

Specification Sheet

Customer Name	XXXX	CUST P/N	NA
Approval No.	PD	Temwell P/N	STSD-2140-1950-S8181W
Lot No.		Date	2025.04.25
Description	SAW Duplexer (modules)	Version	A1

(1)Size Diagram (Unit : MM)

Top view:

The top view shows a rectangular module with overall dimensions of 8.1±0.1 mm in width and 31 mm in height. The width is divided into segments of 40 mm, 31 mm, and 12 mm. The height is divided into segments of 31 mm, 21 mm, and 20 mm. A small circular feature is located near the top-left corner.

Top view:

Side view:

The side view shows the module's profile with a total width of 8.1±0.1 mm and a thickness of 1.1 mm. The width is divided into segments of 0.775 mm, 0.73 mm, and 0.3 mm. The thickness is divided into segments of 0.35 mm, 10 x 0.7 = 7 mm, and 0.35 mm. The side view also shows the internal structure of the module, including the SAW device and the input/output pads.

Side view:

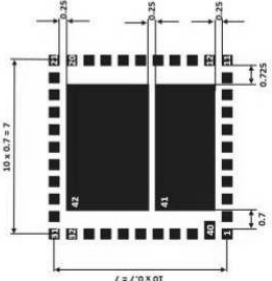
Bottom view:

The bottom view shows the module's footprint with overall dimensions of 10 x 0.7 = 7 mm in width and 10 x 0.7 = 7 mm in height. The width is divided into segments of 0.35 mm, 10 x 0.7 = 7 mm, and 0.35 mm. The height is divided into segments of 0.35 mm, 10 x 0.7 = 7 mm, and 0.35 mm. The bottom view also shows the internal structure of the module, including the SAW device and the input/output pads.

Bottom view:

Pad	Size
1	0.4x0.4mm ²
40	0.7x0.4mm ²
41	5.075x2.395mm ²
42	5.075x3.305mm ²
Tolerance	±0.05mm

(2)Recommended land pattern (Unit : MM)

 Top view:	<table> <tr> <th>Pad</th><th>Size</th></tr> <tr> <td>1</td><td>0.45x0.45mm²</td></tr> <tr> <td>40</td><td>0.7x0.4mm²</td></tr> <tr> <td>41</td><td>5.125x2.445mm²</td></tr> <tr> <td>42</td><td>5.125x3.355mm²</td></tr> <tr> <td>Tolerance</td><td>-0.02mm</td></tr> </table>	Pad	Size	1	0.45x0.45mm ²	40	0.7x0.4mm ²	41	5.125x2.445mm ²	42	5.125x3.355mm ²	Tolerance	-0.02mm
Pad	Size												
1	0.45x0.45mm ²												
40	0.7x0.4mm ²												
41	5.125x2.445mm ²												
42	5.125x3.355mm ²												
Tolerance	-0.02mm												

(3)Electrical Specifications

Item			Specification		
Parameter	MHz	Unit	Min.	Typical	Max.
Center Frequency	-	MHz	-	2140/1950	-
Insertion Loss	2110-2165 (-10°C - 85°C)	dB	-	2.7	3.5
	2165-2170 (-10°C - 85°C)	dB	-	2.8	4.0
	2110-2165 (-40°C - 95°C)	dB	-	2.7	3.9
	2165-2170 (-40°C - 95°C)	dB	-	2.8	4.2
	1920-1975 (-10°C - 85°C)	dB	-	2.3	3.7
	1975-1980 (-10°C - 85°C)	dB	-	2.4	4.2
	1920-1975 (-40°C - 95°C)	dB	-	2.3	3.9
	1975-1980 (-40°C - 95°C)	dB	-	2.4	4.5
Amplitude Ripple	2110-2170 (-10°C - 85°C)	dB	-	0.6	2.0
	2110-2170 (-40°C - 95°C)	dB	-	0.6	2.7
	1920-1980 (-10°C - 85°C)	dB	-	0.7	2.2
	1920-1980 (-40°C - 95°C)	dB	-	0.7	2.2
VSWR of Tx Port	2110-2170 (-10°C - 85°C)	-	-	1.5	1.8
	2110-2170 (-40°C - 95°C)	-	-	1.5	1.8
VSWR of Rx Port	1920-1980 (-10°C - 85°C)	-	-	1.3	1.8
	1920-1980 (-40°C - 95°C)	-	-	1.3	1.8
VSWR of Ant Port	2110-2170 (-10°C - 85°C)	-	-	1.5	1.8
	2110-2170 (-40°C - 95°C)	-	-	1.5	1.8
	1920-1980 (-10°C - 85°C)	-	-	1.3	1.8
	1920-1980 (-40°C - 95°C)	-	-	1.3	1.8
Attenuation (2110-2170)	10-1920	dB	35	41	-
	1916.8-1985	dB	47	54	-

