



TUNABLE FILTER

NETCOM

Model 5590-7-20

Features

Netcom's 5590-7-20 is a digitally tunable filter covering the frequency range of 20 to 520 MHz.

The filter has been designed using three bands of tunable filters from Netcom's proven 5500 Series. This tri-band filter is offered in a smaller integrated SMT package to support applications where compact design, power requirements, and board layout flexibility are important. It meets the vibration and shock requirements of systems used in ground-mobile and airborne environments.

Commercially available high voltage drivers and a new generation CPLD have been used to achieve improved performance and reduced cost while at the same time providing increased functionality. The filter incorporates high voltage totem-pole drivers for the PIN diode bias voltage to minimize current draw from the internal high voltage supply.

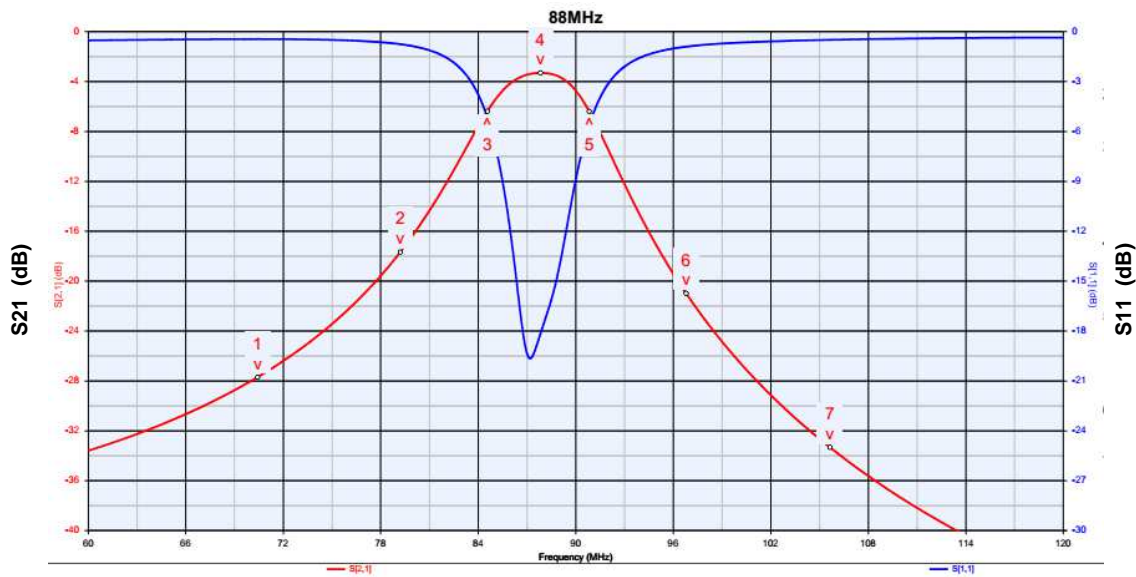
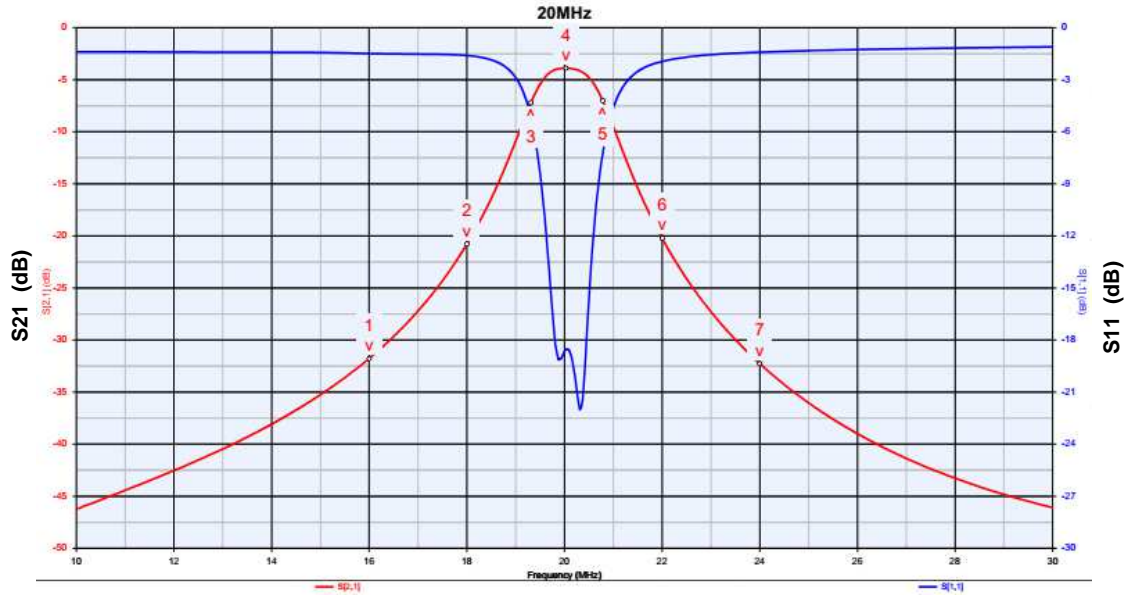
The following table shows the typical performance of the filter at different 3 dB bandwidths. Options are available upon request for different bandwidths, insertion loss, inter-

