2525 Shader Road, Orlando Florida 32804 USA
Phone: 407-298-2000 Fax: 407-293-2979
Website: mtronpti.com NYSE MKT: LGL

MtronPTI Ultra Wideband Quadruplexer and Pentaplexers

Using over 50 years of high performance RF filter design and manufacturing experience – incorporating RF CAD design and synthesis, MtronPTI can provide ultra-wideband low-loss Quadruplexer and Pentaplexer covering UHF, L, S C, X and Ku bands for RADAR, Satcom and Electronic Warfare Applications. These Multiplexers incorporate bandpass filters for simultaneous transmit and receive operation with good isolation between uplink & downlink feeds.

Features: Extremely low TX and RX signal loss

Applications: Satcom, Electronic Warfare, RADAR

Representative Quadruplexer (UFQX9985) Performance Characteristics:

I. General & Electrical Requirements :

Parameter	Unit	Filter 1	Filter 2	Filter 3	Filter 4
Pass band	GHz	2-3.8	4.2-7.6	8.4-11.4	12.6-18.0
Insertion Loss	dB	≤1	≤1.1	≤1	≤1
Return Loss	dB	≥14	≥14	≥14	≥14
Stopband Rejection: ≥60dB	GHz	4.4 to 18.0	DC to 3.6	DC to 7.6	DC to 11.3
			8.5 to 18.0	13.4 to 18.0	
Input Power	W	5			

Mechanical Specifications

Operating Temp	-55 to +85	°C
Dimensions (LWH)	70 x 44 x 10	mm
Connectors	SMA-F	

Test Conditions

Humidity	Up to 100% non-condensation, MIL-STD-202F, Method 106G
Mechanical Shock	20g, ½ sine, 11mili-sec MIL-STD-202, Method 213B, Test Condition A
Vibration Sinusoidal	10g peak, sine .06'' double amplitude, 10-2000Hz, MIL-STD-202, Method 204D, Test Condition C

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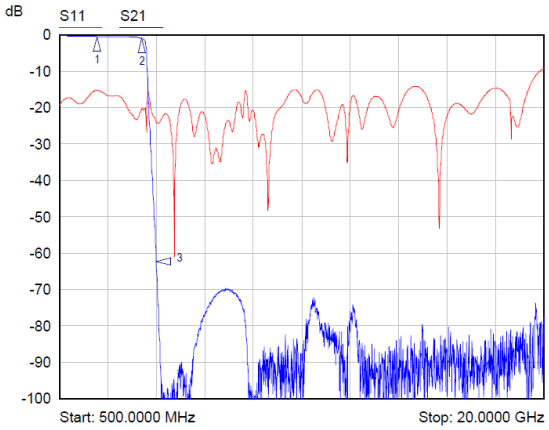
Thermal Shock	MIL-STD-202 Method 107G, Condition A, 5 cycles -55°C to +85°C
EMI/EMC	Units designed to meet EMI/EMC requirements in accordance with MIL-STD-461E
Finish	Epoxy Painting

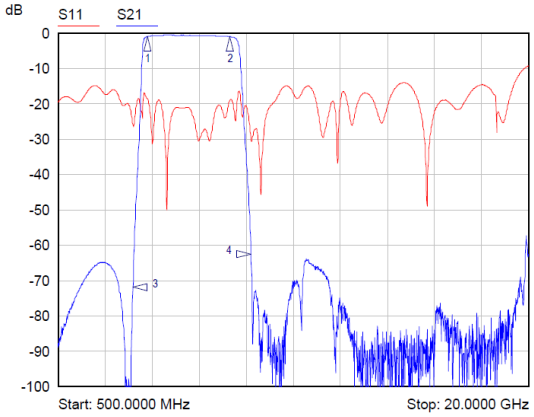
II. Design Simulation Plots:

Filter 1



Mkr	Trace	X-Axis	Value	Notes
1 ▽	S21	2.0000 GHz	-0.42 dB	
2 ▽	S21	3.8000 GHz	-0.96 dB	
3 ▽	S21	4.4000 GHz	-62.27 dB	

Filter 2



Mkr	Trace	X-Axis	Value	Notes
1 ▽	S21	4.2000 GHz	-0.96 dB	
2 ▽	S21	7.6000 GHz	-1.01 dB	
3 ▽	S21	3.6000 GHz	-71.89 dB	
4 ▽	S21	8.5000 GHz	-62.49 dB	