(-10℃ - 85℃)	2246.8-2400	dB	40	52	-
	2500-3000	dB	30	52	-
	3000-3600	dB	20	50	-
	3600-3800	dB	15	44	-
	3800-4220	dB	8	31	-
	4340-5000	dB	8	19	-
	5000-6000	dB	8	19	-
Attenuation (2110-2170) (-40℃ - 95℃)	10-1920	dB	35	41	-
	1916.8-1985	dB	45	54	-
	2246.8-2400	dB	40	52	-
	2500-3000	dB	30	52	-
	3000-3600	dB	20	50	-
	3600-3800	dB	15	44	-
	3800-4220	dB	8	31	-
	4340-5000	dB	8	19	-
	5000-6000	dB	8	19	-
Attenuation (1920-1980) (-10℃ - 85℃)	10-1800	dB	32	35	-
	1785-1880	dB	23	26	-
	1880-1900	dB	5	21	-
	1900-1903	dB	3.5	9	-
	1997-2110	dB	2.5	5	-
	2110-2175	dB	45	48	-
	2255-2400	dB	35	43	-
	2400-2500	dB	35	40	-
	2500-3840	dB	24	27	-
	3840-3960	dB	23	26	-
	3960-5000	dB	20	23	-
	5000-5760	dB	23	26	-
	5760-5940	dB	24	34	-
Attenuation (1920-1980) (-40℃ - 95℃)	10-1800	dB	32	35	-
	1785-1880	dB	23	26	-
	1880-1900	dB	4.5	21	-
	1900-1903	dB	3	9	-
	1997-2110	dB	2	5	-
	2110-2175	dB	44	48	-
	2255-2400	dB	35	43	-
	2400-2500	dB	35	40	-
	2500-3840	dB	24	27	-
	3840-3960	dB	23	26	-
	3960-5000	dB	20	23	-
	5000-5760	dB	23	26	-
	5760-5940	dB	24	34	-
Isolation (-10℃ - 85℃)	1920-1980	dB	58	60	-
	2110-2170	dB	60	64	-
Isolation (-40℃ - 95℃)	1920-1980	dB	58	60	-
	2110-2170	dB	60	64	-
Operation Temperature	-40℃~+95℃	℃	-	-	-
Storage Temperature	-40℃~+95℃	℃	-	-	-
	-25℃~+40℃	℃	Stored in tape		
Input Power at TX port	+33	dBm	2110-2170MHz		
Input Power at TX port	+10	dBm	The other frequency ranges		
Remark	Note 1: Test Temperature: 25℃±2℃				
	Note 2: Terminating source impedance: 50Ω. Terminating load impedance: 50Ω				
(4)Test Circuit		(5)Pad Map			

