
SAW Band 2 Duplexer SMD 1880/1960MHz

Model: TF0060A

Part No: MP05690

Rev No: 1

A. MAXIMUM RATING:

Electrostatic Sensitive Device (ESD)

1. DC Voltage: 0V
2. Operating Temperature: -30°C to +85°C
3. Storage Temperature: -40°C to +85°C

Parameters Description	Unit	Min.	Typ.	Max.
Operation Temperature Range	°C	-30	-	+85
Storage Temperature Range	°C	-40	-	+85
Maximum DC Voltage	V	0		
Input Power Level	W	2.0		
Antenna Impedance(single ended)	Ω	50		
Tx Impedance(single ended)	Ω	50		
Rx Impedance (balanced) (1)	Ω	100		
Length x Width	mm ²	2.0 x 1.6		
Height	mm	0.9		

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B. ELECTRICAL CHARACTERISTICS:

Tx to Ant		Specifications (+25°C)			
Parameters Description	Condition MHz	Unit	Min.	Typ.	Max.
Insertion Loss	1850.5 ~ 1909.5	dB	-	2.0	2.5
Return Loss of Tx Port	1850.5 ~ 1909.5	dB	9	10	-
Return Loss of Ant Port	1850.5 ~ 1909.5	dB	9	10	-
Attenuation in Rx Band	1930.5 ~ 1989.5	dB	45	51	-
Attenuation in Cell band	862.0 ~ 894.0	dB	30	40	-
Attenuation in GPS Rx band	1570.0 ~ 1580.0	dB	35	37	-
Attenuation in Bluetooth band	2400.0 ~ 2500.0	dB	23	25	-
Attenuation in 2 nd harmonic	3700.0 ~ 3820.0	dB	28	30	-
Attenuation in 3 rd harmonic	5550.0 ~ 5730.0	dB	10	11	-

Ant to Rx		Specifications (+25°C)			
Parameters Description	Condition MHz	Unit	Min.	Typ.	Max.
Insertion Loss	1930.5 ~ 1989.5	dB	-	2.6	2.9
Return Loss of Tx Port	1930.5 ~ 1989.5	dB	8	9	-
Return Loss of Ant Port	1930.5 ~ 1989.5	dB	8	9	-
Attenuation in Tx Band	1850.5 ~ 1909.5	dB	50	54	-
Attenuation in Cell Band	817.0 ~ 849.0	dB	35	40	-
Amplitude balance(S ₃₁ /S ₄₁)	1930.5 ~ 1989.5	dB	-3.0	-1.8	+3.0
Phase balance $\phi(S_{31})-\phi(S_{41})+180^\circ$	1930.5 ~ 1989.5	deg	-10	-8.5	+10

Ant to Rx		Specifications (+25°C)			
Parameters Description	Condition MHz	Unit	Min.	Typ.	Max.
Isolation in Rx Band	1930.5 ~ 1989.5	dB	50	58	-
Isolation in Tx Band	1850.5 ~ 1909.5	dB	55	58	-

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Tx to Ant		Specifications (-30 ~ +85°C)			
Parameters Description	Condition MHz	Unit	Min.	Typ.	Max.
Insertion Loss	1850.5 ~ 1909.5	dB	-	2.5	3.5
Return Loss of Tx Port	1850.5 ~ 1909.5	dB	9	11	-
Return Loss of Ant Port	1850.5 ~ 1909.5	dB	9	11	-
Attenuation in Rx Band	1930.5 ~ 1989.5	dB	45	49	-
Attenuation in Cell band	862.0 ~ 894.0	dB	30	40	-
Attenuation in GPS Rx band	1570.0 ~ 1580.0	dB	35	46	-
Attenuation in Bluetooth band	2400.0 ~ 2500.0	dB	23	27	-
Attenuation in 2 nd harmonic	3700.0 ~ 3820.0	dB	23	28	-
Attenuation in 3 rd harmonic	5550.0 ~ 5730.0	dB	8	10	-

Ant to Rx		Specifications (-30 ~ +85°C)			
Parameters Description	Condition MHz	Unit	Min.	Typ.	Max.
Insertion Loss	1930.5 ~ 1989.5	dB	-	2.6	3.5
Return Loss of Rx Port	1930.5 ~ 1989.5	dB	5	6.5	-
Return Loss of Ant Port	1930.5 ~ 1989.5	dB	5	6.5	-
Attenuation in Tx Band	1850.5 ~ 1909.5	dB	50	54	-
Attenuation in Cell Band	817.0 ~ 849.0	dB	35	43	-
Amplitude balance(S ₃₁ /S ₄₁)	1930.5 ~ 1989.5	dB	-5.0	-0.4/2.0	+5.0
Phase balance $\Phi(S_{31})-\Phi(S_{41})+180^\circ$	1930.5 ~ 1989.5	deg	-15	-3.0/+8.5	+15

Ant to Rx		Specifications (-30 ~ +85°C)			
Parameters Description	Condition MHz	Unit	Min.	Typ.	Max.
Isolation in Rx Band	1930.5 ~ 1989.5	dB	50	56	-
Isolation in Tx Band	1850.5 ~ 1909.5	dB	55	59	-

