

## Applications

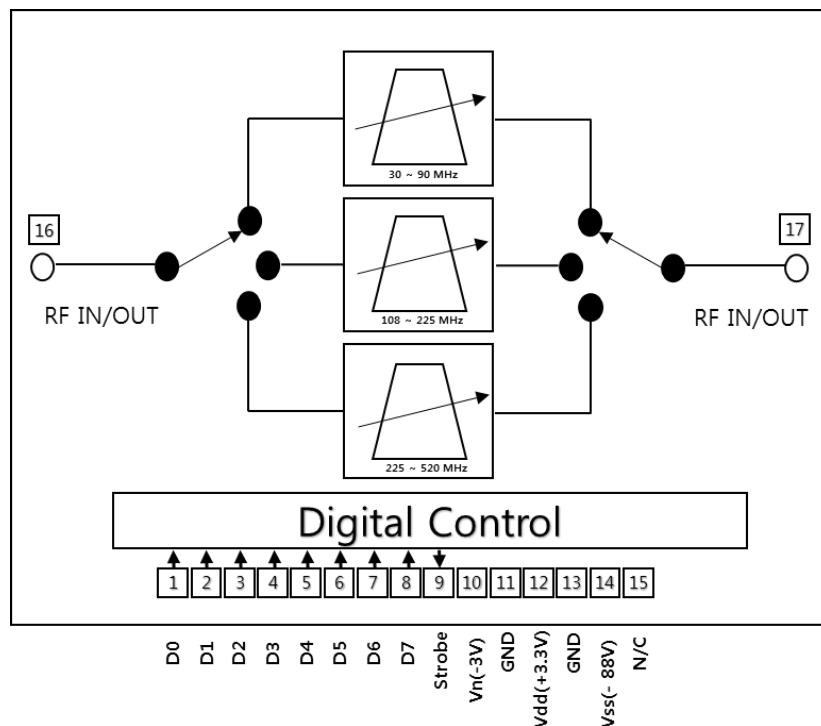
- Military Tactical Radio
- Test and Measurement Equipment
- Industrial and Medical Equipment

## Features

- Electronically Tunable Band Pass Filter
- Full Tactical Radio band resolution
- Above 30 dBm P1 dB.
- Typical 3.5 dB Insertion Loss and Typical 6.0 Shape factor
- Enhanced background noise characteristics