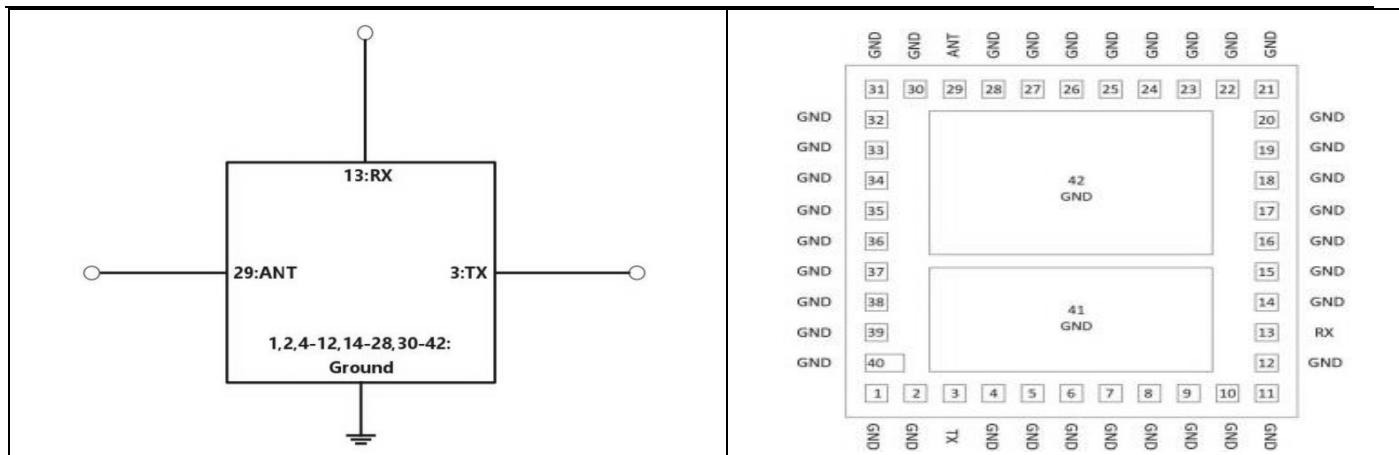


Figure 1 Electrical Characteristics: Tx to Ant.

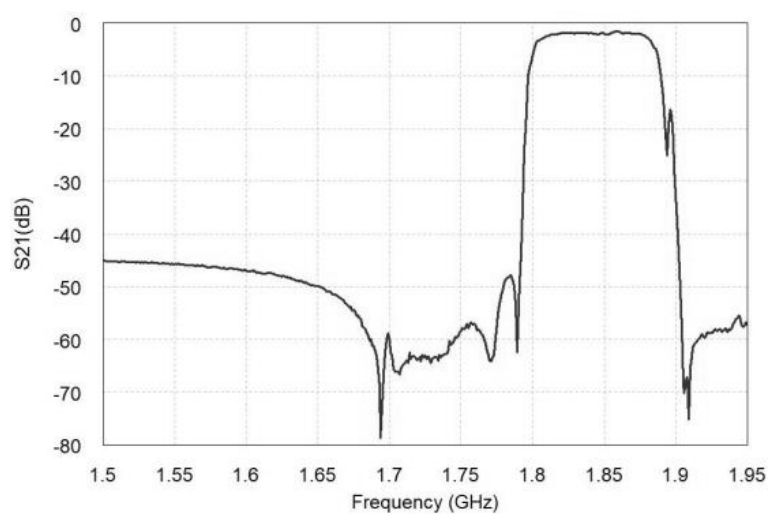


Figure 2 Electrical Characteristics: Tx to Ant.

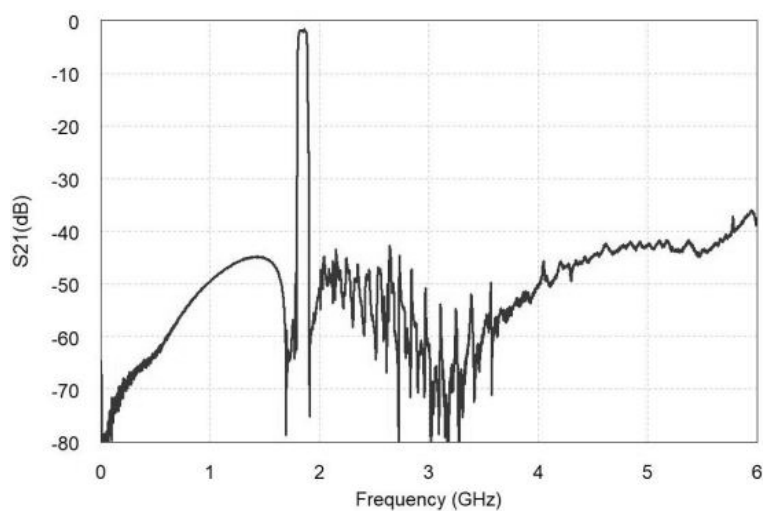


Figure 3 Electrical Characteristics: Tx to Ant.

