



Description

Model VR7-FM-2501-(#) is a multiple notch filter that can be configured for two to sixteen tunable notches within the FM band (88-108 MHz). Each notch can be adjusted for frequency and depth. Narrow notch selectivity minimizes loss to neighboring signals. Wide Notch width (>30 kHz) provides good frequency and notch depth stability: Single notch characteristics (depth and 3 dB BW) are shown in table 1. Multiple notch characteristics of (depth, 3 dB BW, and notch width) are shown in Table 2 .

Applications

- **Remove FM interference**—attenuate spurs and strong FM carriers causing interference with low impact on adjacent signals.
- **Equalize Broadband FM signal** - reduce level of stronger channels to reduce difference between strong and weak channels for more balanced signal distribution.
- **High FM Signal Rejection** - combine notches for highly selective signal rejection, e.g., five 15 dB notches for >80dB rejection with 3dB BW ± 0.75 MHz
- **Specific FM Spectrum rejection** - combine notches for >50 dB rejection of up to 4 MHz segment of FM spectrum, with low impact on adjacent signals.
- **Single Channel Deletion**—remove single CATV channel for re-use. Available for chs A8 to A6, A5(95) to A1(99).

Specifications

- User specifies all notch frequencies (MHz) & depths (dB) - minimum ±.5 MHz frequency separation recommended
- Operating bandwidth: 5-200 MHz standard. Add option "E" for 5-1000 MHz bandwidth
- Thru loss 8 notches is 1.5 dB (5-200 MHz)
- Thru loss 8 notches plus option E is 2 dB 5-1000 MHz
- VR7-FM 2501 Notch type: Helical Resonator
- Notch tuning: Adjustment of two screws (see photo 1).
- Notch selectivity : 3dB BW ± 0.35 MHz for 12dB notch
- Notch width: 30 KHz ; Multiple notch width: 80 kHz
- Jumper Cables between two notches can be "optimized" for "balanced" or "skewed" 3dB BW, e.g., "skewed" notch has uneven 3 dB BW.
- Connectors & Impedance: F-type female, 75 ohms
- Connectors Options: BNC 50 ohms, BNC 75 ohms
- Operating Temperature: 10 to +40 ° C (20-120 ° F)
- Power pass: 1amp, 60 AC max
- Mounting: Wall or Rack

VR7-FM-2501-# Dimensions (in) and Weight

VR7-FM-2501-3 panel size (in): 3.5 x 7 -up to 3, notches, 1lbs
 VR7-FM-2501-8 panel size (in): 3.5 x 19 -up to 8 notches, 4.5 lbs
 VR7-FM-2501-16 panel size (in): 5.25 x 19 - up to 16 notches, 7 lbs