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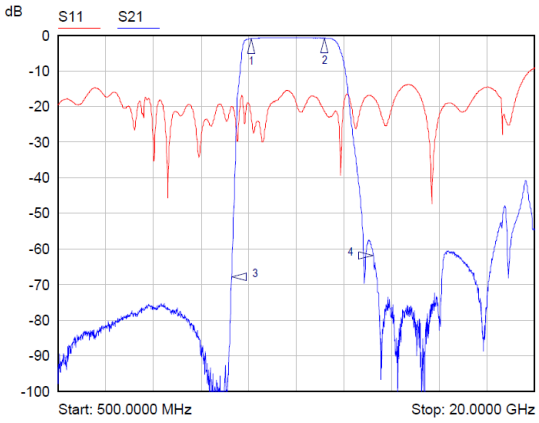
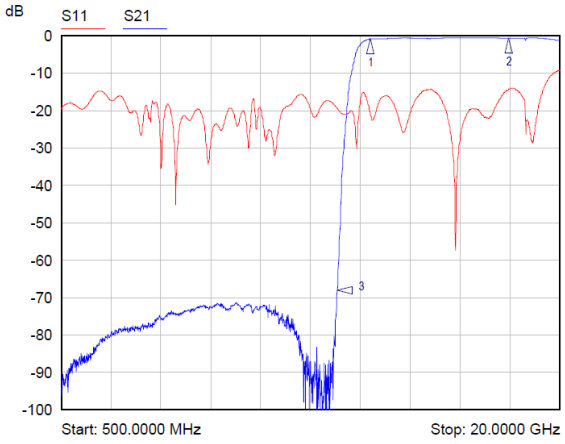
Filter 3



Mkr	Trace	X-Axis	Value	Notes
1	S21	8.4000 GHz	-0.93 dB	
2	S21	11.4000 GHz	-0.75 dB	
3	S21	7.6000 GHz	-67.85 dB	
4	S21	13.4000 GHz	-61.76 dB	

Filter 4



Mkr	Trace	X-Axis	Value	Notes
1	S21	12.6000 GHz	-0.91 dB	
2	S21	18.0000 GHz	-0.67 dB	
3	S21	11.3000 GHz	-67.97 dB	

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Representative Pentaplexer (UFPX9986) Performance Characteristics:

I. General & Electrical Requirements :

Parameter	Unit	Filter 1	Filter 2	Filter 3	Filter 4	Filter 5
Pass band	GHz	0.5-1.9	2.1-3.3	3.7-5.8	6.2-9.5	10.3-17.9
Insertion Loss	dB	≤1.4	≤1.4	≤1.4	≤1.4	≤1.4
Return Loss	dB	≥14	≥14	≥14	≥14	≥14
Stopband Rejection: ≥60dB	GHz	2.3 to 24.0	DC to 1.75	DC to 3.15	DC to 5.35	DC to 8.9
			4.0 to 24.0	6.5 to 24.0	10.8 to 24.0	19.6 to 24.0
Input Power	W	5				

Mechanical Specifications

Operating Temp	-55 to +85	°C
Dimensions (LWH)	70 x 44 x 10	mm
Connectors	SMA-F	

Test Conditions

Humidity	Up to 100% non-condensation, MIL-STD-202F, Method 106G
Mechanical Shock	20g, ½ sine, 11mili-sec MIL-STD-202, Method 213B, Test Condition A
Vibration Sinusoidal	10g peak, sine .06'' double amplitude, 10-2000Hz, MIL-STD-202, Method 204D, Test Condition C
Thermal Shock	MIL-STD-202 Method 107G, Condition A, 5 cycles -55°C to +85°C
EMI/EMC	Units designed to meet EMI/EMC requirements in accordance with MIL-STD-461E
Finish	Epoxy Painting

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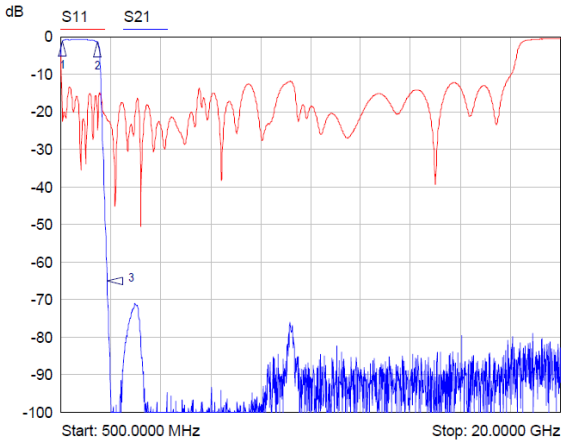
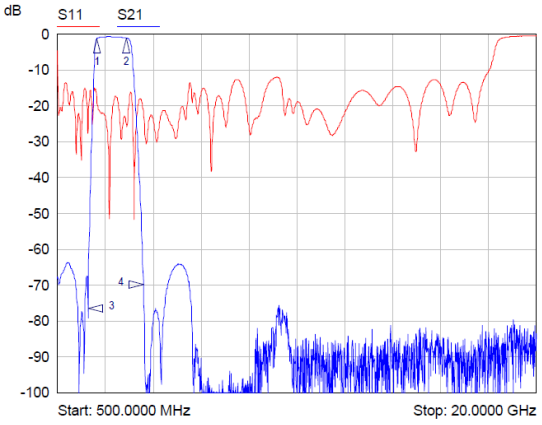
II. Design Simulation Plots:

Filter 1



Mkr	Trace	X-Axis	Value	Notes
1	S21	550.0000 MHz	-1.20 dB	
2	S21	1.9000 GHz	-1.34 dB	
3	S21	2.3000 GHz	-65.03 dB	

Filter 2



Mkr	Trace	X-Axis	Value	Notes
1	S21	2.1000 GHz	-1.31 dB	
2	S21	3.3000 GHz	-1.09 dB	
3	S21	1.7500 GHz	-76.57 dB	
4	S21	4.0000 GHz	-69.78 dB	

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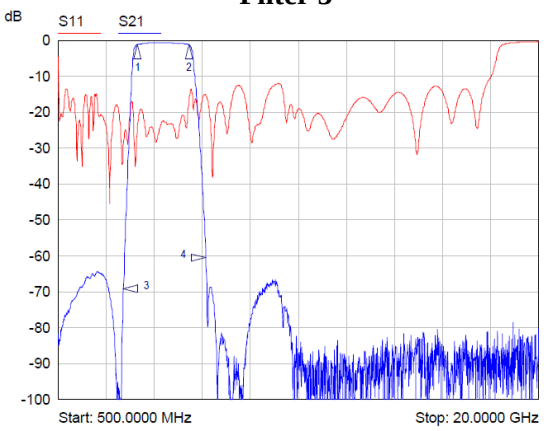
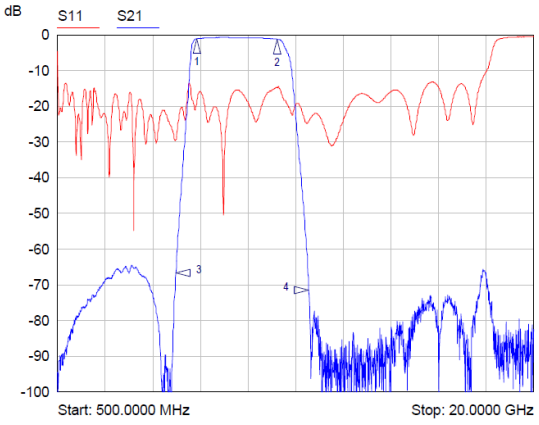
Filter 3



Mkr	Trace	X-Axis	Value	Notes
1	S21	3.7000 GHz	-1.21 dB	
2	S21	5.8000 GHz	-1.23 dB	
3	S21	3.1500 GHz	-69.25 dB	
4	S21	6.5000 GHz	-60.51 dB	

Filter 4



Mkr	Trace	X-Axis	Value	Notes
1	S21	6.2000 GHz	-1.11 dB	
2	S21	9.5000 GHz	-1.27 dB	
3	S21	5.3500 GHz	-66.59 dB	
4	S21	10.8000 GHz	-71.51 dB	

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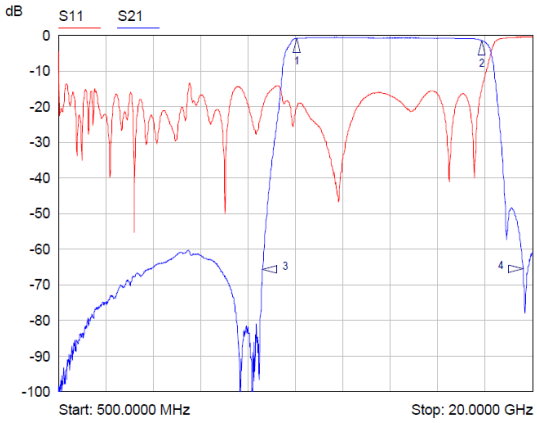
Filter 5



Mkr	Trace	X-Axis	Value	Notes
1	S21	10.3000 GHz	-0.91 dB	
2	S21	17.9000 GHz	-1.44 dB	
3	S21	8.9000 GHz	-65.64 dB	
4	S21	19.6000 GHz	-65.42 dB	

Date	Rev.	Author	Details of Revision
09-05-19	A	BRR/DPD	Original Release.