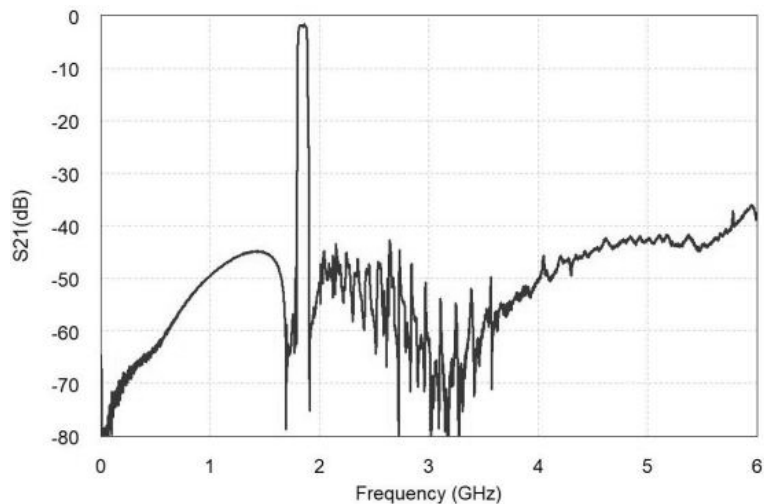


Figure 4 Electrical Characteristics: Ant to Rx.

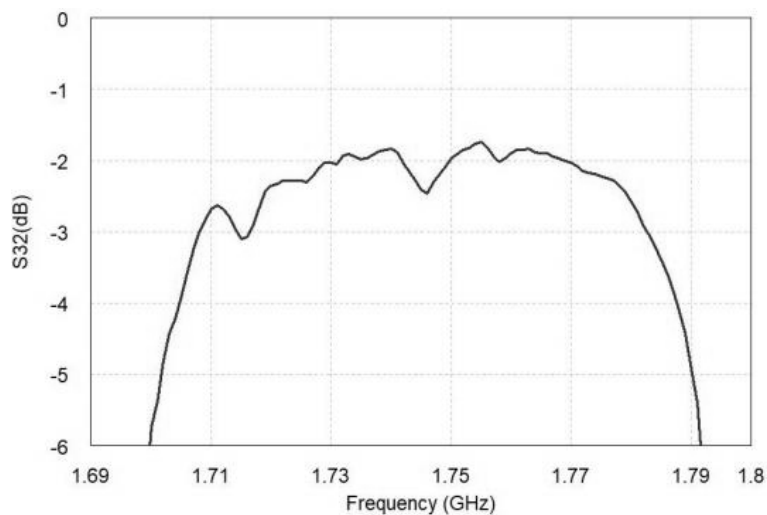


Figure 5 Electrical Characteristics: Ant to Rx.

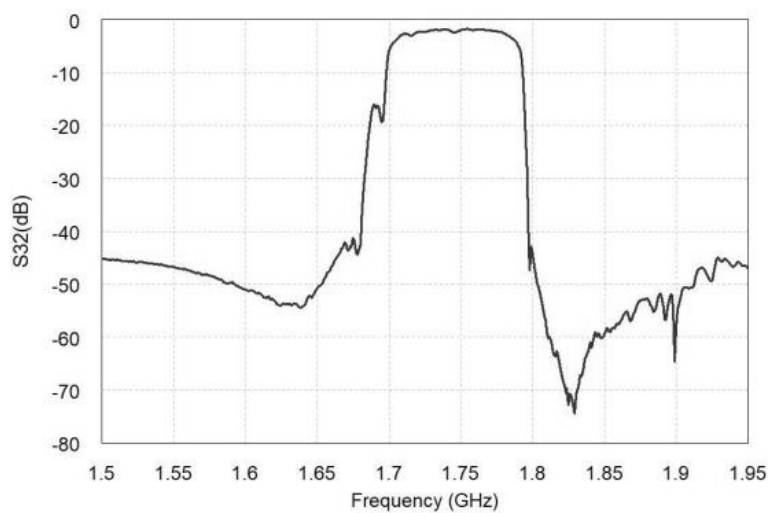


Figure 6 Electrical Characteristics: Ant to Rx.