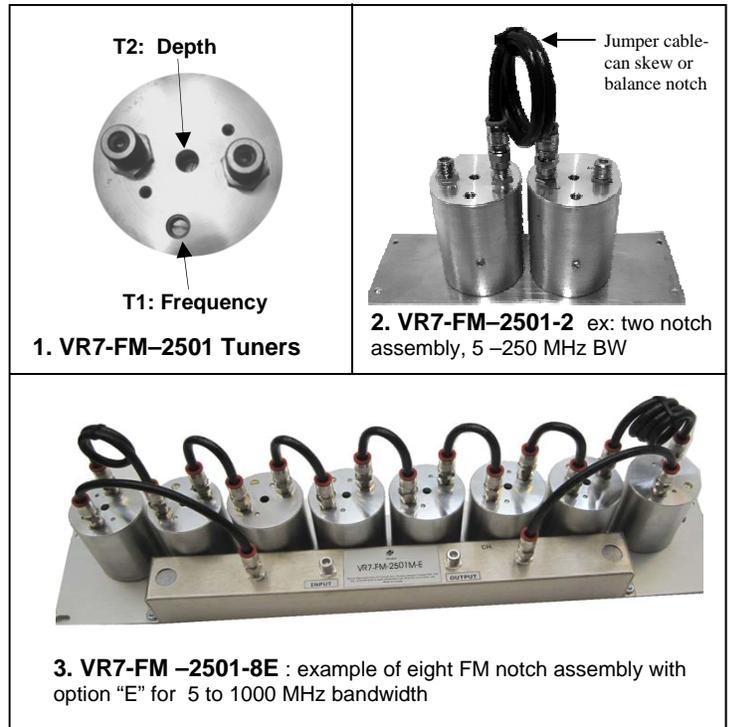


Table 1: Example VR7-FM-2501 single notch selectivity

Frequency (MHz)	88	99	108
Notch depth (dB)	12 to 20	14 to 20	15 to 20
3dB BW (MHz)	±0.35 to ±0.6	±0.35 to ±0.7	±0.45 to ±0.9
Tuning range: 88 to 108 MHz			
Notch width is approx. 40 KHz for 15 dB notch			

Table 2: Example VR7-FM-2501 multiple notch selectivity
Approximate Notch Depth * vs 3 dB Bandwidth

Model #	VR7-FM-2501-2	VR7-FM-2501-3	VR7-FM-2501-4	VR7-FM-2501-5
Notches *	2	3	4	5
Attenuation	32 dB	50 dB	65 dB	80 dB
3 dB BW	±0.6	±0.70	±0.75	±0.75
Notch Width	40 kHz	40 kHz	60 kHz	80 kHz

* All notches are approximately 14 dB and tuned around 108 MHz.

Order Information

Model # → **VR7-FM-2501-8E ***

Quantity of notches →

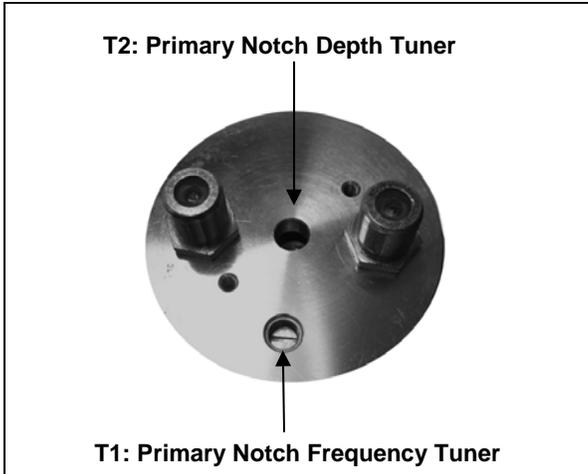
Option "E" for 5-1000 MHz BW for OTA & CATV

* Specify frequency and depth for each notch





Notch Adjustments, Graphs, Order Info



VR7-FM-2501 series Tuners

General Notch adjustment description

Tuning notch to desired frequency and notch depth:

- Turn T1 counter-clockwise (to left) for higher frequency;
- Turn T1 clockwise (to right) for lower frequency
- Turn T2 counter-clockwise (right) to reduce notch depth (note: this also increases notch frequency);
- Turn T2 clockwise (left) to increase notch depth (note: this also lowers notch frequency)

Tune T1 to desired frequency, then, tune T2 to notch depth (this also detunes notch frequency), then, re-tune T1 to desired frequency. VR7-FM-2501 tuning range 88 to 108 MHz.

For best results tune with RF analyzer with frequency response viewed at 3-5 MHz span at Fo. Note: Notch tuning without suitable equipment is not recommended.

Combining Multiple Notches - First, detune all notch away from desired frequency. Tune each notch, one at a time, as described above for desired frequency and depth, then detune notch frequency, repeat for each notch, finally, tune all notches together to desired frequency (s).