Specifications			
Frequency Tuning Range	20 to 520 MHz		
3 DB Bandwidth (%)	6.3 (Min)	7 (Typ)	7.8 (Max)
Input / Output Impedance	50 Ω		
In / Output Return Loss (dB)			9.5 (Max)
RF Power Rating			
Inband, (typical)	2 W		
Filter Bandwidth	7 %		
Insertion Loss (Typical)	4.5 dB		
Selectivity $\pm 5\%$ from Fc (dBc)	4 (Min)	5.5 (Typ)	
Selectivity $\pm 10\%$ from Fc (dBc)	13 (Min)	15.5 (Typ)	
Shape Factor (30dB / 3 dB BW)		5.5 (Typ)	6.5 (Max)
Tuning Steps	200		5200
Switching Speed	50 μ sec		
DC Inputs			
+5 Volts (± 0.5 Volts)	0.3 A		
+150 Volts (-7, +25 Volts)	2 mA		
Temperature Range	-40 to +85 $^{\circ}$ C		
Control Interface (User Specific Interface Available upon Request)	Selectable 13 bit Parallel or Serial, TTL and CMOS Compatible		
Power Save Mode	Programmable		
Dimensions (mm [inches])	71.12 [2.80] L x 50.80[2.00] W x 12.70 [0.500] H		