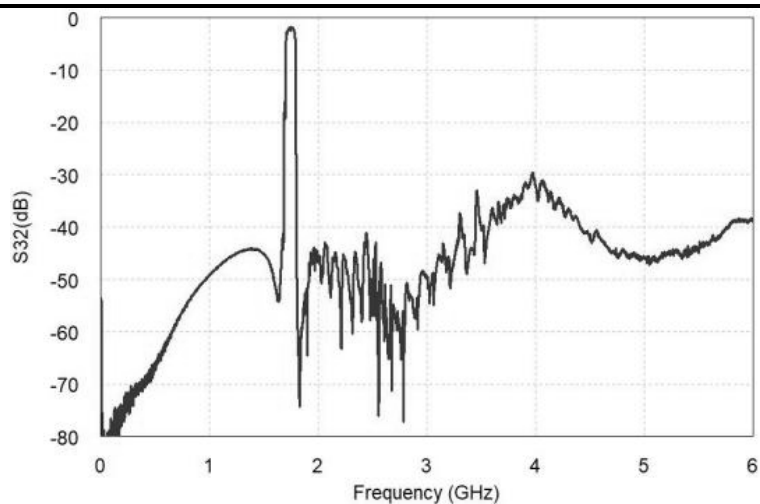


Figure 7 Electrical Characteristics: Tx to Rx.

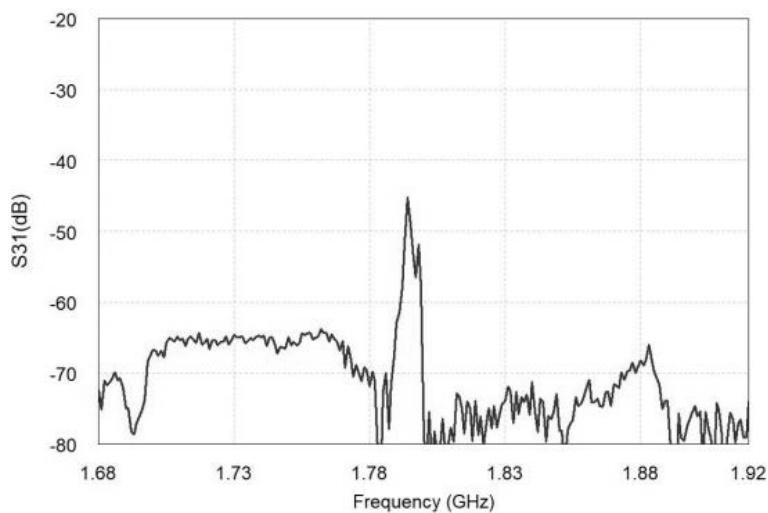


Figure 8 Electrical Characteristics: Tx to Rx.

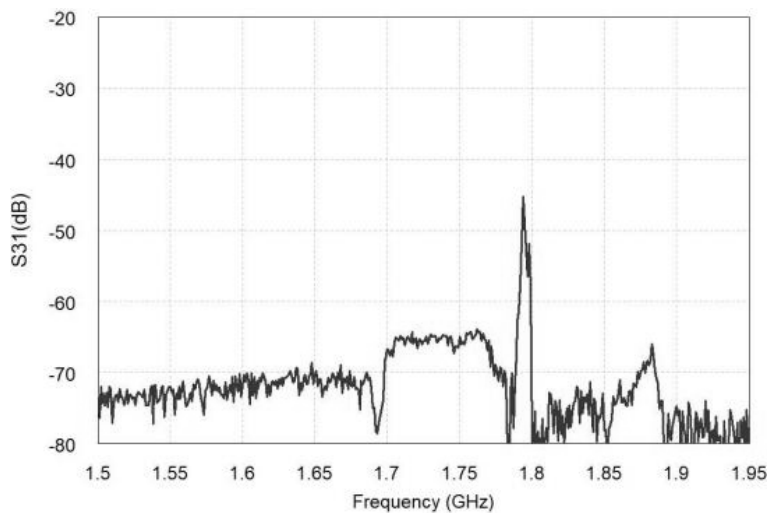


Figure 9 Electrical Characteristics: Tx to Rx.

