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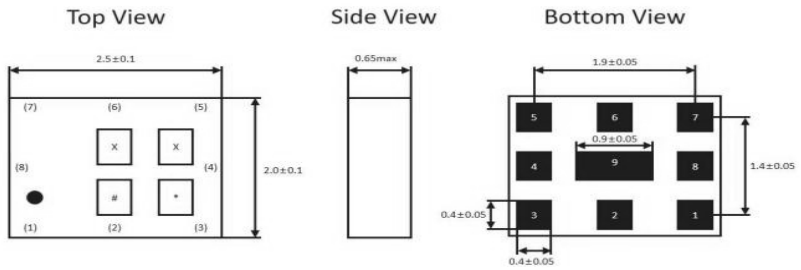
Specification Sheet

Customer Name	XXXX	CUST P/N	NA
Approval No.	PD	Temwell P/N	STSD-2140-1950-S2520W
Lot No.		Date	2025.04.25
Description	SAW Duplexer	Version	A1

(1)Size Diagram（Unit：MM）

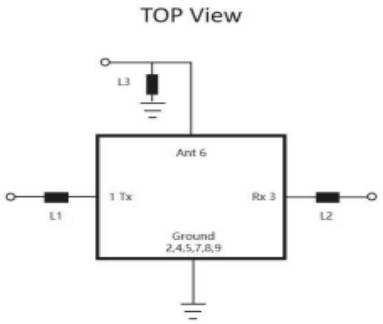


Pin	Configuration
1	Tx
3	Rx
6	Ant
Others	Ground

(2)Electrical Specifications

Item			Specification		
Parameter	MHz	Unit	Min.	Typical	Max.
Center Frequency	-	MHz	-	2140 / 1950	-
Insertion Loss	2110-2170(-10°C - 85°C)	dB	-	1.8	2.0
	2110-2170(-40°C - 95°C)	dB	-	1.8	2.5
	1920-1980(-10°C - 85°C)	dB	-	2.0	2.5
	1920-1980(-40°C - 95°C)	dB	-	2.0	3.0
Ripple Deviation	2110-2170(-10°C - 85°C)	dB	-	0.7	1.0
	2110-2170(-40°C - 95°C)	dB	-	0.7	1.3
	1920-1980(-10°C - 85°C)	dB	-	0.8	1.2
	1920-1980(-40°C - 95°C)	dB	-	0.8	1.5
VSWR of Tx Port	2110-2170(-10°C - 85°C)	-	-	1.7	2.0
	2110-2170(-40°C - 95°C)	-	-	1.7	2.0
VSWR of Rx Port	1920-1980(-10°C - 85°C)	-	-	1.7	2.0
	1920-1980(-40°C - 95°C)	-	-	1.7	2.0
VSWR of Ant Port	2110-2170(-10°C - 85°C)	-	-	1.7	2.0
	2110-2170(-40°C - 95°C)	-	-	1.7	2.0
	1920-1980(-10°C - 85°C)	-	-	1.7	2.0
	1920-1980(-40°C - 95°C)	-	-	1.7	2.0
Attenuation (2110-2170) (-10°C - 85°C)	10-1574	dB	36	40	-
	843-894	dB	45	48	-
	1574-1606	dB	36	40	-
	1606-1880	dB	36	40	-
	1805-1880	dB	40	44	-
	1920-1980	dB	41	49	-
	2250-2400	dB	40	48	-
	2400-2500	dB	40	48	-
	2500-2700	dB	40	50	-
	2620-2690	dB	45	54	-
	2700-3000	dB	40	47	-
	3000-3800	dB	40	45	-
	3800-4220	dB	28	34	-
	4220-4340	dB	25	31	-
	4340-5000	dB	15	18	-
	5000-6000	dB	10	14	-
Attenuation (2110-2170)	10-1574	dB	36	40	-
	843-894	dB	45	48	-