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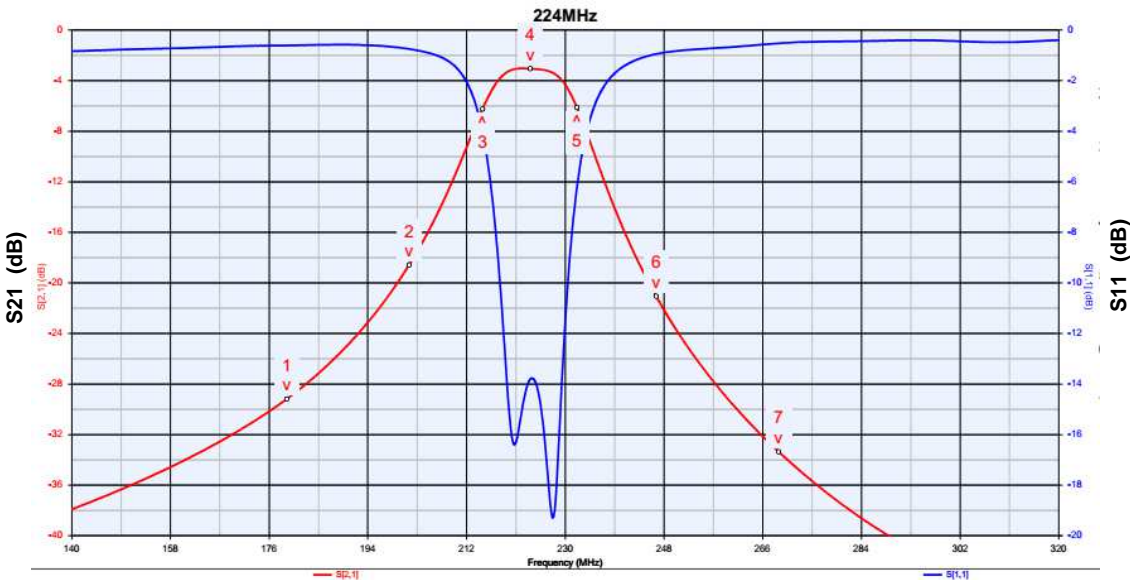
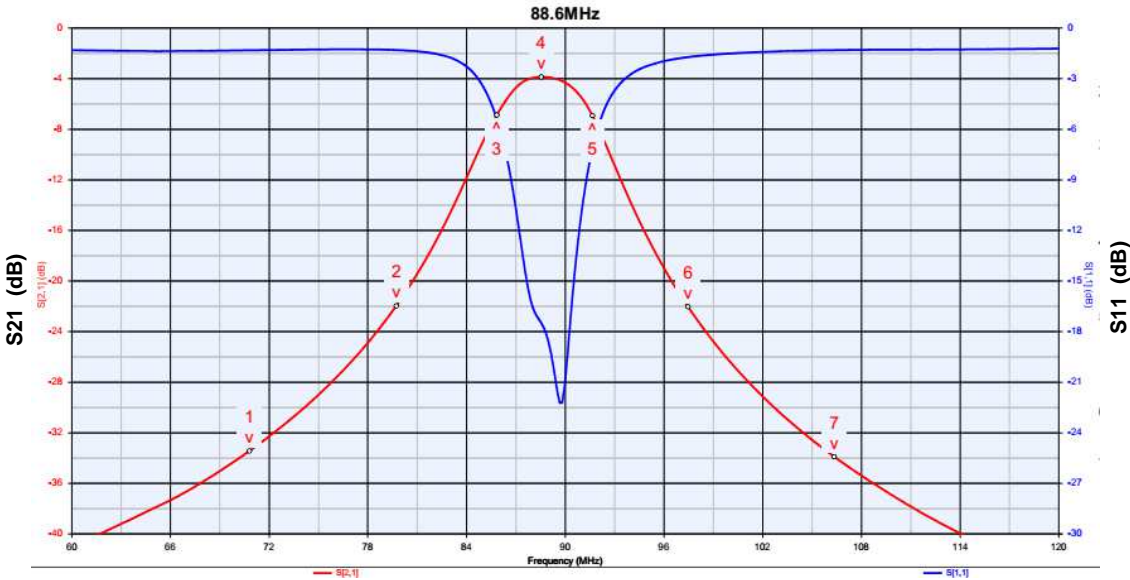
Performance at 20 MHz and 88 MHz

The following plots show typical performance of a filter with a 7% BW at different tuning frequencies. Across the 20 to 520 MHz frequency range, insertion loss will average 4.5 dB.