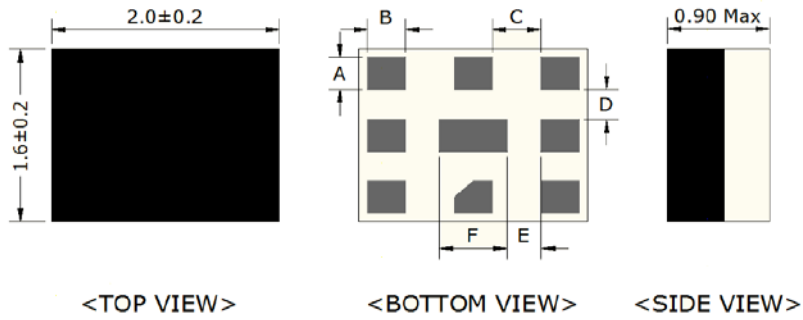
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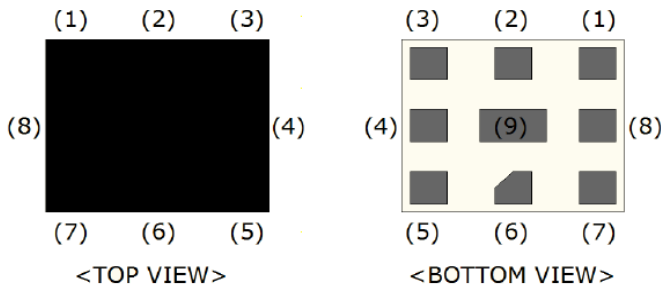
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C. OUTLINE DRAWING:

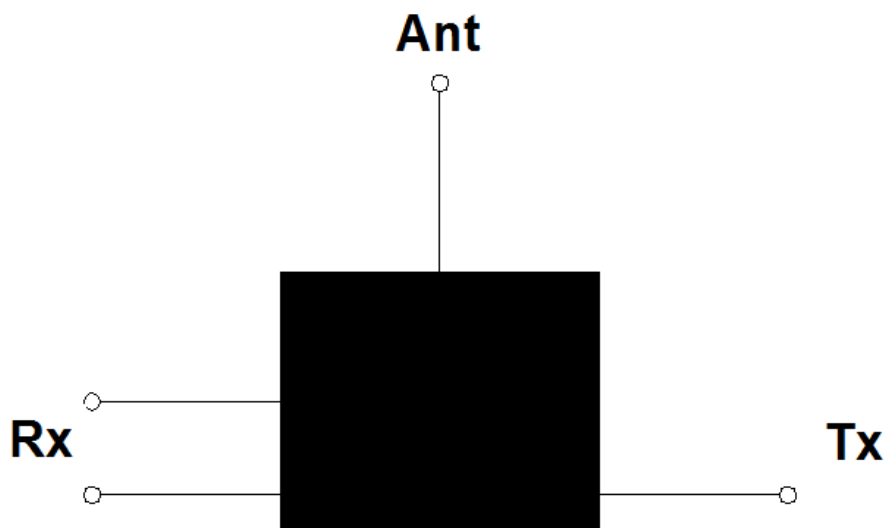


A	B	C	D	E	F	Thickness
0.30 ± 0.1	0.33 ± 0.1	0.43 ± 0.1	0.275 ± 0.1	0.295 ± 0.1	0.60 ± 0.1	0.90 MAX



Pin Description	
(1),(3),(4),(6),(9)	Ground
(2)	Antenna
(5)	Tx
(7)	Rx - Balanced
(8)	Rx + Balanced

