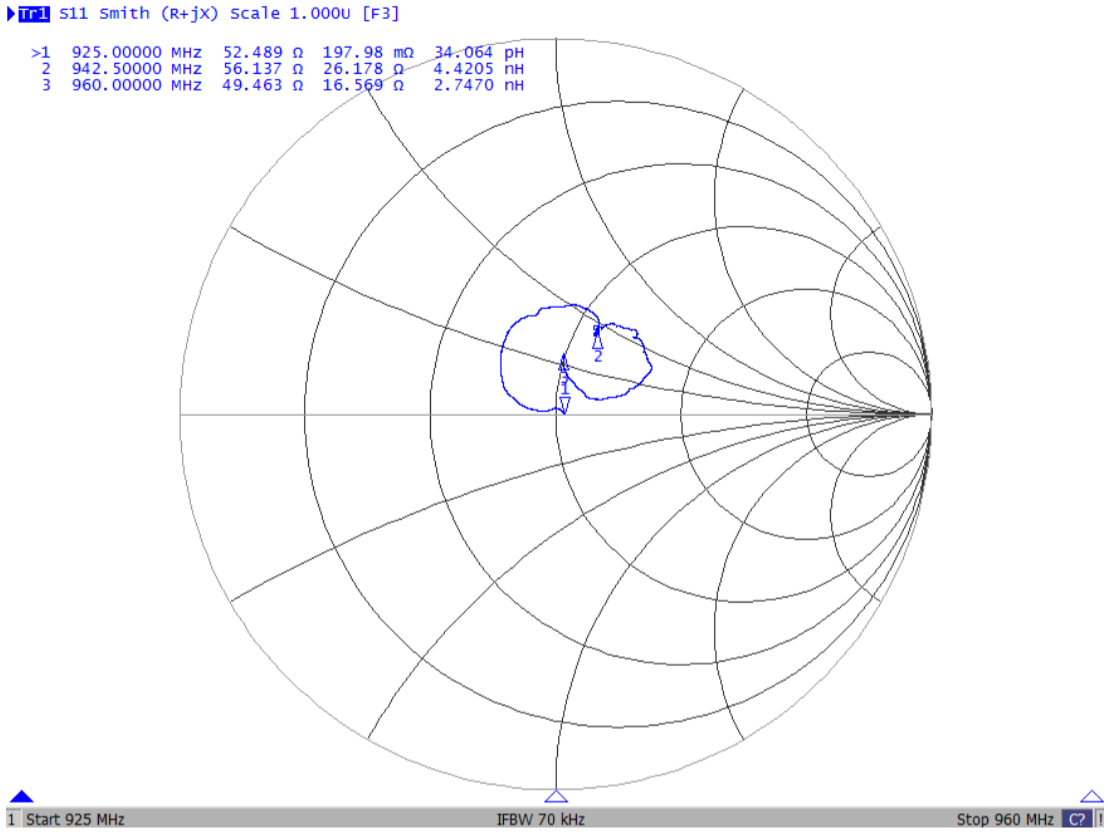


Figure 10: Smith for ANT

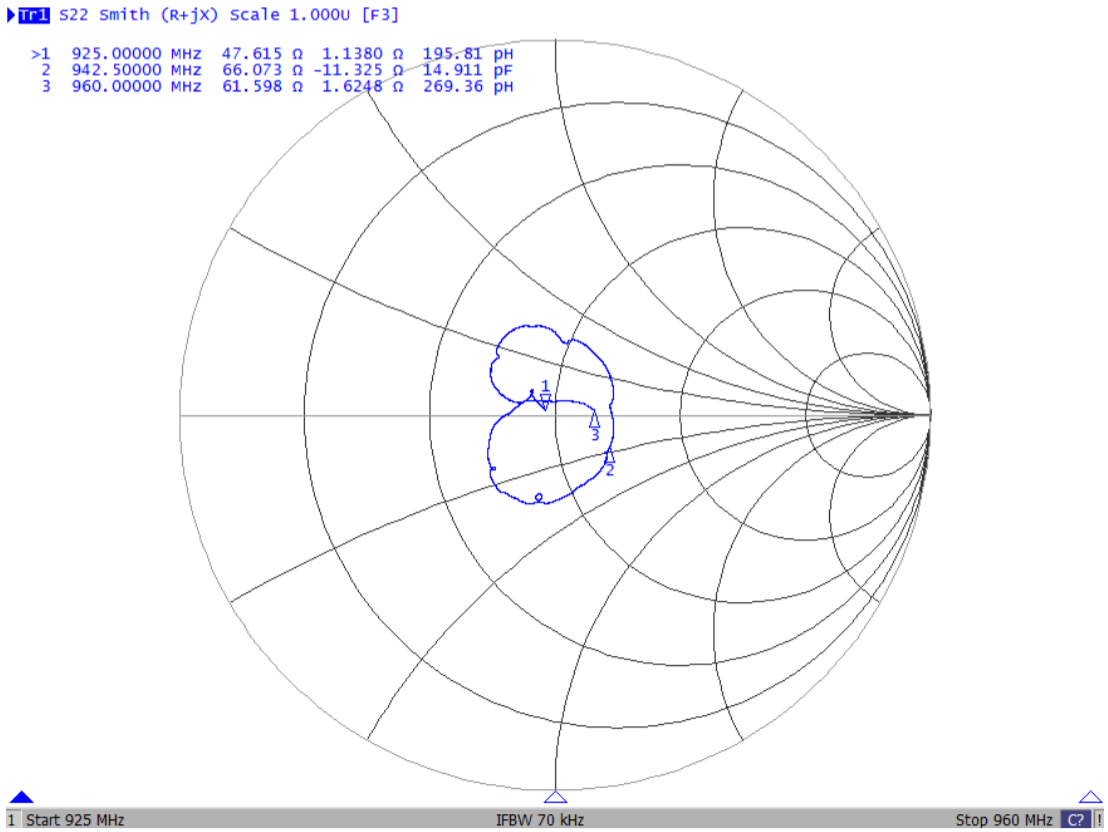


Figure 11: Smith for RX