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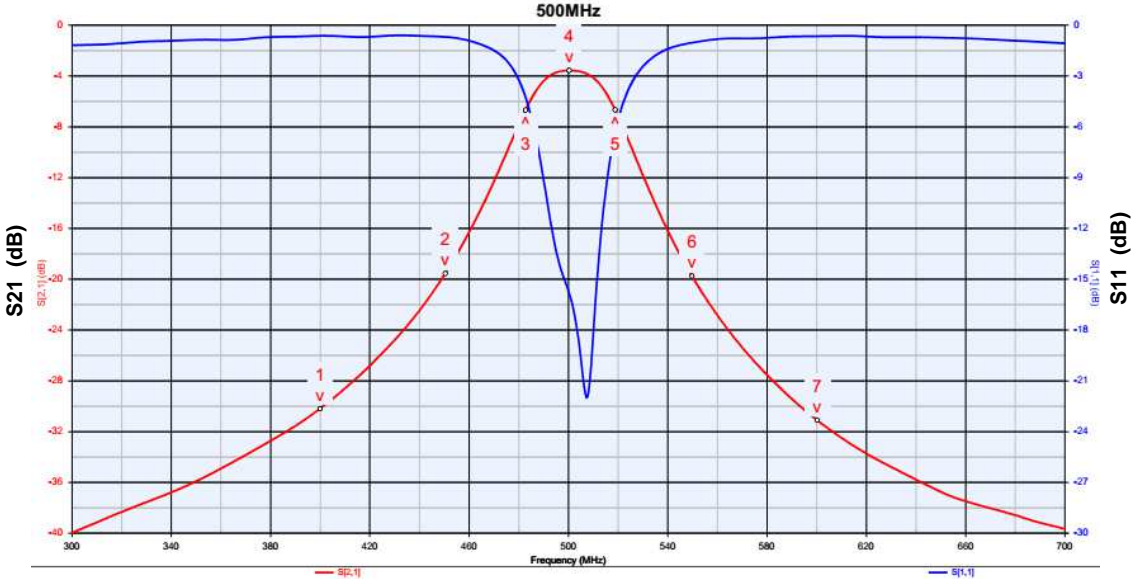
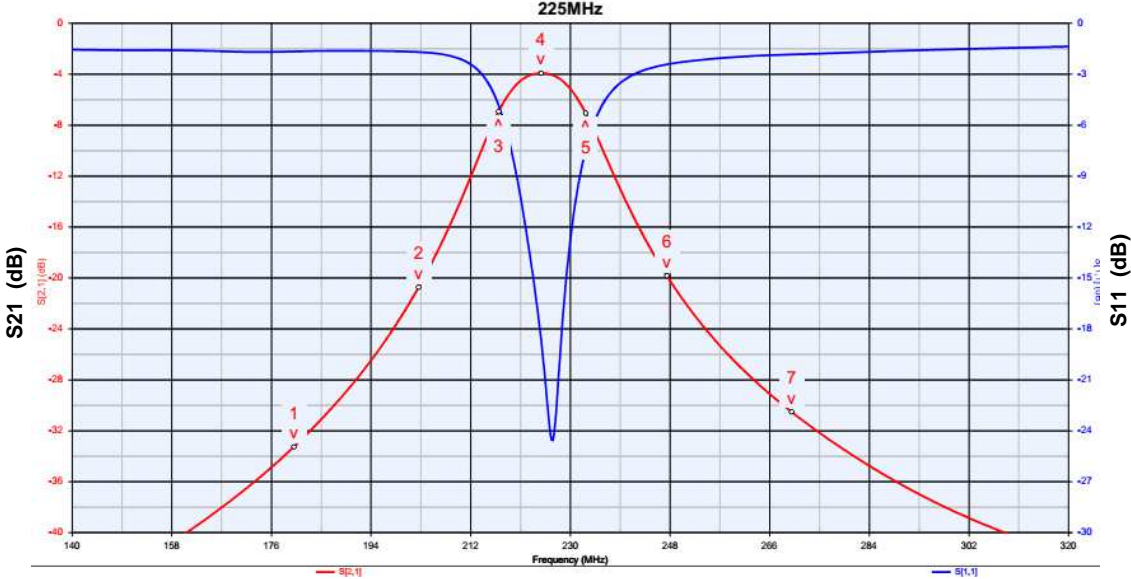
Performance at 88.6 MHz and 224 MHz



The nominal input power rating is up to 2 W (+33 dBm) in band.

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Performance at 225 MHz and 500 MHz



The nominal input power rating is up to 2 W (+33 dBm) in band.

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Recommended PCB Layout

A top view of the recommended PCB layout pattern is shown below.