D. TESTING ENVIRONMENT:



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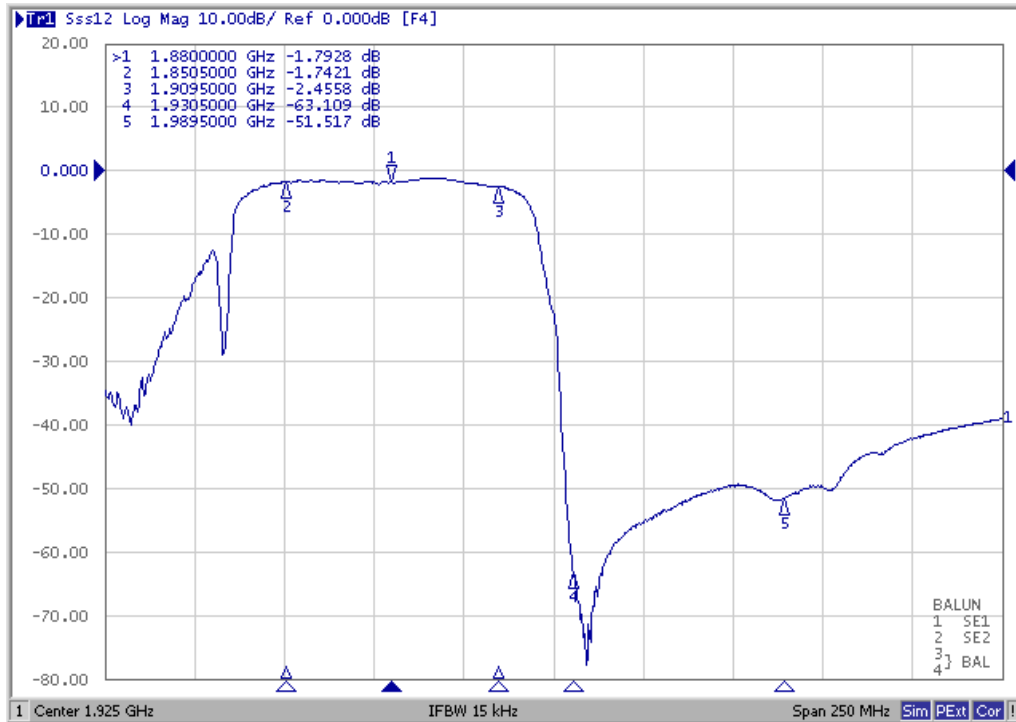
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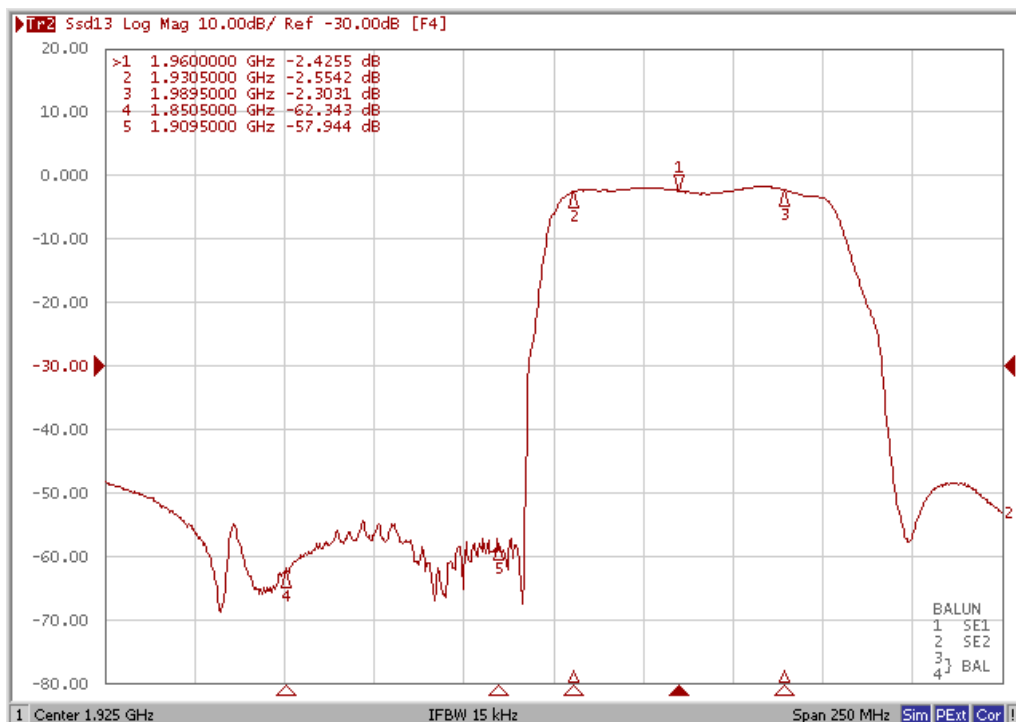
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E. FREQUENCY CHARACTERISTICS:

Tx to Ant



Ant to Rx



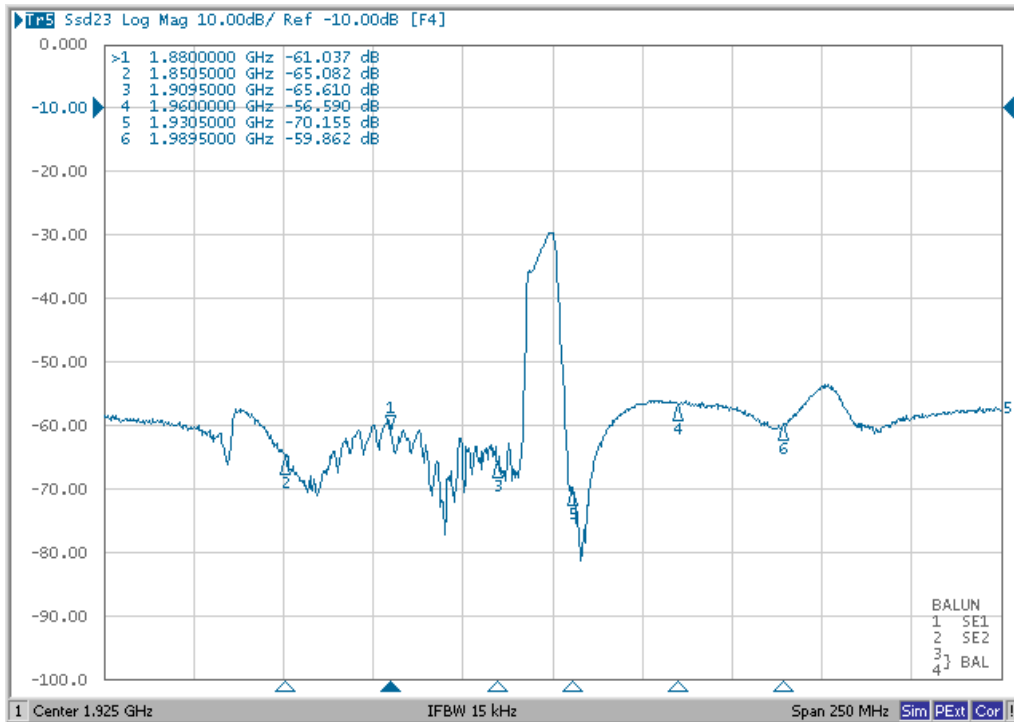
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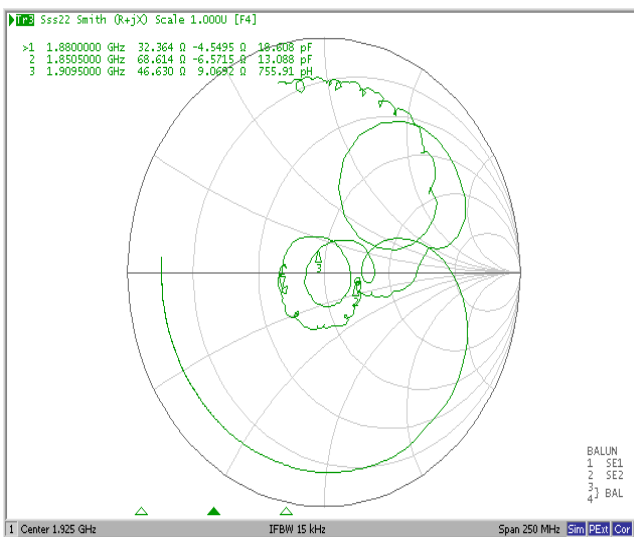
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Isolation

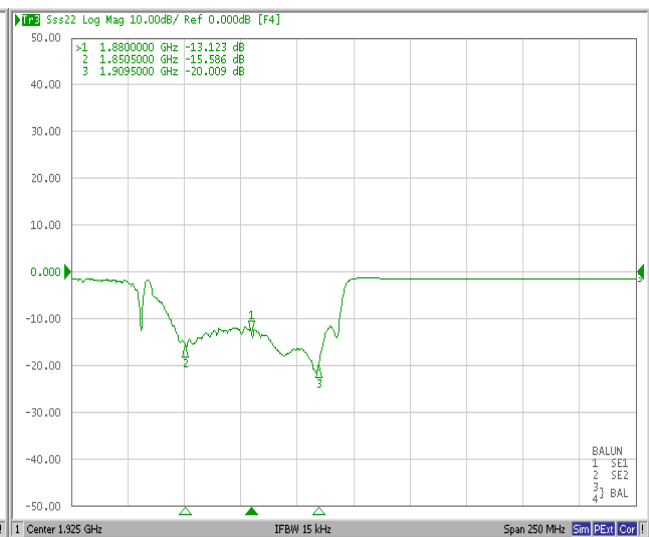


Tx Port

Smith Chart



Return Loss



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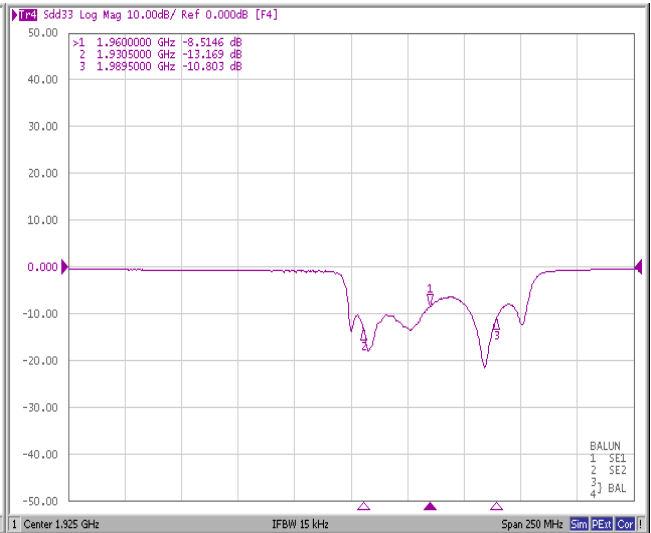
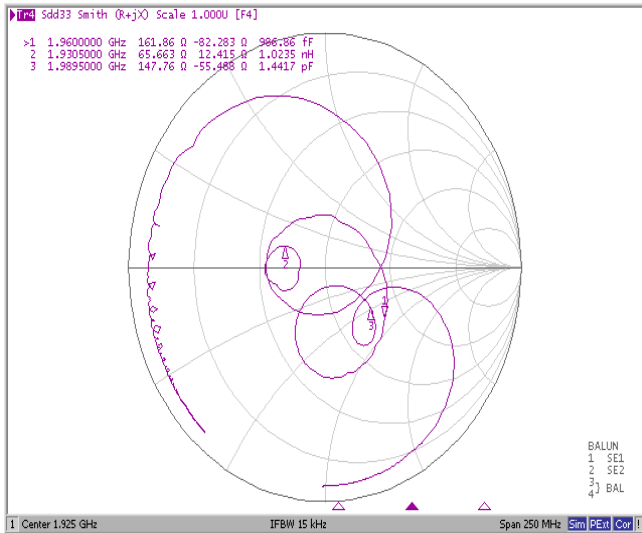
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Rx Port