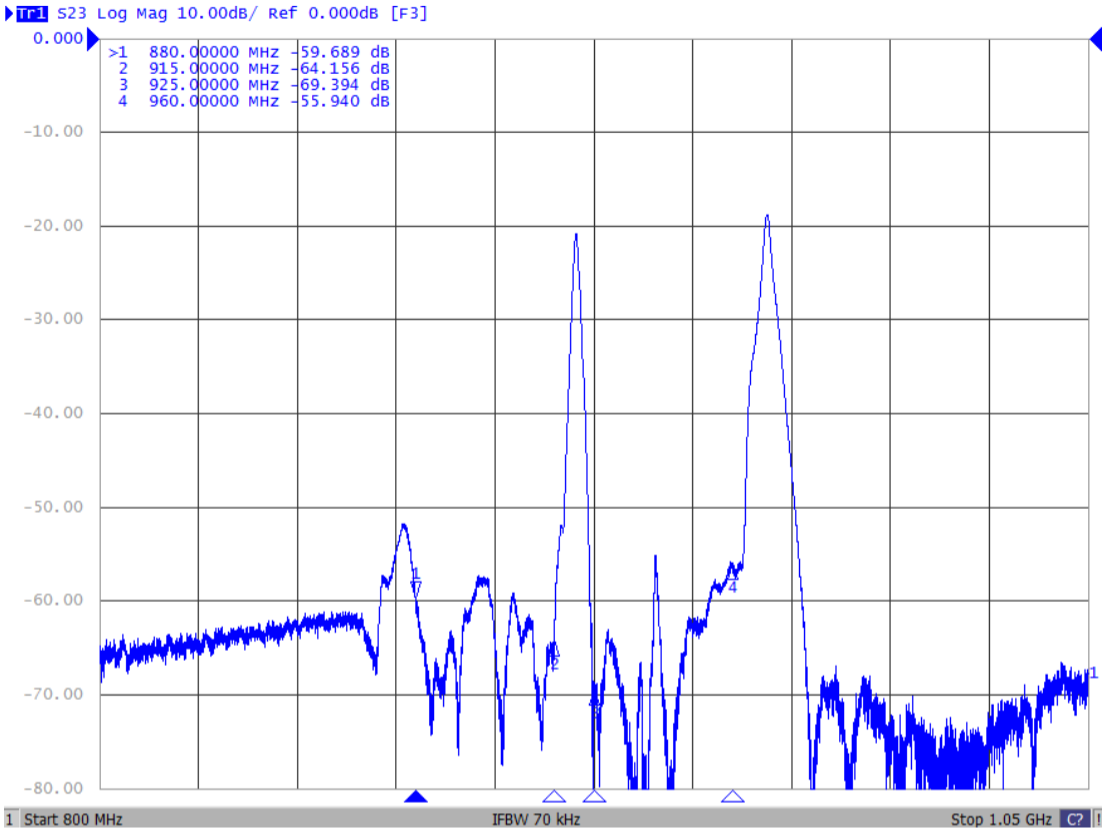


Figure 12:TX→RX

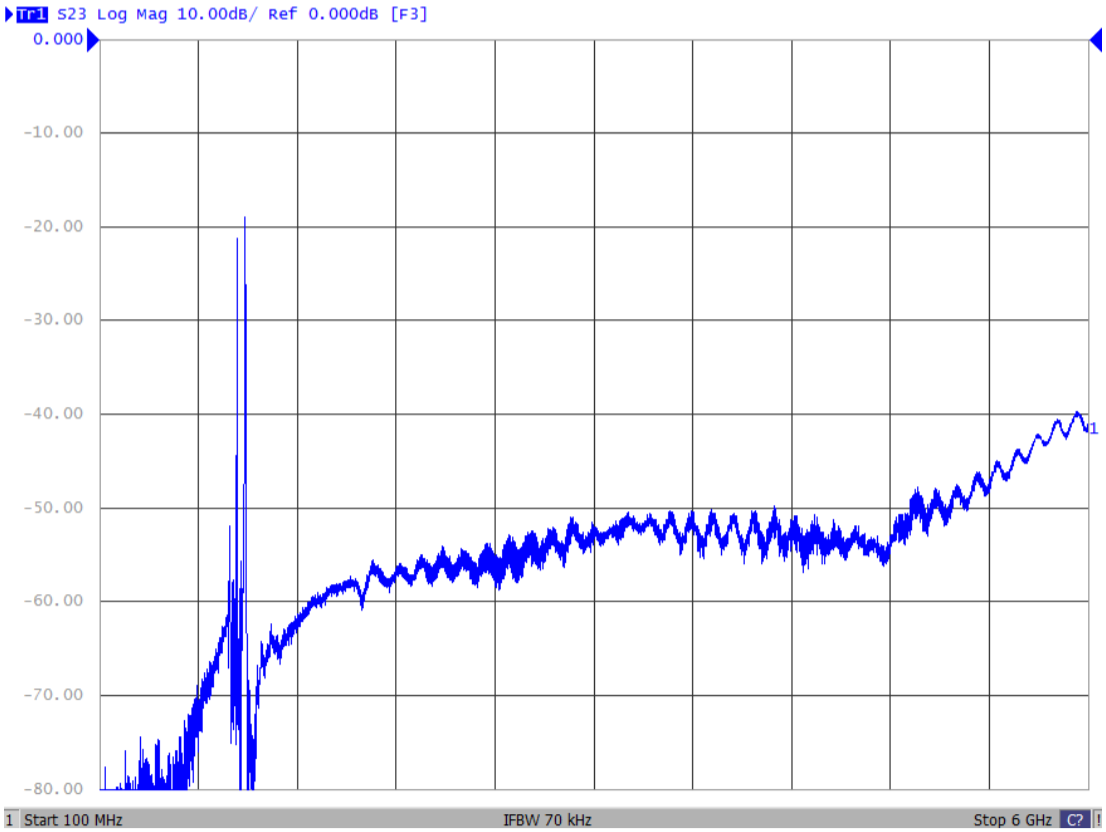


Figure 13:TX→RX (Wide Band)

9 Packaging

9.1 Tape

Tensile Strength of Carrier Tape: Carrier tape10N or more; Cover tape 5N or more. Packaging quantities: 5000 PCS / Reel.

