RF & MICROWAVE TECHNOLOGY

Model 5796-X Tunable Filter
225MHz– 3000MHz

FEATURES

Netcom's 5796-X tunable filter covers the frequency range of 225MHz to 3.0GHz.

The filter is a quad band tunable filter offering the advantage of small size with a control system comparable to larger size filters.

The following table shows the typical performance of the filter.

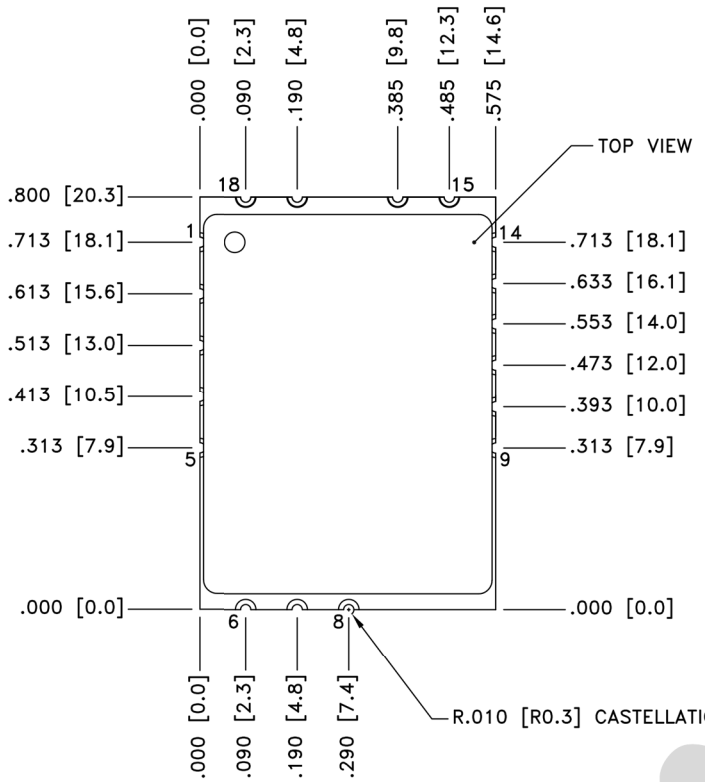
RoHS COMPLIANT

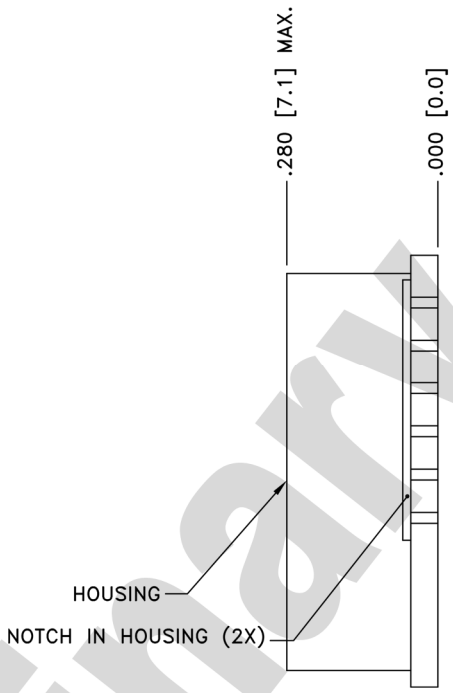
Specifications

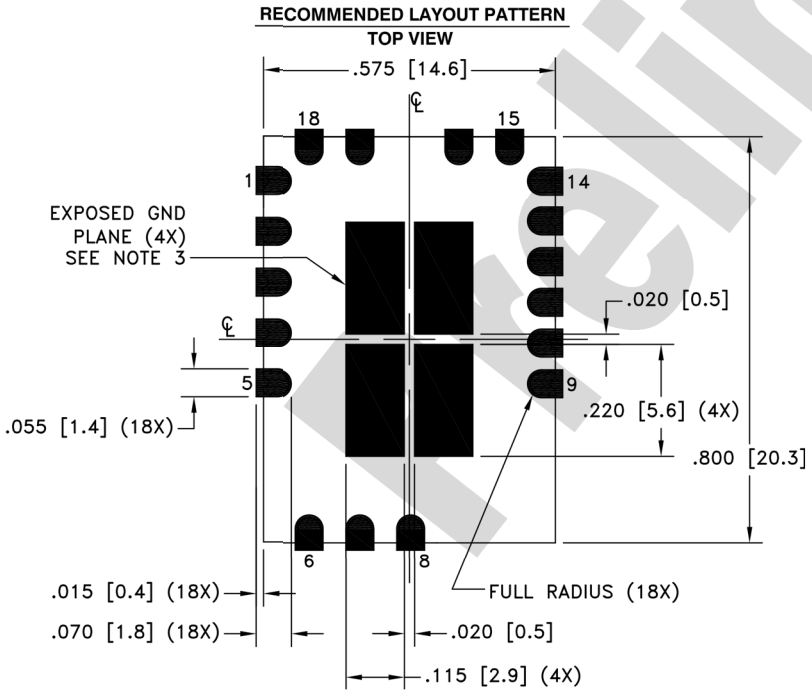
Frequency Range	225MHz - 3000MHz
BW (% Typical)	TBD
Impedance (Input /Output) - Typical	50 Ω
Ftune +/- 10% Rejection (Typical)	
225MHz -520MHz	-14.50
520MHz – 1300MHz	-12.00
1250MHz – 2000MHz	-12.00
2000MHz – 3000MHz	-11.00
Ftune +/- 20% Rejection (Typical)	
225MHz -520MHz	-24.50
520MHz – 1300MHz	-24.00
1250MHz – 2000MHz	-23.50
2000MHz – 3000MHz	-20.00
Insertion Loss (Typical)	
225MHz -520MHz	-5.2