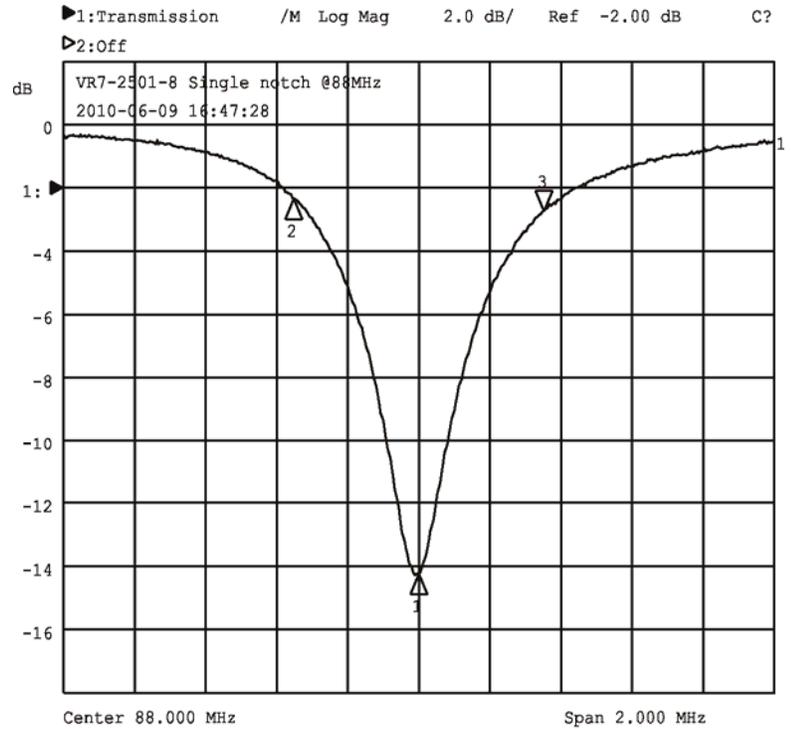
Note: Graphs shows sample notch depth and selectivity at 88 MHz and 108 MHz Notch Example: Two notches combined at 88 MHz provide approximately 24-36 dB attenuation.

Fine Trap adjustments - To obtain optimum attenuation - alternately adjust one trap very slightly (1/10 T) in either direction, then do the same with the other trap. Repeat until required notches resonate together at the required Fo for desired attenuation.

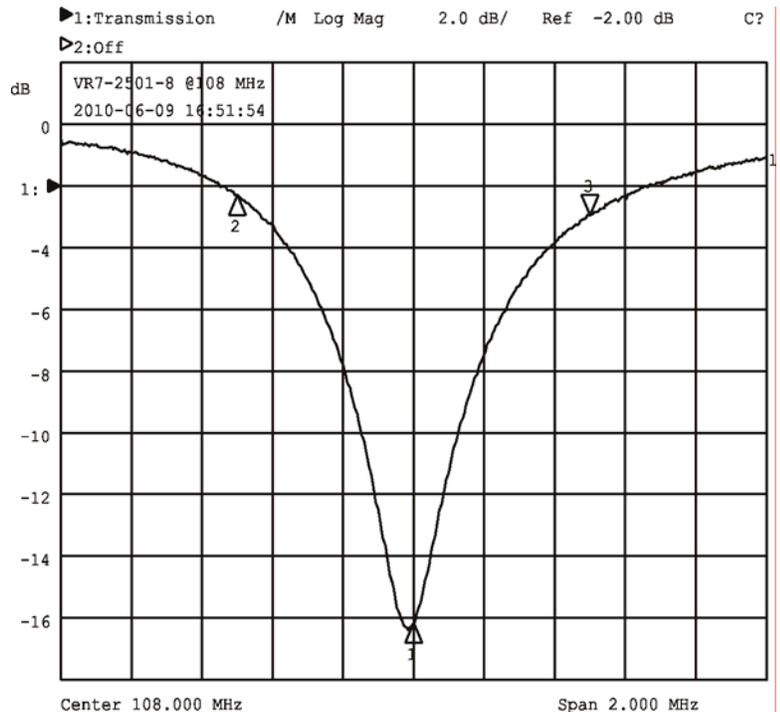
Caution: Do not tune screws beyond the FM frequency range, the screws may be damaged.

Order Info: VR7-FM-2501-# Custom order—inquire

Graphs: Single Notch @ 88 and 108 MHz



1:Mkr (MHz)	dB	2:Mkr (MHz)	dB
1: 88.0000	-14.225		
2: 87.6500	-2.333		
3> 88.3500	-2.757		



1:Mkr (MHz)	dB	2:Mkr (MHz)	dB
1: 108.0000	-16.171		
2: 107.5000	-2.295		
3> 108.5000	-2.956		