

## Pentaplexer



**With Filters in L, S & C Bands  
Compact & High Rejection**

**A Version as a Five-Band Filter  
(1 Input & 1 Output) is also available**

**Microwavefilters &TVC srl**

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This new **Pentaplexer** works from 1 GHz to 5 GHz, covering the L, S and C bands. Its main use is in the defense sector for radar applications, but it can be used for any application where high-performance multiplexers are needed. Stopband rejection is **more than 50 dB** between the five bands. Insertion losses are **less than 2 dB**. A version of this pentaplexer as a **5-Band Filter** (with 1 input and 1 output) is also available.

## *Pentaplexer MW-F03290-CCT*

### General characteristics

<b>RF Connectors</b>	SMA Female
<b>RF Connections</b>	1 input & 5 outputs (Pentaplexer) 1 input & 1 output (5-Band Filter)
<b>Dimensions</b>	186 x 160 x 32 mm (without connectors and screws)
<b>Rejection (&lt;1405 MHz)</b>	>65 dBc, >70 dBc below 1375 MHz
<b>VSWR</b>	1.5 : 1

### Pass band filter #1 lower L-band

<b>Pass Band #1 (Lower L-Band)</b>	1,435 – 1,535 MHz
<b>Lower -3 dBc point</b>	1,425 MHz maximum
<b>Upper -3 dBc point</b>	1,545 MHz maximum
<b>Rejection (1,565 – 1,760 MHz)</b>	>50 dBc, >70 dBc btw 1575-1760 MHz
<b>Insertion loss</b>	≤ 1.5 dB

### Pass band filter #2 upper L-band

<b>Pass Band #2 (Upper L-Band)</b>	1,785 – 1,845 MHz
<b>Lower -3 dBc point</b>	1,780 MHz maximum
<b>Upper -3 dBc point</b>	1,850 MHz maximum
<b>Rejection (1,870 – 2,175 MHz)</b>	>55 dBc, >70 dBc btw 1870- 2145 MHz
<b>Insertion loss</b>	≤ 2.0 dB

## Pass band filter #3 lower S-band

<b>Pass Band #3 (Lower S-Band)</b>	2,200 – 2,290 MHz
<b>Lower -3 dBc point</b>	2,190 MHz maximum
<b>Upper -3 dBc point</b>	2,300 MHz maximum
<b>Rejection (2,320 – 2,345 MHz)</b>	>50 dBc
<b>Insertion loss</b>	≤ 1.6 dB

## Pass band filter #4 upper S-band

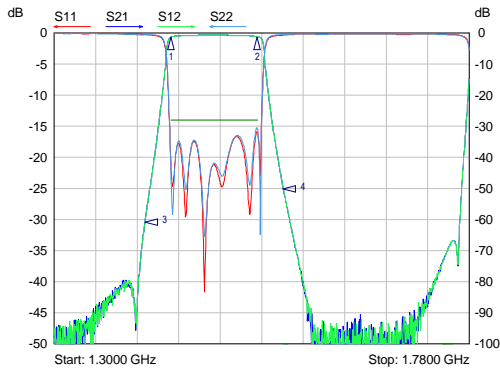
<b>Pass Band #4 (Upper S-Band)</b>	2,365 – 2,395 MHz
<b>Lower -3 dBc point</b>	2,360 MHz maximum
<b>Upper -3 dBc point</b>	2,405 MHz maximum
<b>Rejection (2,425 – 4,300 MHz)</b>	>54 dBc
<b>Insertion loss</b>	≤ 2.0 dB

## Pass band filter #5 lower & Mid C-band

<b>Pass Band #5 (Lower &amp; Mid C-Band)</b>	4,400 – 5,145 MHz
<b>Lower -3 dBc point</b>	4,390 MHz maximum
<b>Upper -3 dBc point</b>	5,150 MHz maximum
<b>Rejection (&gt;5170 MHz)</b>	≥ 55 dBc
<b>Insertion loss</b>	4,400-5,115 MHz → IL ≤ 1.8 dB @ 5,145 MHz → IL < 4 dB (typ. 3.5dB)