520MHz – 1300MHz	-4.50
1250MHz – 2000MHz	-3.75
2000MHz – 3000MHz	-4.25
Bypass	0.20
Tuning Speed	< 10 µs
Tuning Resolution*	Per Band
P1dB	+30dBm
Maximum Power Handling	+33dBm
IIP3	+42dBm
DC Power - Typical Max	2.5 - 3.3 Volts 30 mA
Operating Temperature Range	-40 to +85°C
Control Interface	Serial Input
Dimensions [L x W x H]	0.800 x 0.575 x 0.280 inches 20.320 x 14.605 x 7.112 mm

*See page 5 for details

Mechanical







PIN DESIGNATORS	
PIN NUMBER	DESCRIPTION
1	RF_IN
2	GND
3	SPI_CLK
4	SPI_MOSI
5	NC
6	NC
7	NC
8	NC
9	NC
10	NC
11	NC
12	TUNE_READY
13	GND
14	RF_OUT
15	GND
16	VCC (+3.3V)
17	SPI_CS
18	GND

NC = NO CONNECT

NOTES:
1. TOLERANCES ±.010 [0.25] UNLESS OTHERWISE SPECIFIED.
2. DIMENSIONS ARE INCHES [mm].
3. GROUND PAD SOLDERING NOT REQUIRED.

Ordering Information

Model Number	(-)	Bandwidth	(-)	Options	Add “-EB” for Unit Mounted on Evaluation Board	
5796	(-)	TBD	(-)		(-)	EB

Options:

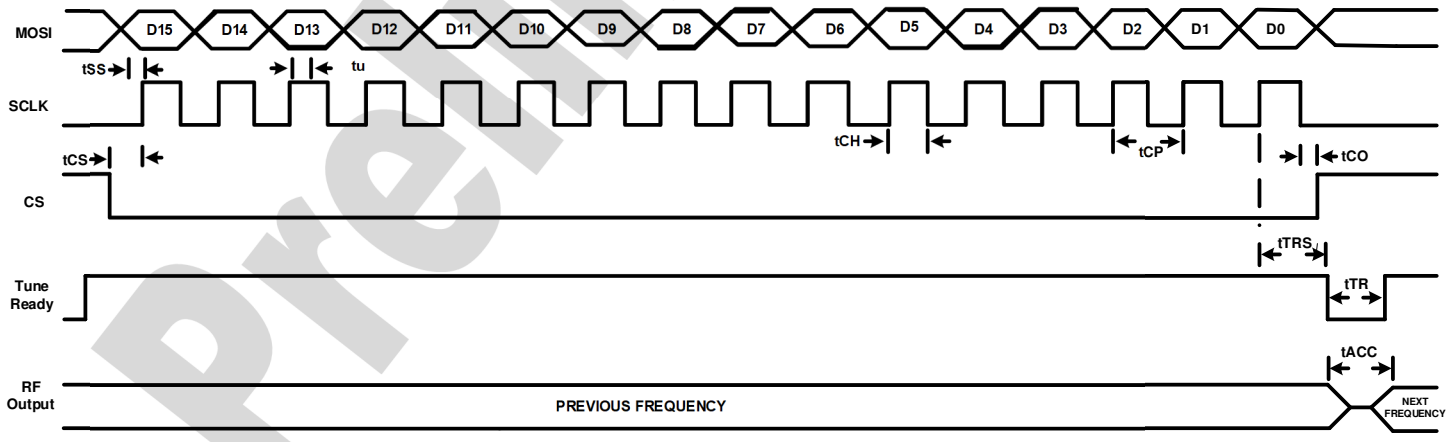
Serial Address Input Timing Diagram

Tuning resolution is TBD.
Tuning of the filter will start when the last data clock (16th) pulse of the address is sent to the unit while the CS (Chip select) is low.

The filter will move to the correct tune channel which allows the tuned address frequency to pass while meeting all of the tuning parameters. In some cases the filter tune channel may not move.

Symbol	Parameter	Min	Max	Units
tSS	Setup time MOSI Data to SCLK*	50		ns
tu	Hold Time MOSI Data From SCLK		0	ns
tCH	Clock High Time	50		ns
tCP	Clock Period	100		ns
tCS	Chip Setup Time (CS falling edge to SCLK start)	50		ns
tTR	Tune_Ready indicator***		10	us
tACC	Access time from Last (16th) SCLK edge to Fo**		10	us
tCO	Chip Setup Time (CS rising edge to SCLK end)	100		ns
tTRS	Tune_Ready Start Delay		1	us

579X ADDRESS PROTOCOL



* Data clocked in on SCLK leading edge.
** Filter tunes to address on last clock bit of address SCLK.

Address Map

Band Selection								Address Selection							
D15 MSB	**D14**	**D13**	**D12**	**D11**	**D10**	**D9**	**D8**	**D7**	**D6**	**D5**	**D4**	**D3**	**D2**	**D1**	**D0 LSB**
0	**0**	**0**	**0**	**0**	**0**	**B1**	**B0**	**Filter Tune Address**							

Band Selection Table

Band	B1	B0	Start Address	End Address	Frequency Range	Step size
0	0	0	0	250	225MHz -520MHz	6.180
1	0	1	0	99	520MHz – 1300MHz	12.800
2	1	0	0	49	1250MHz – 2000MHz	20.000
3	1	1	0	19	2000MHz – 3000MHz	55.000
Bypass	1	1	255	255	225MHz-3000MHz	None

Filter Input and Output Signal Voltage Levels

Symbol	Parameter	Conditions	Min	Typ	Max	Units
FMAX	Maximum Serial Input Frequency		-		10	MHz
VIH	HIGH - level input voltage	VCC = 2.5 V to 3.3 V	1.5		VCC - 0.3	V
VIL	LOW- Level input voltage	VCC = 2.5 V to 3.3V	-0.3		0.8	V
VOH	HIGH - level output voltage	VCC = 2.5 V to 3.3 V	2.0	3.0		V
VOL	LOW - level output voltage	VCC = 2.5 V to 3.3 V	-		0.45	V

Temperature:
- High temperature shall meet MIL-STD-810E, Method 501.3, Procedure I to 125°C storage, and procedure II to 85°C operating.
- Low temperature shall meet Method 502.3, Procedure I to -57°C storage, and Procedure II to -40°C operating.

Vibration:
- MIL-STD-810E Method 514.4

Shock:
- MIL-STD-810E Procedure VI, Method 516.4

Solder Reflow:
- 245°C [max] for 30 seconds [max]

MSL (Moisture Sensitivity Level):
- Level 3

Corresponding Evaluation

The EB5796 Evaluation Board is designed to test and evaluate the Model 5796-X Frequency Agile Filter. The evaluation board is used to supply power to the filter, provide tuning control. Facilitate measurement of the filter's RF parameters.

Note: Parameters subject to change

NETCOM
RF & MICROWAVE TECHNOLOGY

599 Wheeling Road
Wheeling, IL 60090
USA
Phone 847.537.6300
Fax 847.537.2700
www.netcominc.com