## Functional Diagram

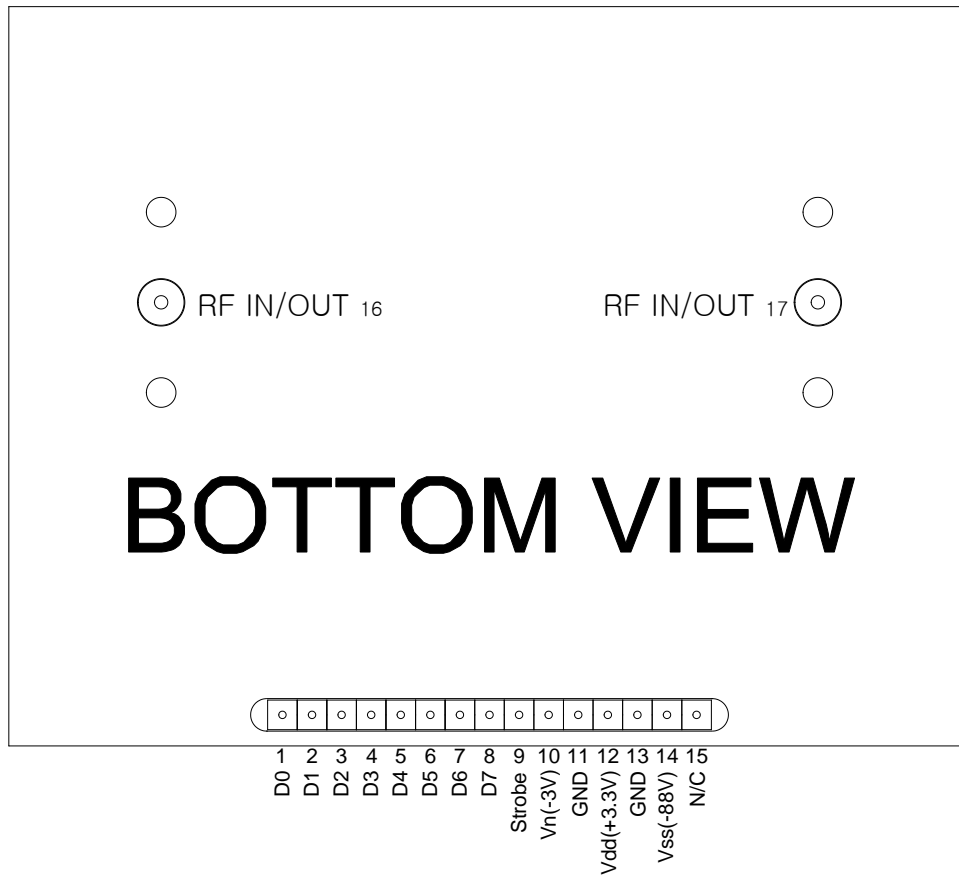


## Discription

- The ADTFp 30/512-XX series is a miniature, high performance tunable band pass filter. The ADTFp uses PIN diodes to deliver high filter performance and parallel interface is available to tune the frequency. All ADTFp tunable filters are fully tuned and tested by ADMOTECH for convenience and ease of use.

## 1.0 Pinout and Functional Information

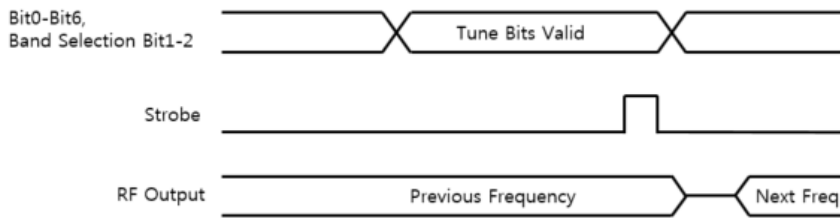
### 1.1 Pin out



## 1.2 Pin Description

Pin Number	Label	Description
1	D0	Parallel Data Bit0, Tune Command
2	D1	Parallel Data Bit1, Tune Command
3	D2	Parallel Data Bit2, Tune Command
4	D3	Parallel Data Bit3, Tune Command
5	D4	Parallel Data Bit4, Tune Command
6	D5	Parallel Data Bit5, Tune Command
7	D6	Tunable Filter is an internally switched 3-band. The band can be selected in Band selection bit D6, D7.
8	D7	Tunable Filter is an internally switched 3-band. The band can be selected in Band selection bit D6, D7.
9	Strobe	The filter is tuned to the frequency designated by the tuneword existing on the eight control bit lines when the Strobe line is brought low. Once strobed, data existing on the tune control lines is ignored until strobed again.
10	Vn	Supply Voltage -3V (Option for removing switching noise)
11	GND	Digital and Analog GND
12	Vdd	Supply Voltage Input : 3.3V for optimum performance
13	GND	Digital and Analog GND
14	Vss	High Bias Supply Voltage Input : -88VDC for optimum performance
15	N/C	Enable or N/C

### 1.3 Parallel Interface Timing



The filter is tuned to the frequency designated by the tuneword existing on the eight control bit lines when the Strobe line is brought low. Once strobed, data existing on the tune control lines is ignored until strobed again. When strobe is set, frequency changes to the next frequency.

### 1.4 Control Bit (Ex.)

CONTROL BIT	D7	D6	D5	D4	D3	D2	D1	D0	Fc(MHz)
CH	128	64	32	16	8	4	2	1	
CH1	0	0	0	0	0	0	0	0	30
CH2	0	0	0	0	0	0	0	1	30.1
CH3	0	0	0	0	0	0	1	0	30.2
CH4	0	0	0	0	0	0	1	1	30.4
.									.
.									.
.									.
CH128	0	1	1	1	1	1	1	1	88
CH129	1	0	0	0	0	0	0	0	108
.									.
.									.
.									.
CH192	1	0	1	1	1	1	1	1	225
CH193	1	1	0	0	0	0	0	0	226
.									.
.									.
.									.
CH256	1	1	1	1	1	1	1	1	512