Smith Chart

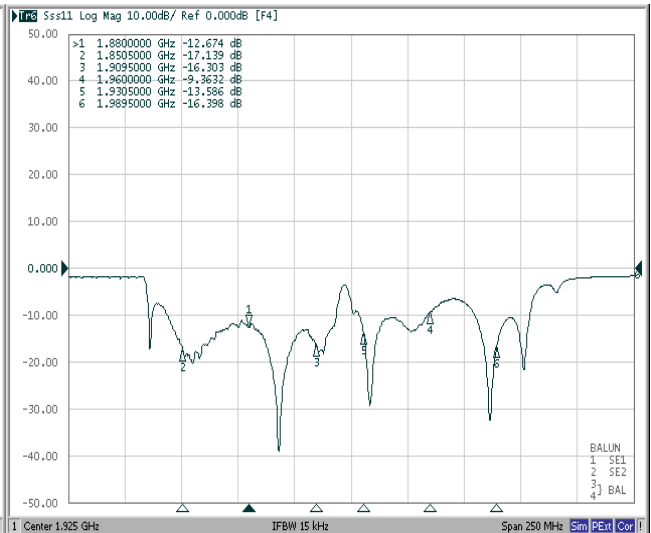
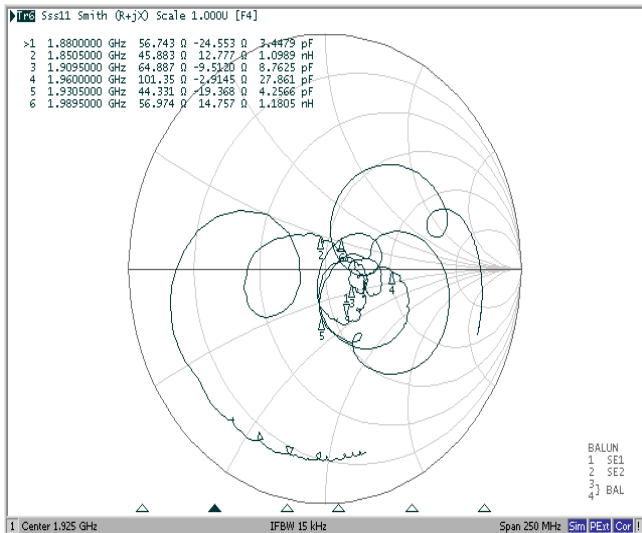
Return Loss