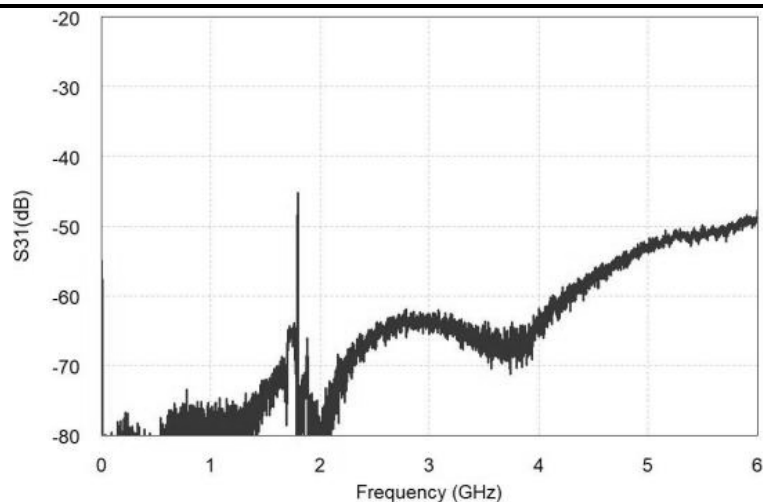
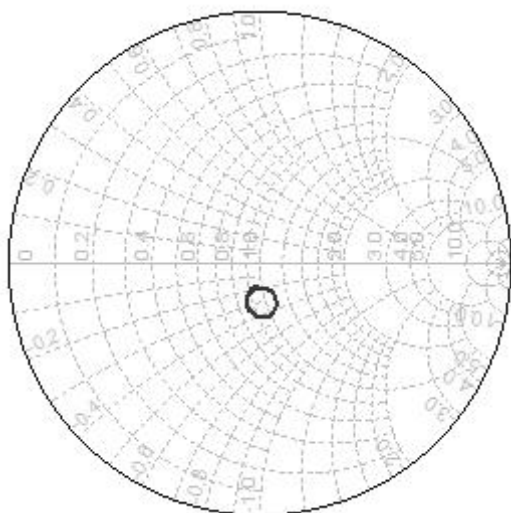
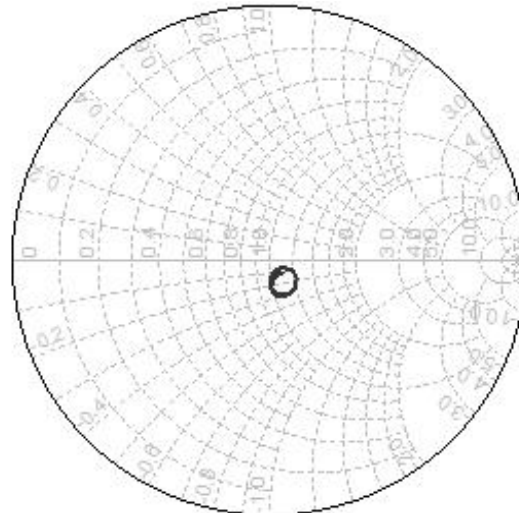


Figure 10 Smith chart

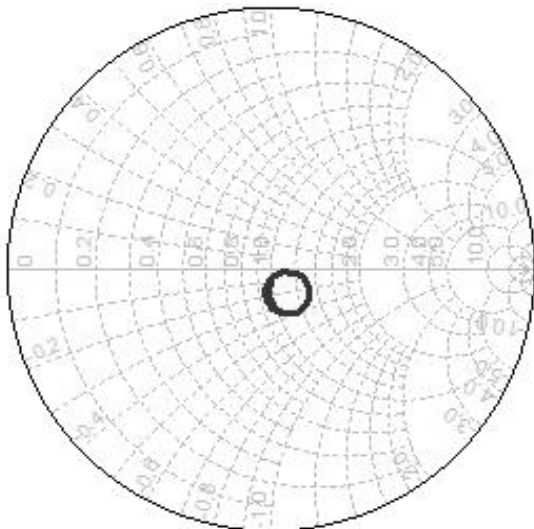
Tx Input Impedance (2110MHz to 2170MHz)



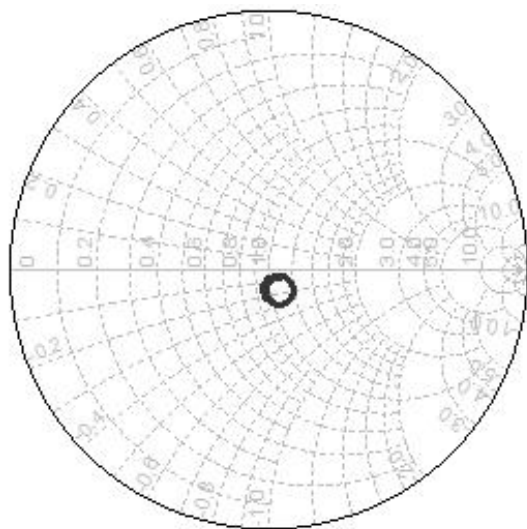
Rx Input Impedance (1920MHz to 1980MHz)



