Model 5796 Tunable Bandpass 225MHz to 3000MHz Filter

RF & MICROWAVE TECHNOLOGY

FEATURES

Netcom's 5796 tunable filter covers the frequency range of 225MHz to 3000MHz.

The filter offers the advantage of small size with a control system comparable to larger size filters.

The following table shows the typical performance of the 5796 filter.

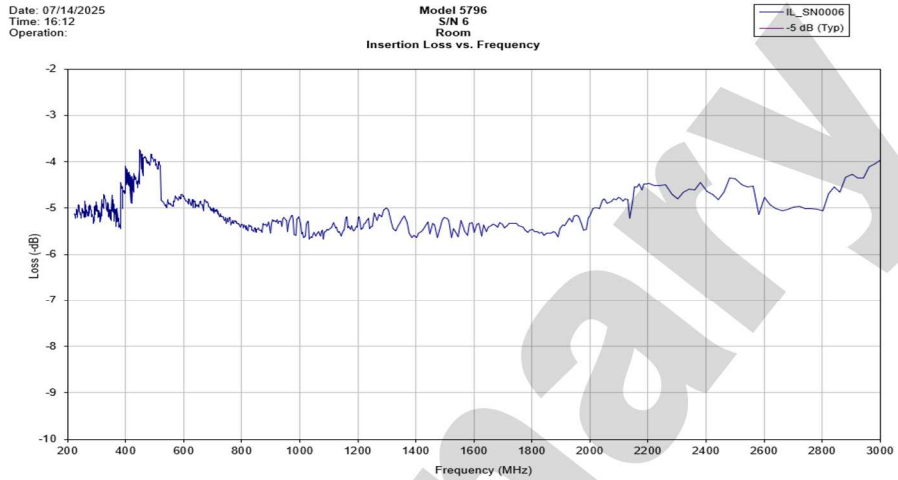
Specifications

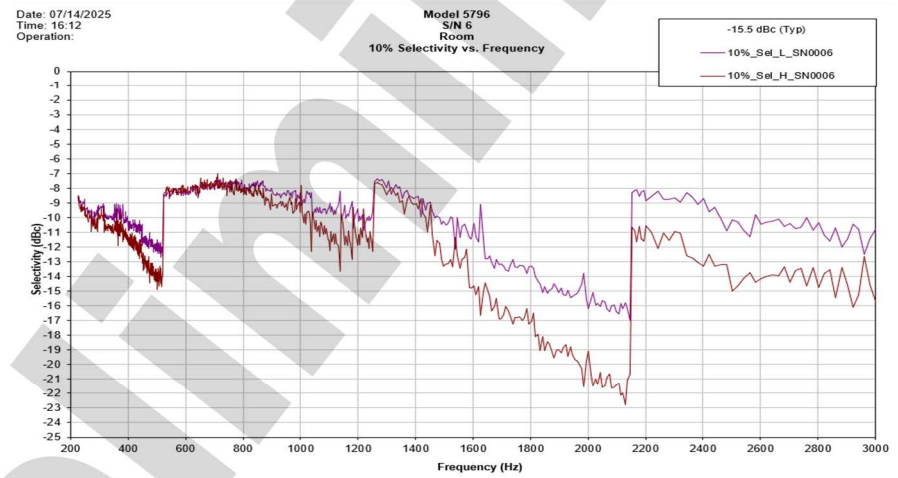
Frequency Range				225MHz - 3.0GHz			
VSWR (max)				2.2:1			
Frequency	IL (Max)	IL (Typical)	BW % (Typical)	10% Sel (Max)	10% Sel (Typical)	20% Sel (Max)	20% Sel (Typical)
225MHz -520MHz	-5.50	-4.60	10.00 ± 1.60	-8.40	-10.50	-18.50	-20.00
520MHz – 870MHz	-5.90	-5.20	12.00± 1.2%	-7.00	-8.00	-16.30	-18.00
874MHz – 1250MHz	-5.70	-5.40	10.60 ± 1.3%	-8.00	-9.50	-16.60	-17.60
1258MHz – 2202MHz	-5.80	-5.30	8.40 ± 3.5%	-7.00	-12.00	-14.50	-20.00
2222MHz – 3002MHz	-5.30	-4.70	9.70 ± 1.2%	-8.00	-10.00	-15.20	-18.00
By Pass Mode	0.20	-	-	-	-	-	-
Tuning Speed				< 10µs			
Tuning Resolution*				Varies Per Band			
P1dB				+30dBm			
Maximum Power Handling				+33dBm			
Noise Figure				2.0dB above IL			
IIP3				+42dBm			
DC Power							
Input Voltage				2.5 - 3.3 Volts			
Current (Max)				30 mA			
Operating Temp. Range				-40 to +85°C			
Control Interface				SPI (Serial Interface)			
Dimensions ** [L x W x H]				0.800 x 0.575 x 0.283 inches 20.320 x 14.605 x 7.112 mm			