Ant Port

Smith Chart

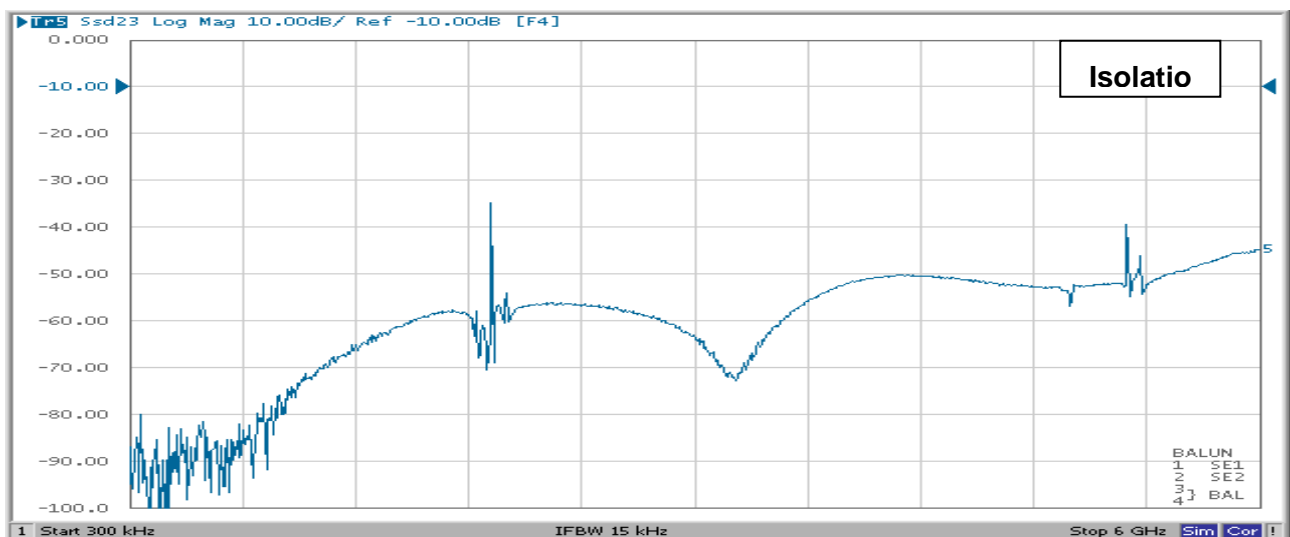
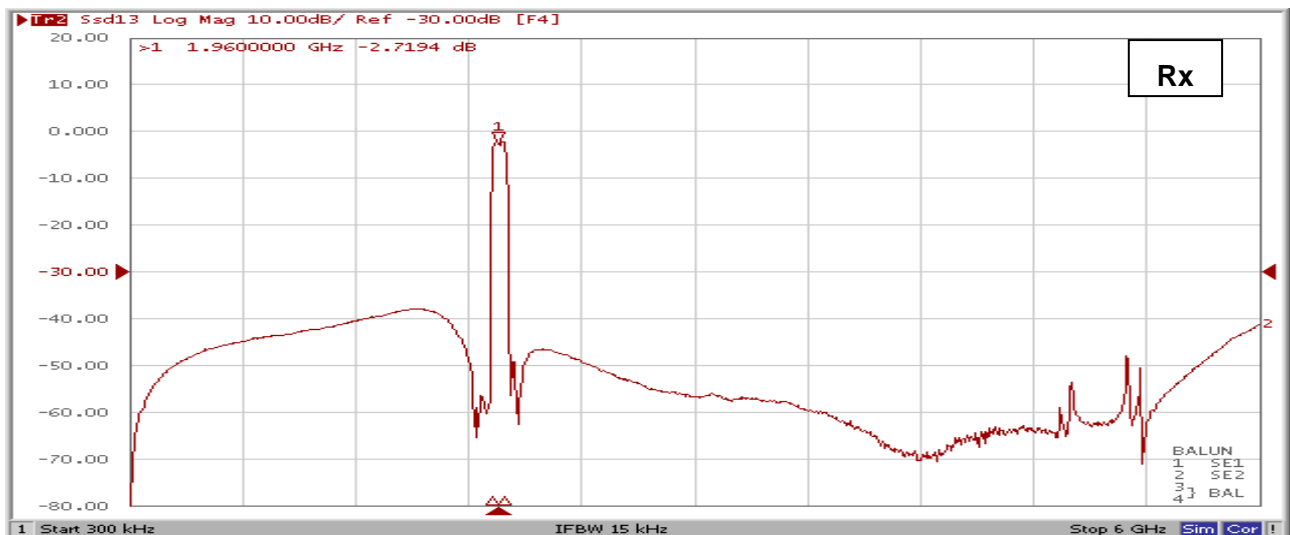
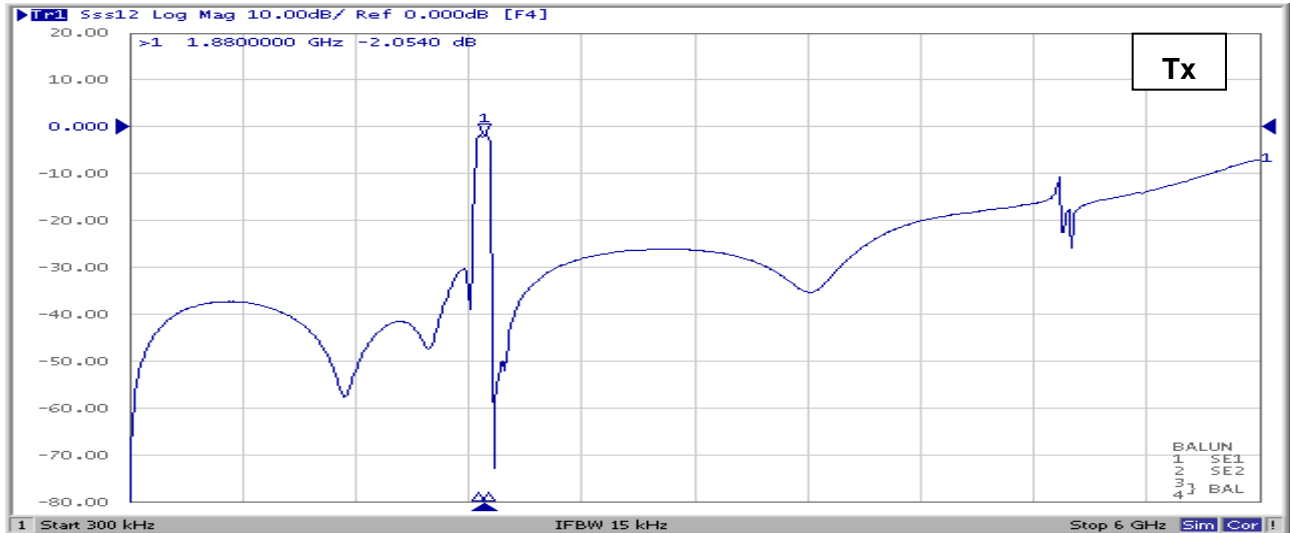
Return Loss