Ant Input Impedance (Tx Band)



Ant Input Impedance (Rx Band)



Approval

Supervisor

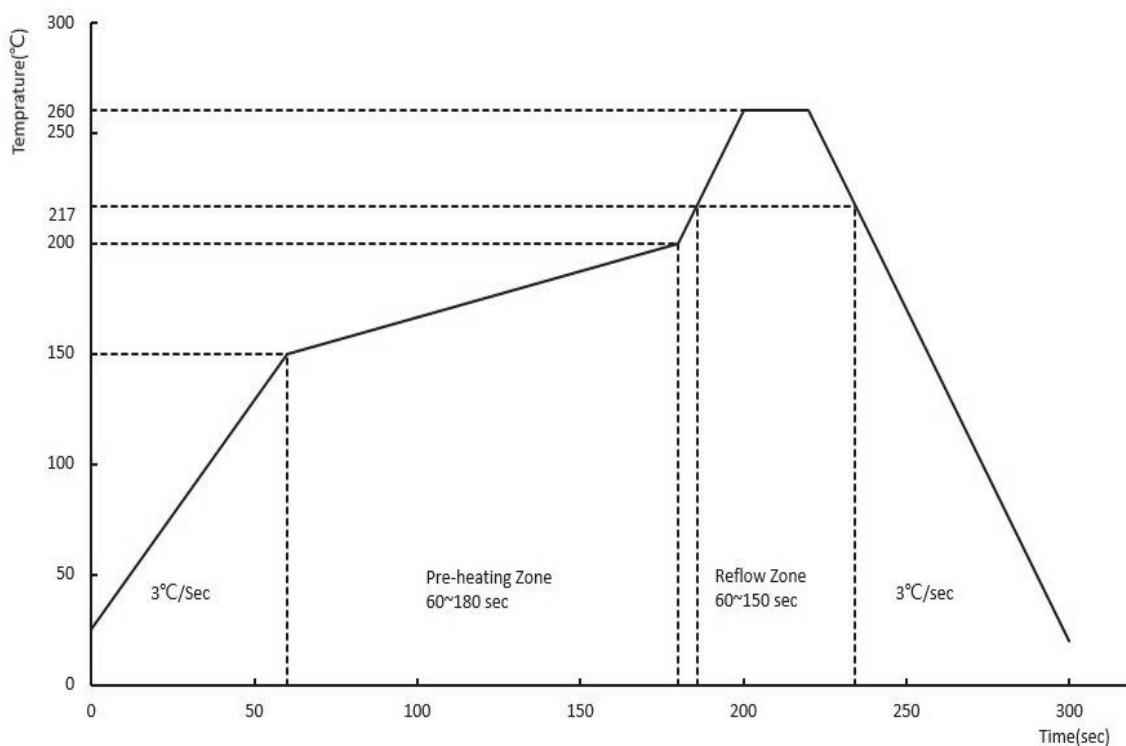
Designer

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Recommended SMT Solder Profile



Reliability

No.	Test item	Test condition	
1	Temperature Storage	Temperature: 95°C±2°C , Duration: 250h , Recovery time: 2h±0.5h Temperature: -40°C±3°C , Duration: 250h ,Recovery time: 2h±0.5h	
2	Humidity Test	Conditions: 60°C±2°C ,90~95%RH	Duration:250h
3	Thermal Shock	Heat cycle conditions: TA=-40°C±3°C, TB=95°C±2°C, 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°C±5°C Depth: DIP--2/3, SMD--1/5	Duration:3.0s--5.0s
7	Resistance to Soldering Heat	Thickness of PCB:1mm , Solder condition: 260°C±5°C , Duration:10±1s Temperature of Soldering Iron: 350°C±10°C, Duration: 3~4s, Recovery time : 2 ± 0.5h	