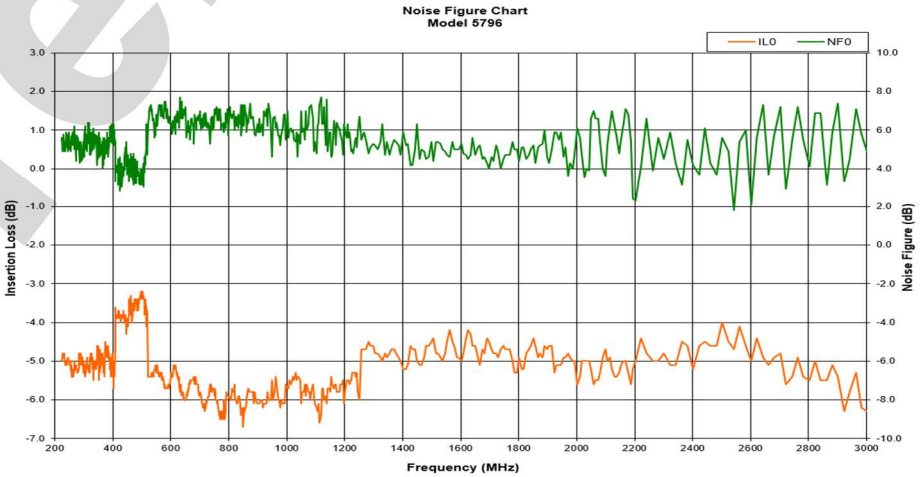
*See page 5 and 6 for details
** Next board spin goal is 5.85 mm height