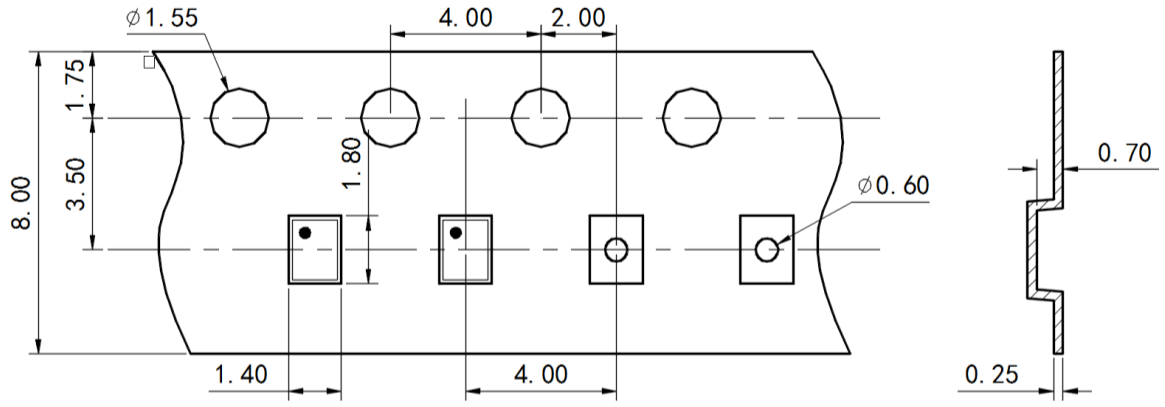


Figure 14: Drawing of tape with tape dimensions according above (mm.).

9.2 Reel with diameter of 178mm

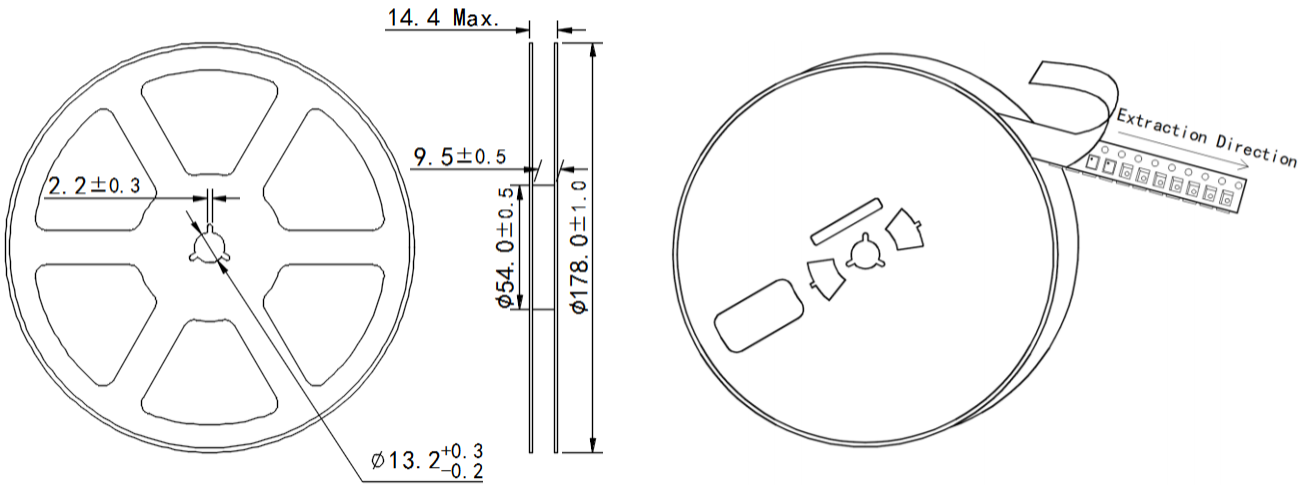


Figure 15: Drawing of reel with diameter of 178mm.