## 2.0 Specifications

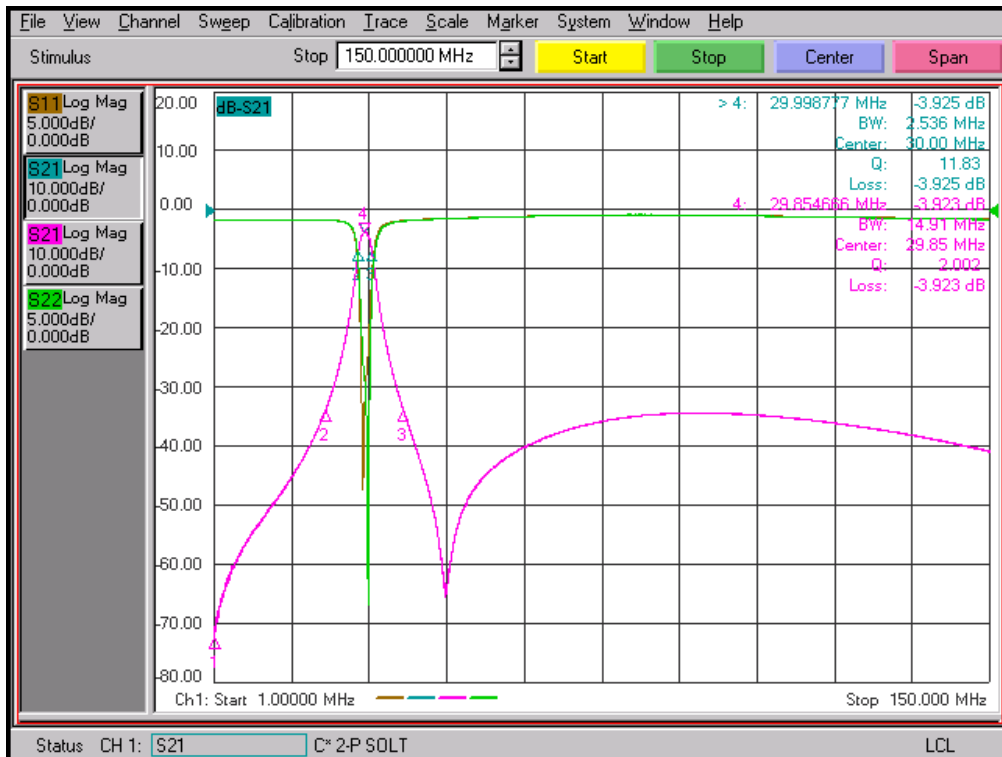
### 2.1 Electrical Specifications

Frequency Coverage:	30 ~ 90 MHz Band I	90 ~ 225 MHz Band II	225 ~ 512 MHz Band III
Input/Output Impedance:	50 Ω	50 Ω	50 Ω
Inband Input/Output VSWR:	2.0:1 Max.	2.0:1 Max.	2.0:1 Max.
Insertion Loss:	3.8 dB Typ. 4.2 dB Max.	3.5 dB Typ. 3.8 dB Max.	3.5 dB Typ. 4.5 dB Max.
1 dB Bandwidth	1.8 MHz Min.	8 MHz Min.	8 MHz Min.
% BW(3dB BW/fo)	8.8 % Max.	10.0 % Max.	12.5 % Max.
Selectivity	>15 dB @ ± 10 MHz offset	>10 dB @ ± 10 % Typ.	>10 dB @ ± 10 % Typ.
Ultimate Attenuation	20 dB typ. @ 2 x fo	50 dB typ. @ 2 x fo	50 dB typ. @ 2 x fo
Shape Factor (30dB/3dB):	6.0 typ., 6.5 Max.	6.0 typ., 6.5 Max.	6.0 typ., 6.5 Max.