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Wide Span



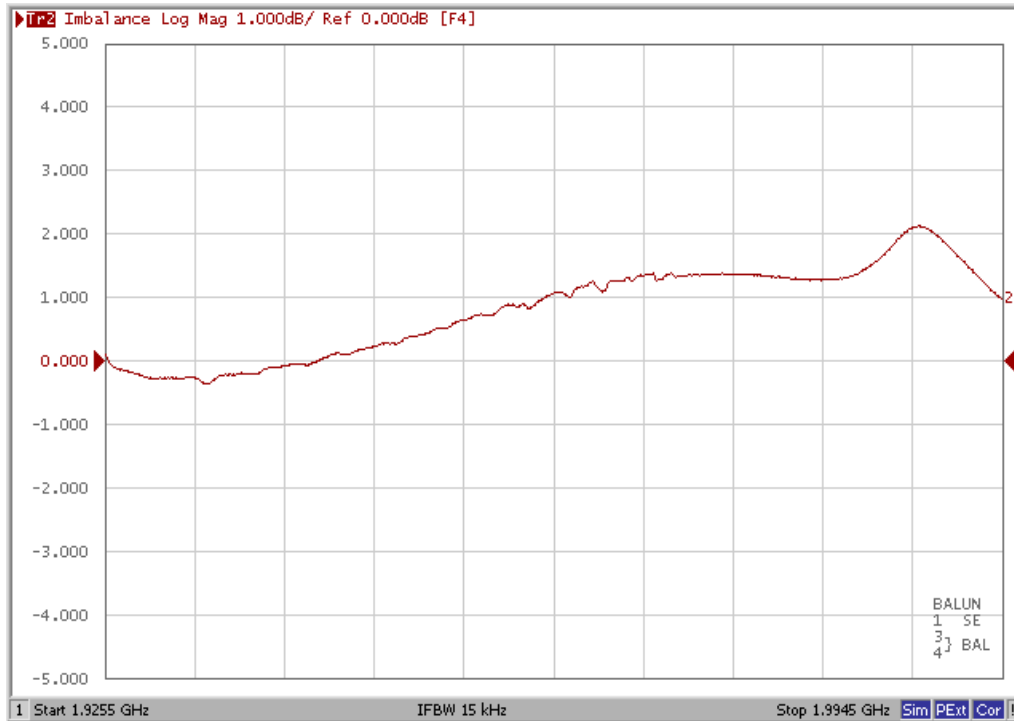
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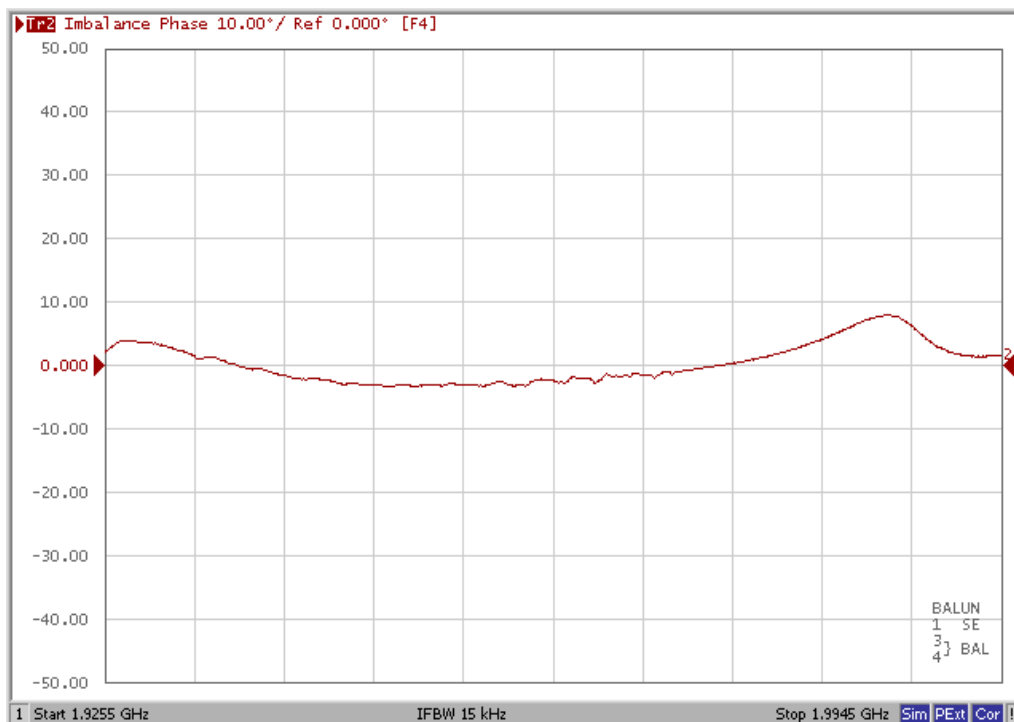
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Amplitude Imbalance



Phase Imbalance



Notes:

1. Antenna and Tx ports are Single-ended port of 50Ω impedance.
2. Each of the two balanced-ended port is 50Ω impedance. Total impedance is 100Ω.
3. Dimensions of all signal line width & space should be adjusted for 50Ω lined.