(-40°C - 95°C)	1574-1606	dB	36	40	-
	1606-1880	dB	36	40	-
	1805-1880	dB	40	44	-
	1920-1980	dB	41	49	-
	2250-2400	dB	40	48	-
	2400-2500	dB	40	48	-
	2500-2700	dB	40	50	-
	2620-2690	dB	45	54	-
	2700-3000	dB	40	47	-
	3000-3800	dB	40	45	-
	3800-4220	dB	28	34	-
	4220-4340	dB	25	31	-
	4340-5000	dB	15	18	-
	5000-6000	dB	10	14	-
Attenuation (1920-1980) (-10°C - 85°C)	10-1785	dB	30	36	-
	1785-1880	dB	20	27	-
	1990-1900	dB	5	10	-
	2000-2110	dB	3	5	-
	2110-2170	dB	43	49	-
	2255-2400	dB	34	38	-
	2400-2500	dB	30	35	-
	2500-3840	dB	20	25	-
	3840-3960	dB	20	25	-
	3960-5000	dB	20	25	-
	5000-5760	dB	18	24	-
	5760-5940	dB	15	20	-
Attenuation (1920-1980) (-40°C - 95°C)	10-1785	dB	30	36	-
	1785-1880	dB	20	27	-
	1880-1900	dB	4	10	-
	2000-2110	dB	2.5	5	-
	2110-2170	dB	43	49	-
	2255-2400	dB	34	38	-
	2400-2500	dB	30	35	-
	2500-3840	dB	20	25	-
	3840-3960	dB	20	25	-
	3960-5000	dB	20	25	-
	5000-5760	dB	18	24	-
	5760-5940	dB	15	20	-
Isolation (-10°C - 85°C)	1920-1980	dB	50	55	-
	2110-2140	dB	50	55	-
	2140-2170	dB	48	52	-
Isolation (-40°C - 95°C)	1920-1980	dB	50	55	-
	2110-2140	dB	50	55	-
	2140-2170	dB	48	52	-
Operation Temperature	-40℃~+95℃	℃	-	-	-
Storage Temperature	-40℃~+95℃	℃	-	-	-
RF Power Dissipation	+30	dBm	-	-	-
Remark	Note 1: Test Temperature: 25°C±2°C Note 2: Terminating source impedance: 50Ω. Terminating load impedance: 50Ω				
(3)Test Circuit					



Port	Matching Component
Tx	L1 : 1.6 nH (Ideal inductor)
Rx	L2 : 2.0 nH (Ideal inductor)
Ant	L3 : 3.3 nH (Ideal inductor)

Figure 1 Electrical Characteristics: Tx to Ant.

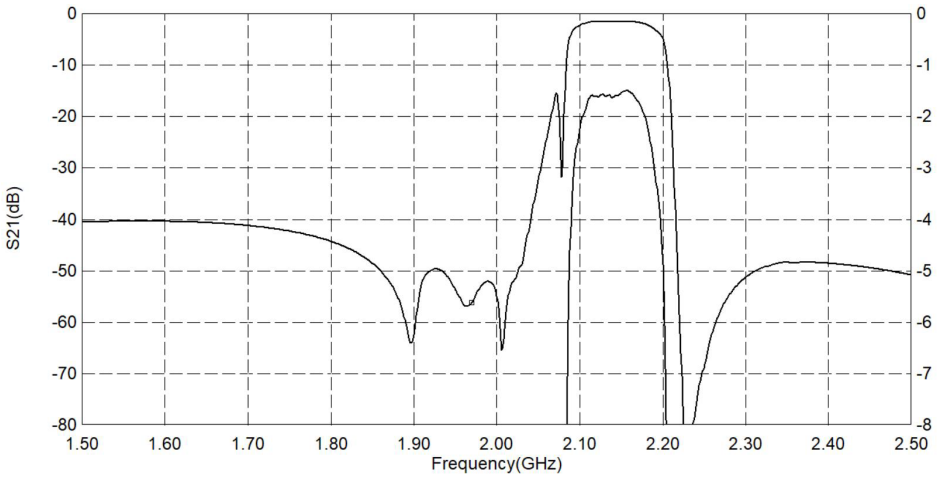


Figure 2 Electrical Characteristics: Tx to Ant.

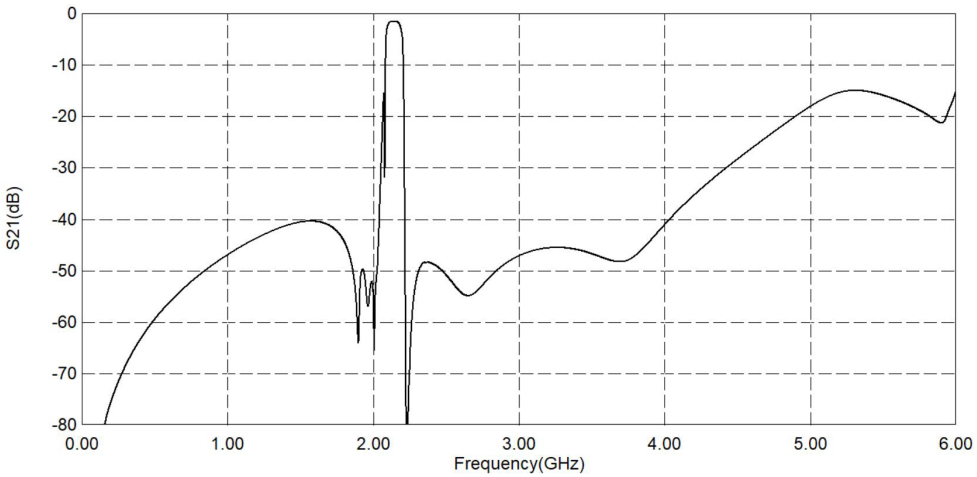


Figure 3 Electrical Characteristics: Ant to Rx.

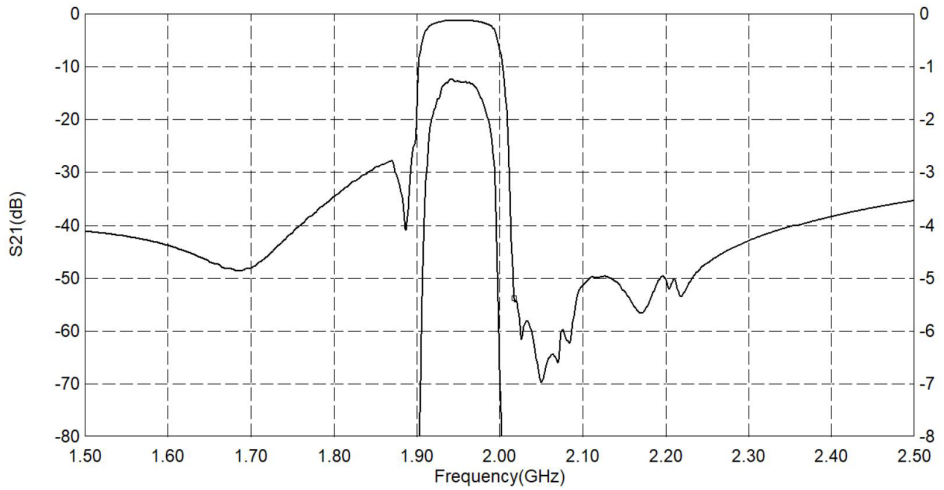


Figure 4 Electrical Characteristics: Ant to Rx.

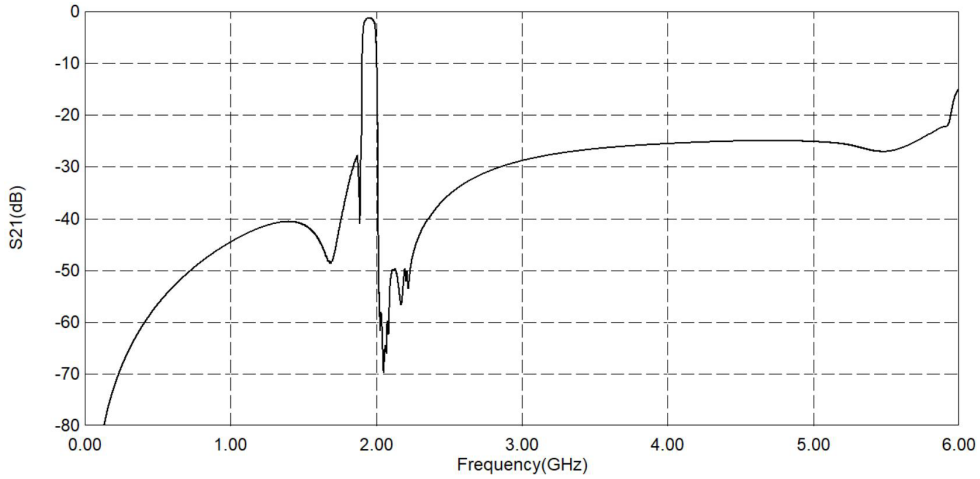


Figure 5 Electrical Characteristics: Tx to Rx.

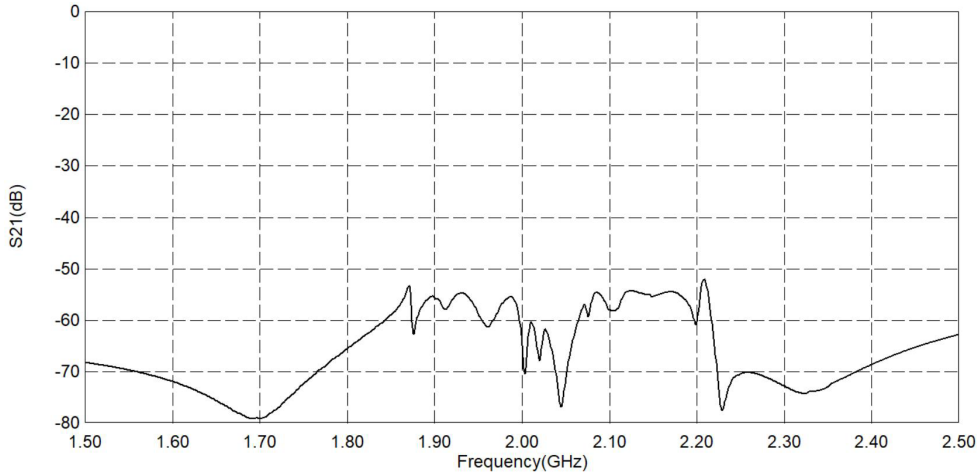


Figure 6 Electrical Characteristics: Tx to Rx.