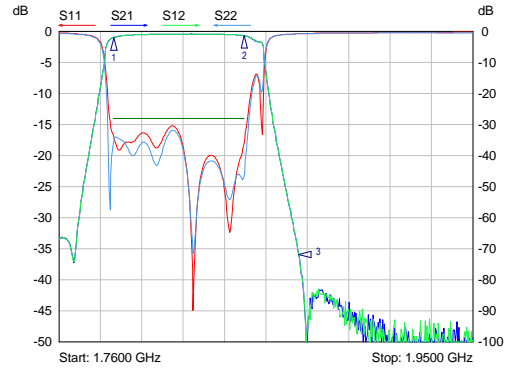
## Typical Frequency Responses

**Filter # 1: 1425 ÷ 1535 MHz**



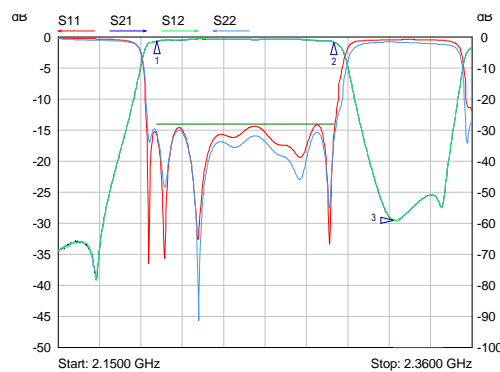
Mkr	Trace	X-Axis	Value	Notes
1	S21	1.4350 GHz	-1.37 dB	
2	S21	1.5350 GHz	-1.29 dB	
3	S21	1.4050 GHz	-60.77 dB	
4	S21	1.5650 GHz	-50.12 dB	

**Filter # 2: 1785 ÷ 1845 MHz**



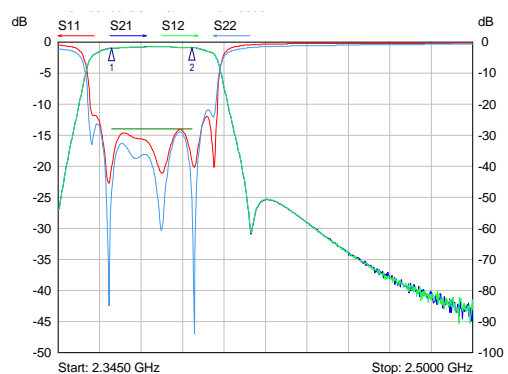
Mkr	Trace	X-Axis	Value	Notes
1	S21	1.7850 GHz	-1.95 dB	
2	S21	1.8450 GHz	-1.34 dB	
3	S21	1.8700 GHz	-71.81 dB	

**Filter # 3: 2200 ÷ 2290 MHz**



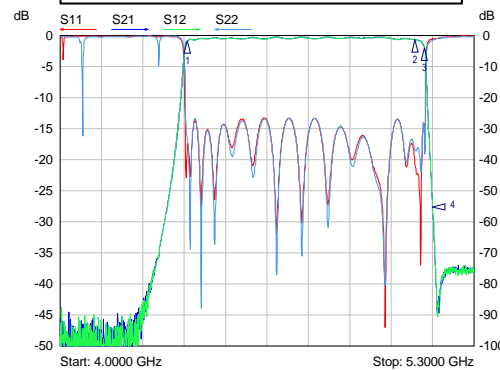
Mkr	Trace	X-Axis	Value	Notes
1	S21	2.2000 GHz	-1.35 dB	
2	S21	2.2900 GHz	-1.58 dB	
3	S21	2.3200 GHz	-59.04 dB	

**Filter # 4: 2365 ÷ 2395 MHz**



Mkr	Trace	X-Axis	Value	Notes
1	S21	2.3650 GHz	-1.98 dB	
2	S21	2.3950 GHz	-1.79 dB	

**Filter # 5: 4400 ÷ 5145 MHz**



Mkr	Trace	X-Axis	Value	Notes
1	S21	4.4000 GHz	-1.68 dB	
2	S21	5.1150 GHz	-1.26 dB	
3	S21	5.1450 GHz	-3.98 dB	
4	S21	5.1700 GHz	-55.15 dB	

**Wideband Frequency Response**

