



# RH6331- 30 to 88 MHz



The RH6331 is digitally tunable filter operating from 30 MHz to 88MHz. Parallel interface is used for tuning. The module can be installed either in receiving or transmitting tract. RH6331 has low insertion losses, high RF power handling, wide operating temperature range and fast tuning speed. The module can work in frequency-hopping spread spectrum mode.

## RH6331 Specification:

<b>Frequency Coverage</b>	30 to 88 MHz
Input/Output Impedance:	50 Ω
In-band Input/Output VSWR	2:1
In-band RF Power Handling	20 Watt (input)
Out-band RF Power Handling	Up to 50 Watt
In-band Second Order Intercept Point	+100 dBm (input)
In-band Third Order Intercept Point	+50 dBm (input)
Center Frequency Drift:	±80 PPM/°C
Tuning Control	Parallel
Tuning Speed	25 μS
DC Power Consumption (Static)	5V @ 2A
Shape Factor (30 dB/ 3 dB)	7 typical
Operating Temperature Range	-40°C to +65°C
Size:	102x76x65 mm
Weight:	460 g
RF Connection	SMA

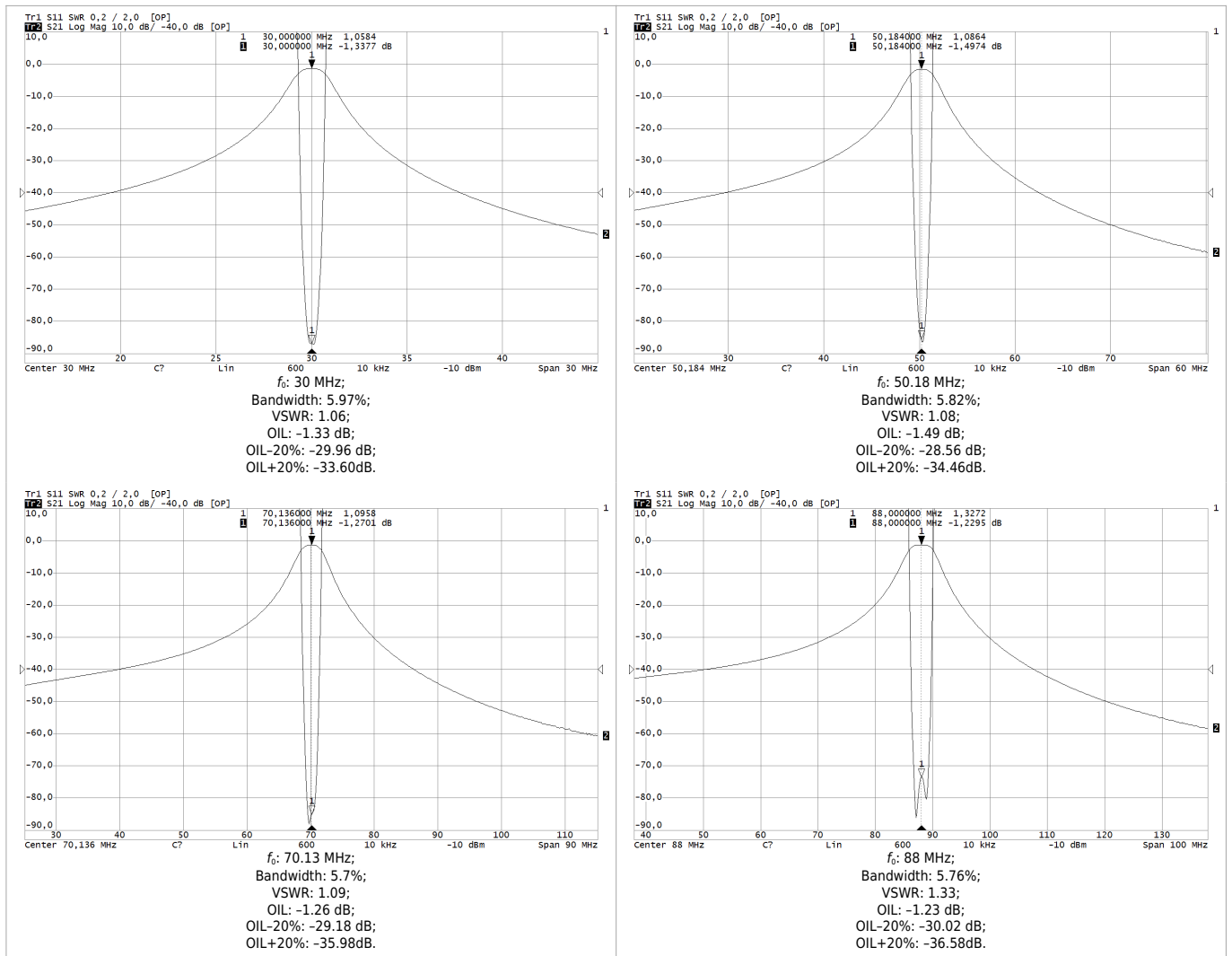
## RH6331 specification

#	Bandwidth (3 dB), %	Insertion Loss, dB	Shape factor (30 dB)		
			Overall	Low Side	High Side
4	3.5/4.5	2.9/3.6	6.1/6.5	6.8/7.2	5.1/5.6
6	5.5/6.5	1.4/1.7	6.5/6.8	7.25/7.65	5.35/5.8

**Note:** table values are shown as average/maximum.

## Frequency response functions and VSWR functions

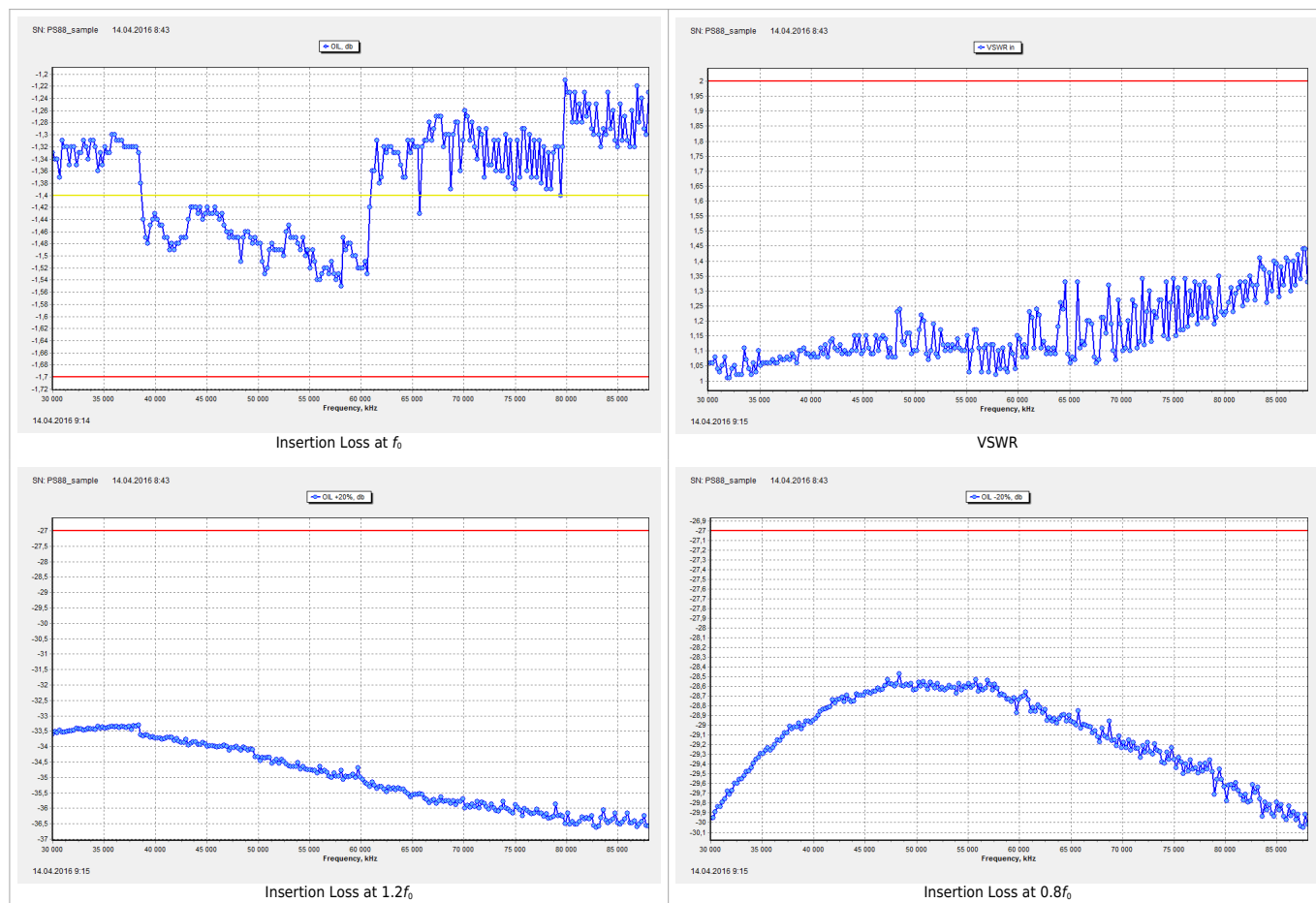
Some frequency response functions and VSWR functions are shown below:



**Note:**  $f_0$  — tuning frequency; VSWR — VSWR at  $f_0$  frequency; OIL — insertion loss at  $f_0$ ; OIL-20% — insertion loss at  $0,8f_0$ ; OIL+20% — insertion loss at  $1,2f_0$ .

## RH6331 performance

The following diagrams show value of Insertion Loss at  $f_0$ , Insertion Loss at  $0.8f_0$ , Insertion Loss at  $1.2f_0$  and VSWR at each tuning frequency.



## Pinout & Ratings

PIN #	Reference designator	Description	Notes
1	A2	Tune Bit 2	Active: 5V; Inactive: 0V
2	A3	Tune Bit 3	Active: 5V; Inactive: 0V
3	A4	Tune Bit 4	Active: 5V; Inactive: 0V
4	A5	Tune Bit 5	Active: 5V; Inactive: 0V
5	A6	Tune Bit 6	Active: 5V; Inactive: 0V
6	A7	Tune Bit 7	Active: 5V; Inactive: 0V
7, 9, 11, 12	GND	Digital/RF Ground	—

8	VCC	+5V Power Supply Input	4.75 to 5.25V @ 800mA
10	N/C	No Connect	—
13	STB	Strobe	Active: 0V; Inactive: +5V
14	A0	Tune Bit 0	Active: 5V; Inactive: 0V
15	A1	Tune Bit 1	Active: 5V; Inactive: 0V

## Parallel interface description

Serial interface consists of 9 signals: A0-A7 (tuning frequency code) and STB (strobe). Tuning frequency code is calculated by  $X_{10}$  conversion into binary code.  $X_{10}$  is calculated by the formula:

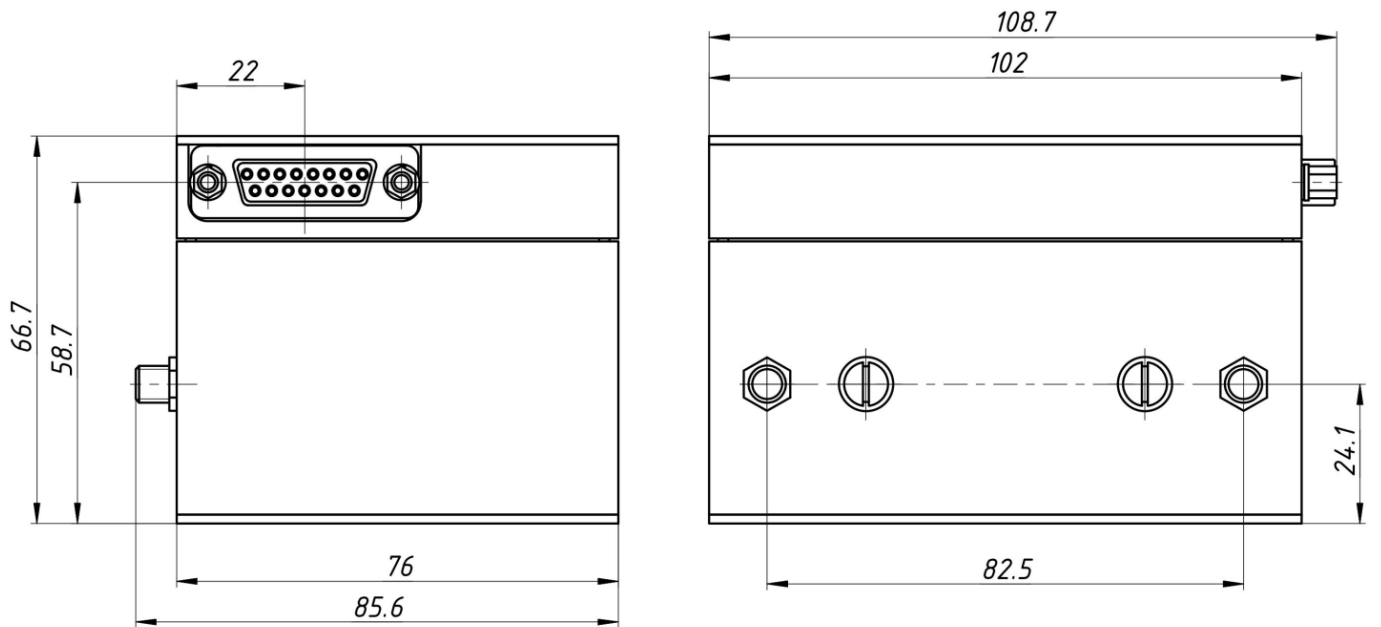
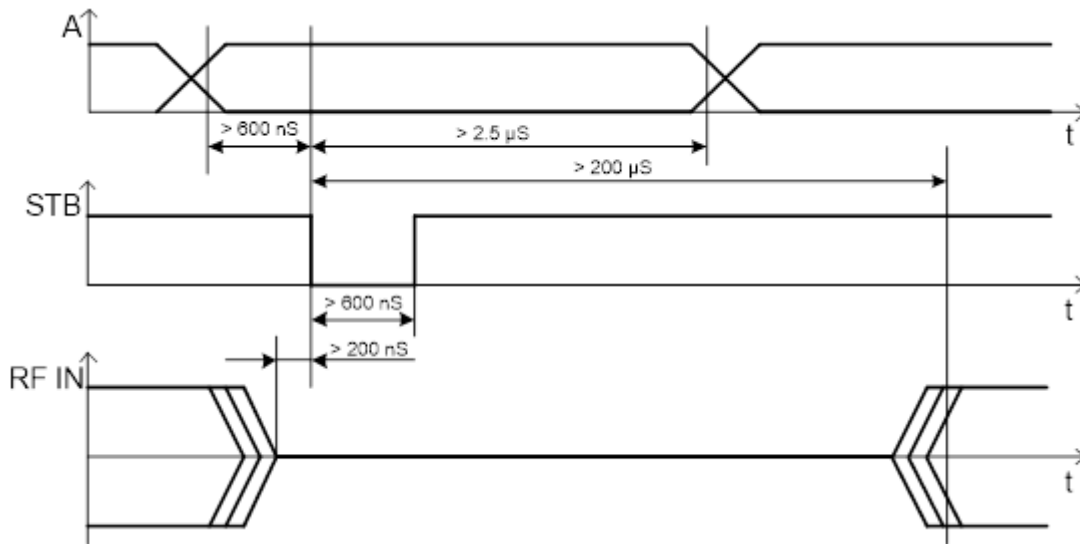
$$X_{10} = \frac{f_0 - f_l}{f_h - f_l} \times 250,$$

$f_0$  — tuning frequency;  $f_l$  — low frequency of the band;  $f_h$  — high frequency of the band. If you wish to tune to 62.48 MHz, the tune word is:

$$X_{10} = \frac{f_0 - f_l}{f_h - f_l} \times 250,$$

Time carts are shown below.

## Mechanical Outline



**Note:** sizes are shown in millimeters.