Maximum RF input Power for for linear operation	30 dBm
Out of Band RF Power Handling:	40 dBm
Inband Third Order Intercept Point:	40 dBm
Tuning Control:	Parallel (Option: Serial)
Tuning Speed:	15 μsec Typ. @ 0 dBm input
DC Power (Static)	-88 V <sub>DC</sub> @ 0.02 mA Max. +3.3 V <sub>DC</sub> @ 200 mA Max. (+EVB +3.5V @ 300 mA Max.)
Operating Temperature Range:	-40 to +85 °C

## 2.2 Typical Characteristics

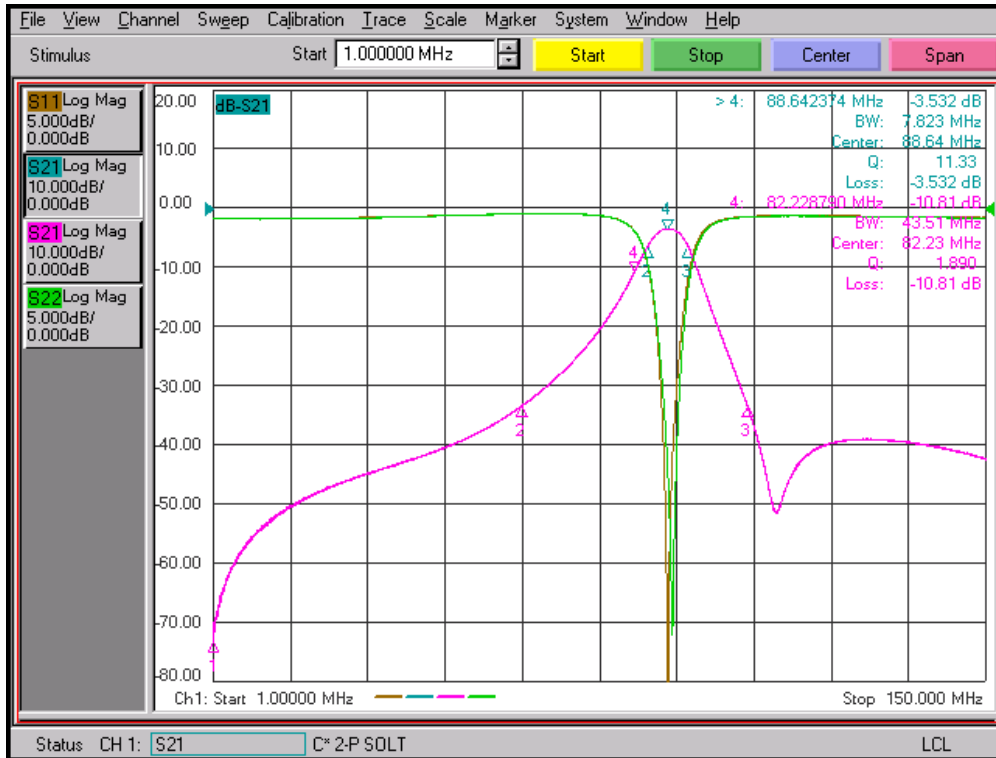
fo : 30 MHz



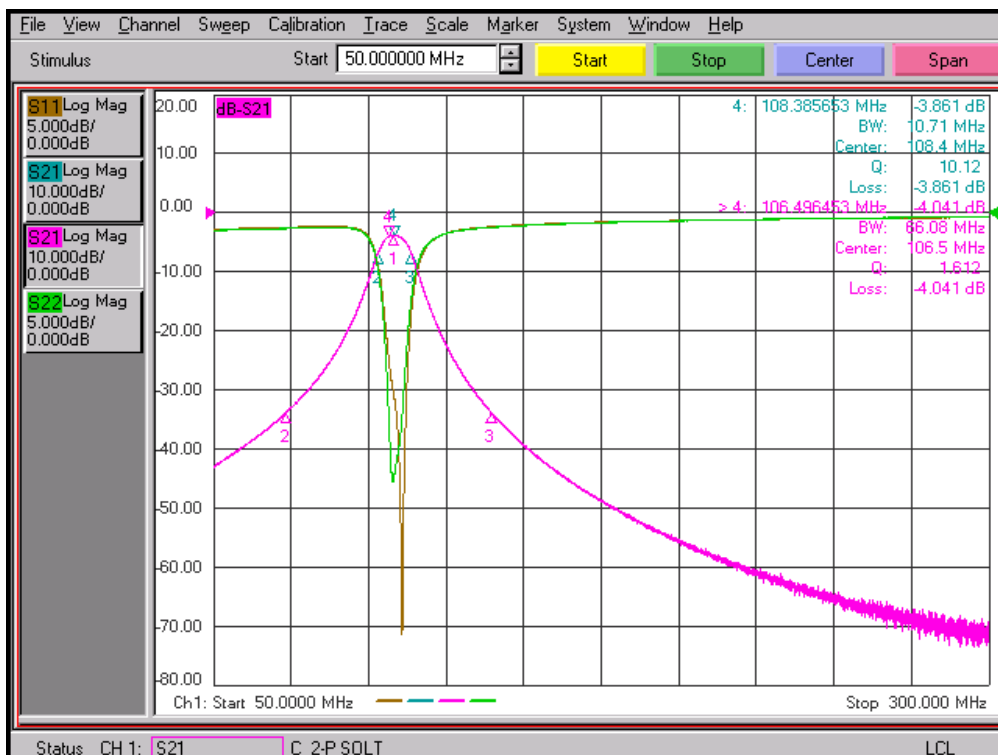
fo : 60 MHz



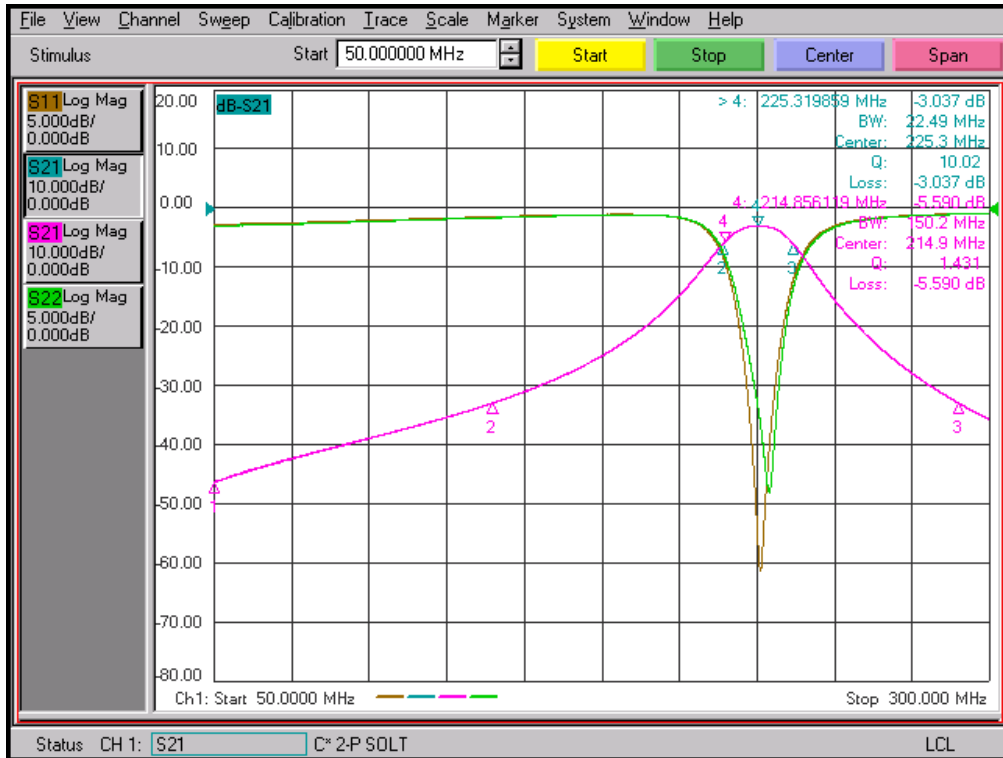