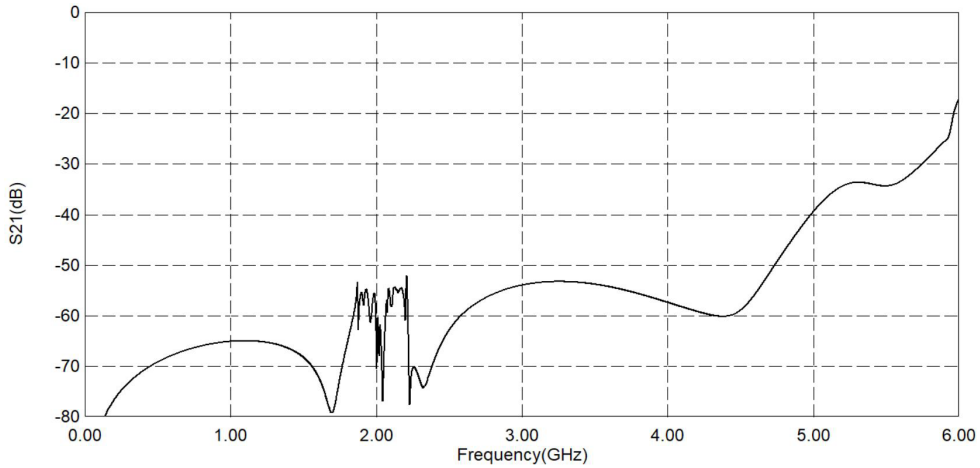
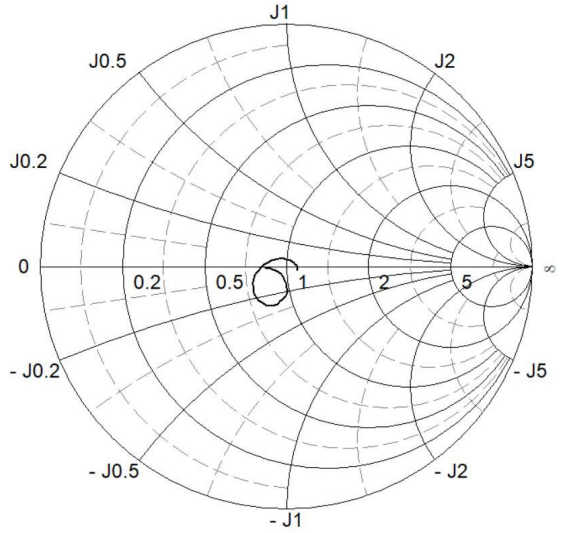
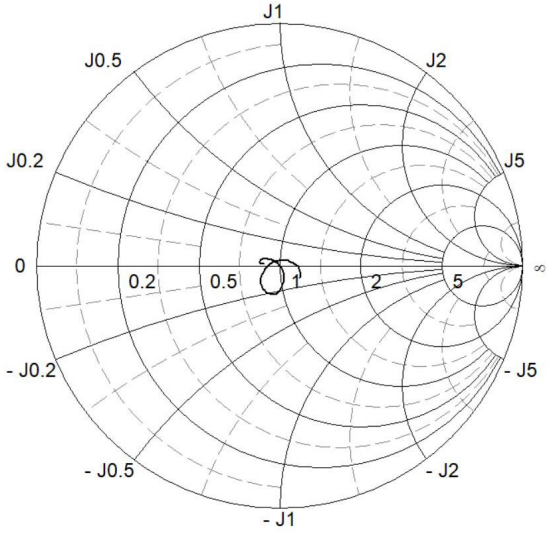


Figure 7 Smith chart

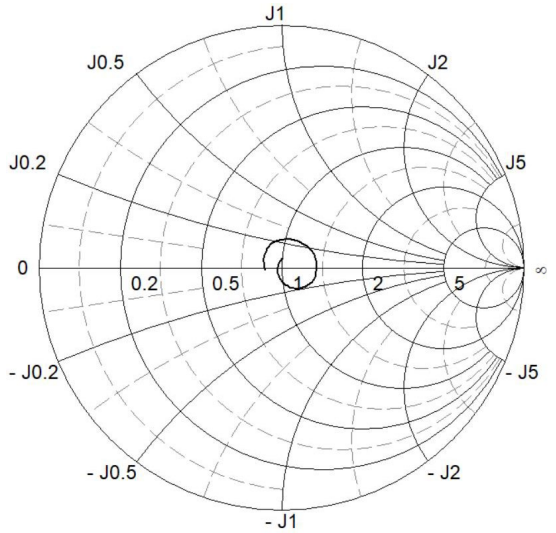
Tx Input Impedance (2110MHz to 2170MHz)



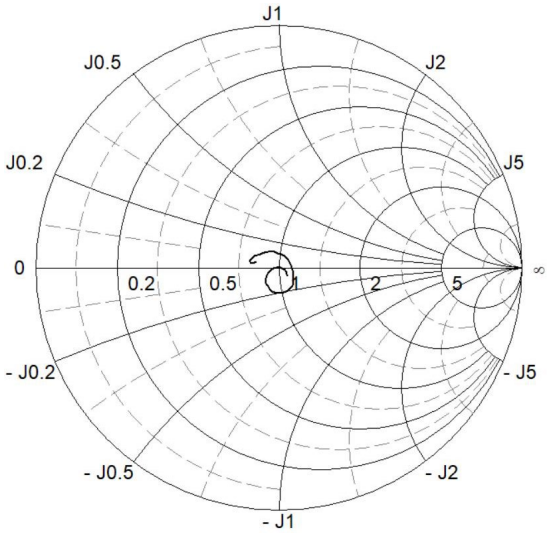
Rx Input Impedance (1920MHz to 1980MHz)



Ant Input Impedance (Tx Band)