RoHS COMPLIANT

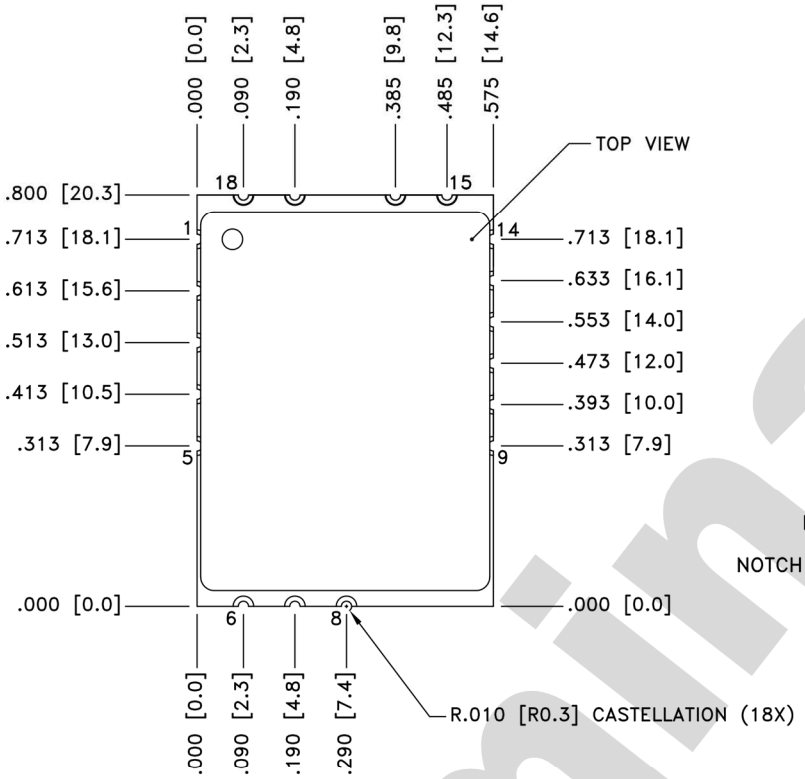
Typical Performance Graphs

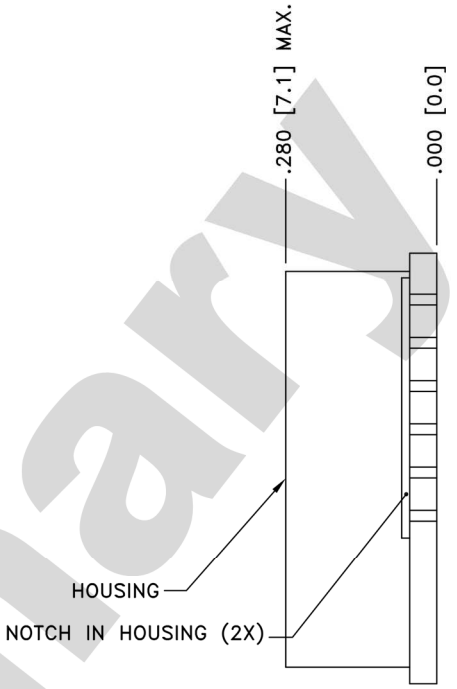


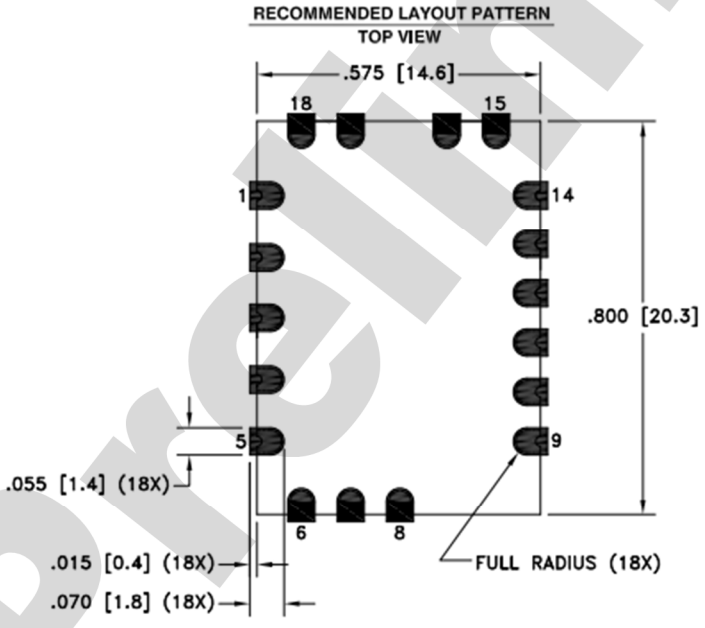




Projected Mechanical







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].

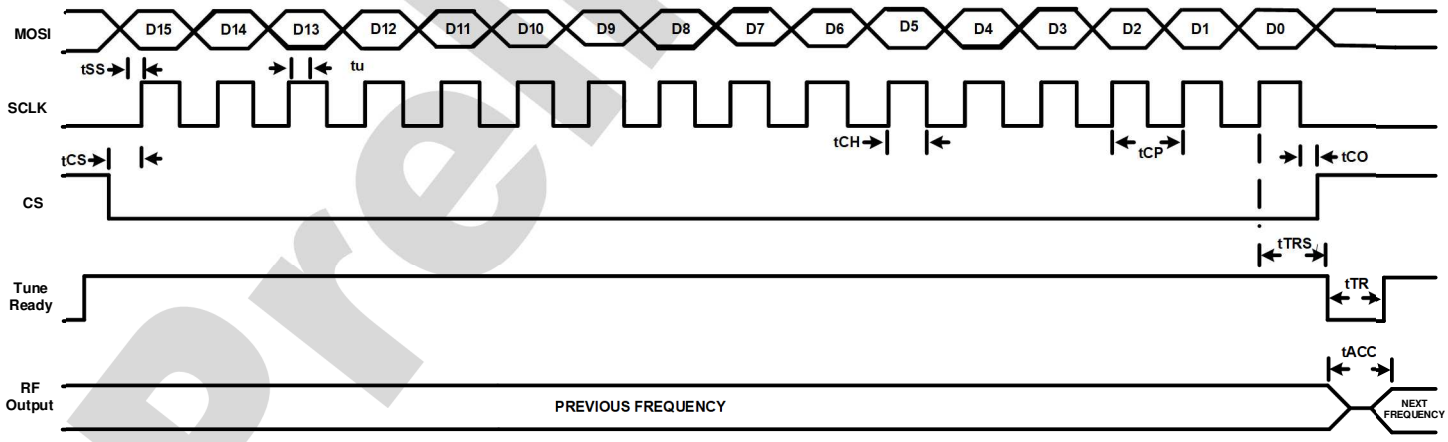
Serial Address Input Timing Diagram

Tuning addresses start at 0 decimal (225MHz) and end at 724 decimal (3002MHz) .
Tuning resolution is 1MHz from address 0 decimal (225MHz) to 295 decimal (520MHz) .
Tuning resolution is 2MHz from address 296 decimal (522MHz) to 470 decimal (870MHz) .
Tuning resolution is 4MHz from address 471 decimal (874MHz) to 565 decimal (1250MHz) .
Tuning resolution is 8MHz from address 566 decimal (1258MHz) to 684 decimal (2202MHz) .
Tuning resolution is 20MHz from address 685 decimal (2222MHz) to 724 decimal (3002MHz) .
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.
*** Tune_Ready at logic low when filter processing tuned address.

Address Map

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

Address Selection Example (225MHz 0x0000 or Decimal 0)															
D15 MSB	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0 LSB
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Address Selection Example (1258MHz 0x0236 or Decimal 566)															
D15 MSB	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0 LSB
0	0	0	0	0	0	1	0	0	0	1	1	0	1	1	0

Address - Bypass Mode 0xFF00

Address Selection															
D15 MSB	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0 LSB
1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0

Address - Isolation Mode 0xFFFF

Address Selection															
D15 MSB	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0 LSB
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Ordering Information

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

Options:

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	1.7		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		2.5	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 Board

CORRESPONDING EVALUATION BOARD TBD

Note: Parameters subject to change

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