### fo : 88 MHz



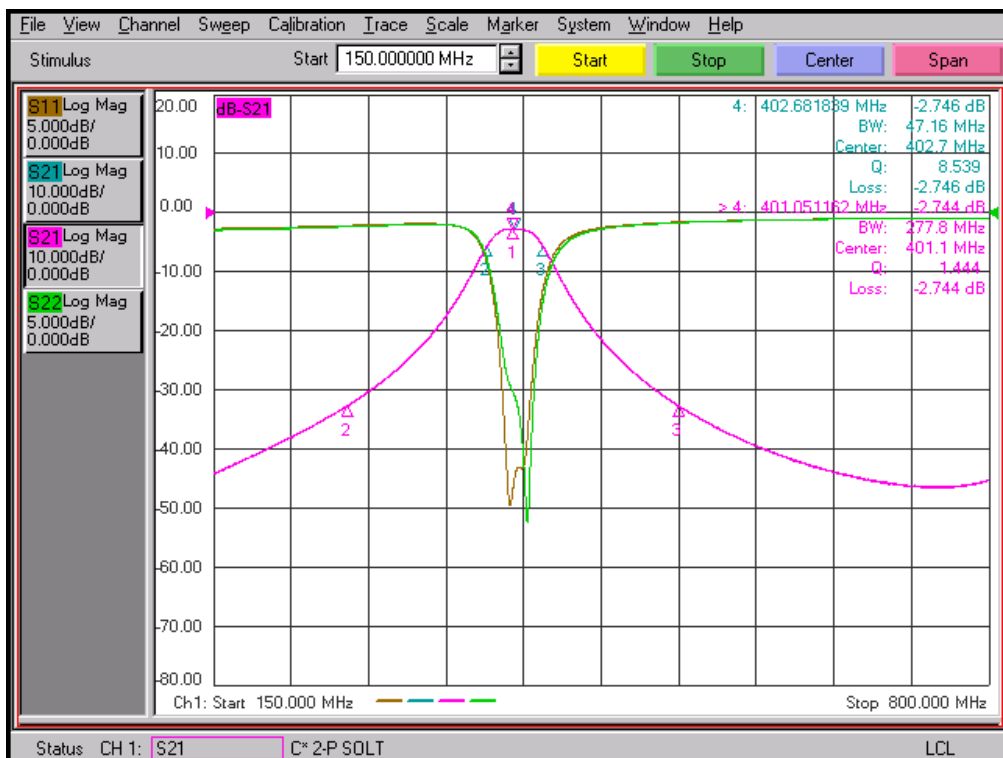
### fo : 108 MHz



### fo : 225 MHz



### fo : 400 MHz



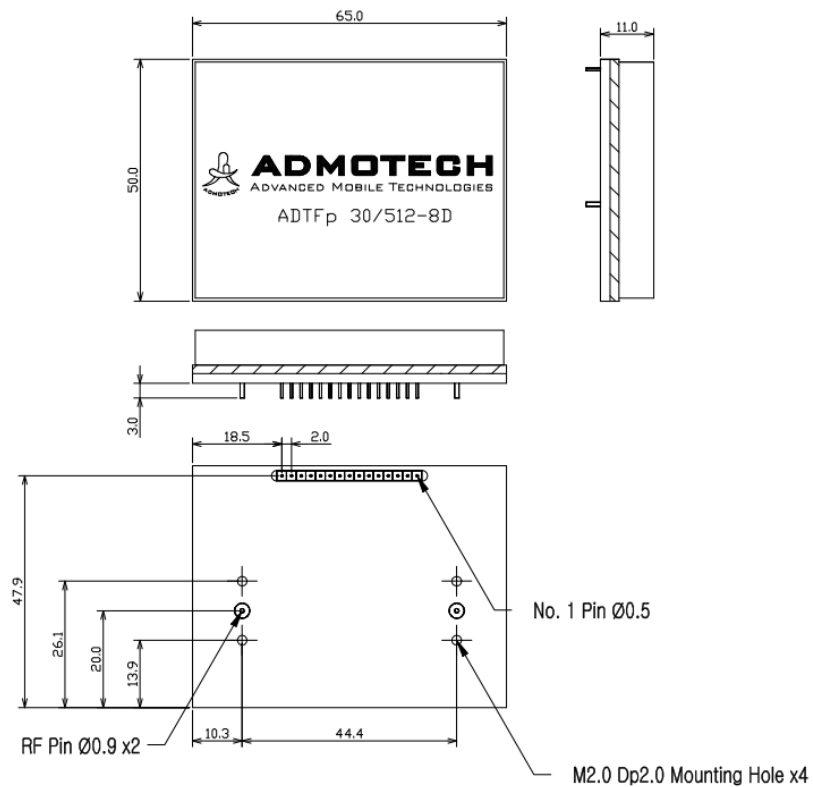


fo : 510 MHz



## 2.3 Mechanical Drawings

### 2.3.1. Dimension [50 x 65 x 11 mm]



### 2.3.2. Land Pattern