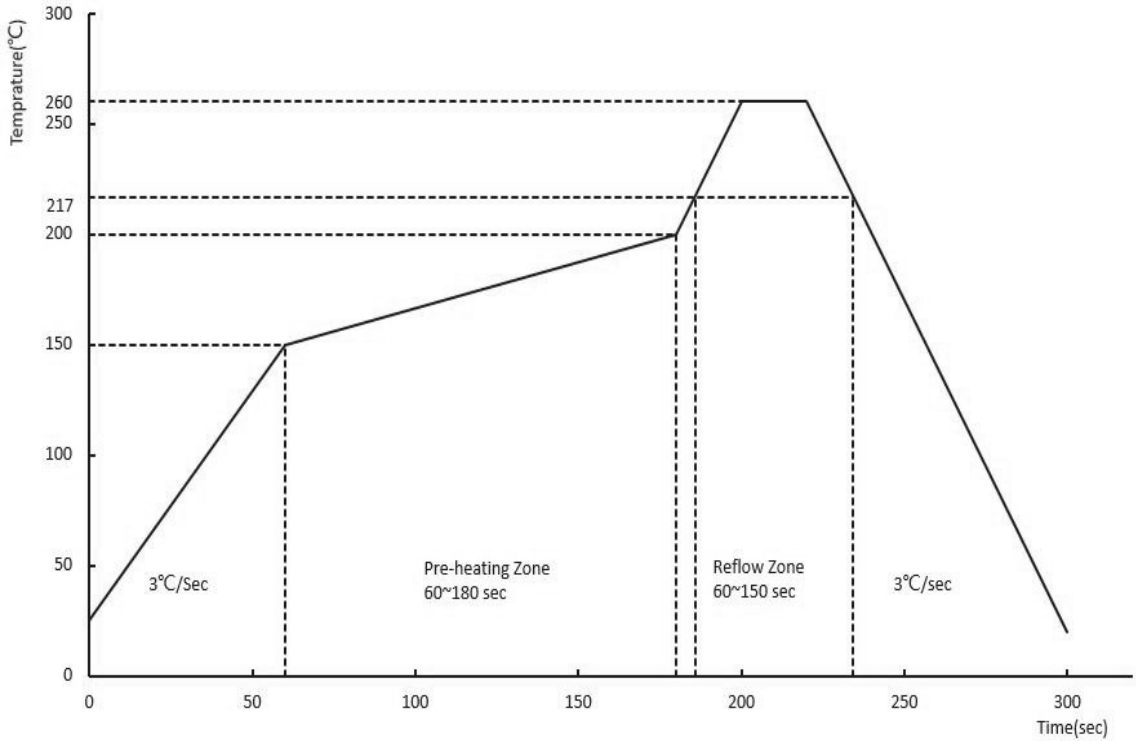


Ant Input Impedance (Rx Band)



Approval	Supervisor	Designer
C. K. Chang	M. Y. Chen	F.L.Lai

Recommended SMT Solder Profile



Reliability

No.	Test item	Test condition	
1	Temperature Storage	Temperature: 95℃±2℃ , Duration: 250h , Recovery time: 2h±0.5h Temperature: -40℃±3℃ , Duration: 250h ,Recovery time: 2h±0.5h	
2	Humidity Test	Conditions: 60℃±2℃ ,90~95%RH	Duration:250h
3	Thermal Shock	Heat cycle conditions: TA=-40℃±3℃, TB=95℃±2℃, t1=t2=30min, Switch time: ≤3min, Cycle time: 100 times, Recovery time: 2h±0.5h.	
4	Vibration Fatigue	Frequency of vibration:10~55Hz Directions: X,Y and Z	Amplitude:1.5mm Duration: 2h
5	Drop Test	Cycle time:10times	Height:1.0m
6	Solder Ability Test	Temperature:245℃±5℃ Depth: DIP--2/3, SMD--1/5	Duration:3.0s--5.0s
7	Resistance to Soldering Heat	Thickness of PCB:1mm , Solder condition: 260℃±5℃ , Duration:10±1s Temperature of Soldering Iron: 350℃±10℃, Duration: 3~4s, Recovery time : 2 ± 0.5h	