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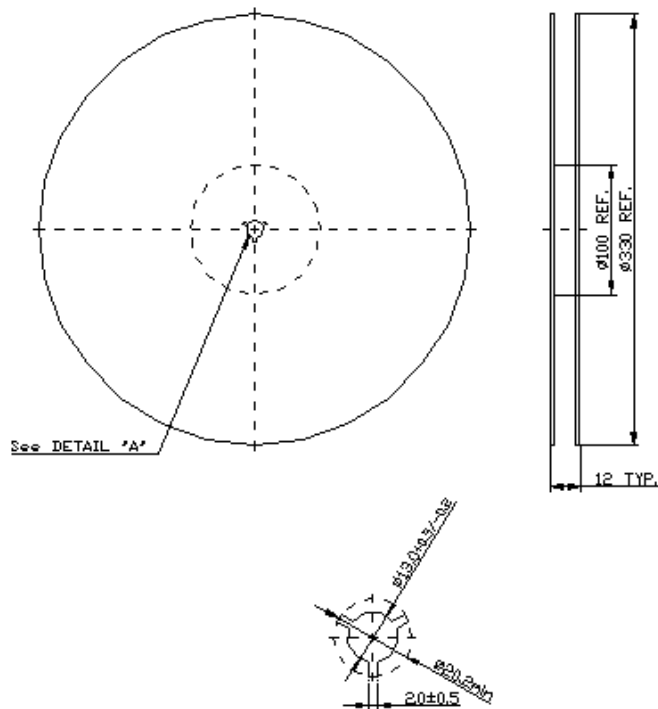
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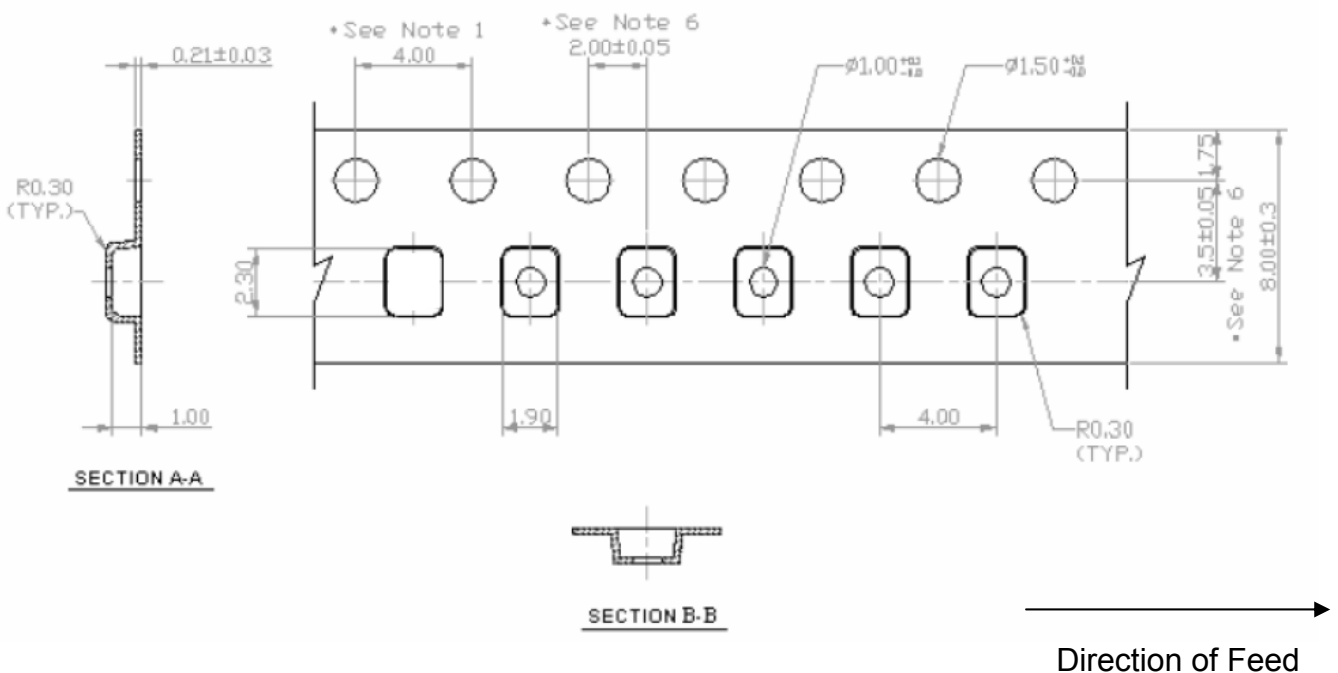
F. PACKING:

1. Reel Dimension

(Please refer to FR-75D10 for packing quantity)



2. Tape Dimension



Direction of Feed

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G. RECOMMENDED REFLOW PROFILE:

