Parametric Amplifier

Outlines

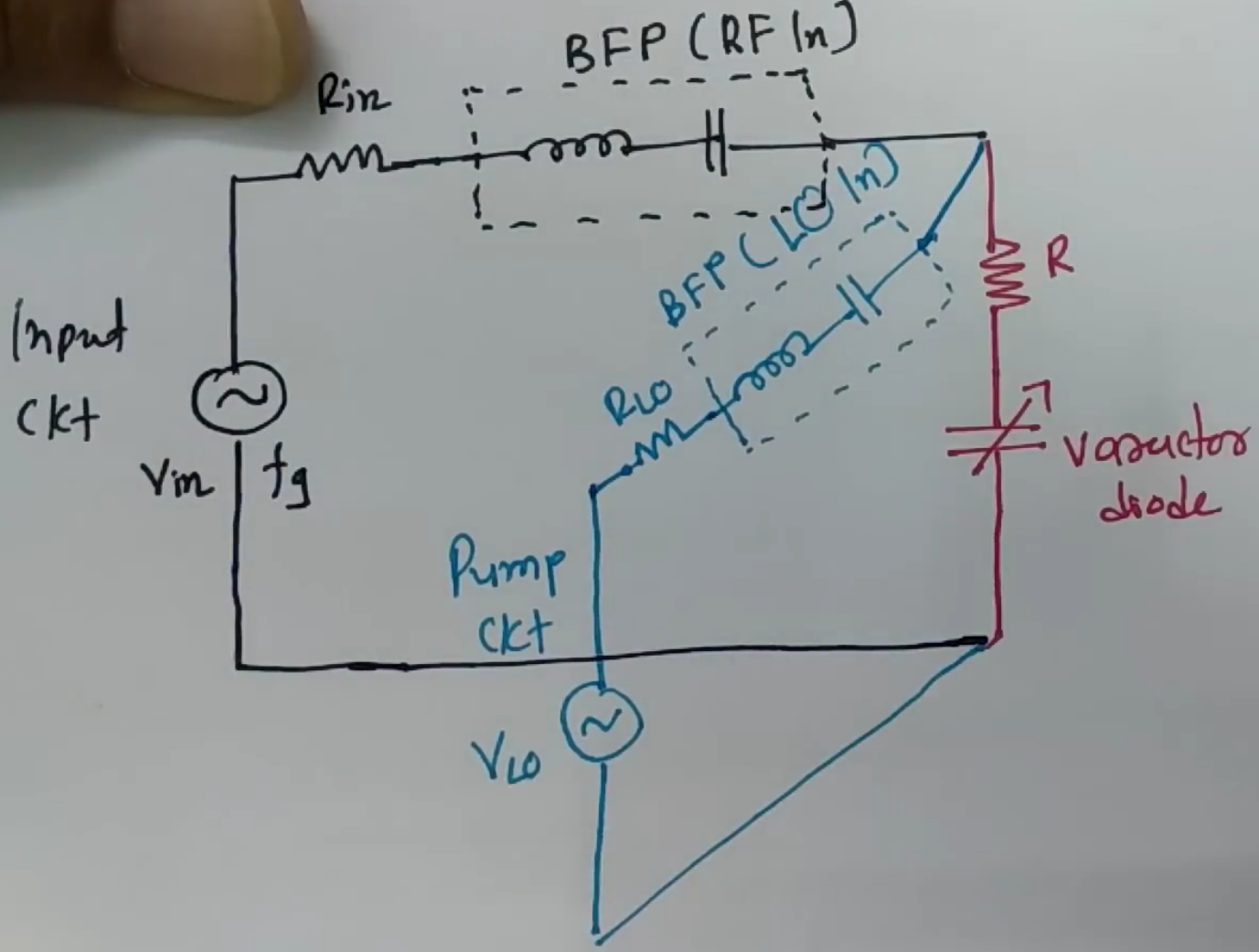
- Basics of Parametric Amp.ⁿ
- Circuit of Parametric Amp.ⁿ
- Working of Parametric Amp.ⁿ
- Advantages of Parametric Amp.ⁿ
- Disadvantages of Parametric Ampⁿ
- Applications of Parametric Amp.ⁿ

- Working of Parametric Amp.
- Advantages of Parametric Amp.
- Disadvantages of Parametric Amp
- Applications of Parametric Amp.

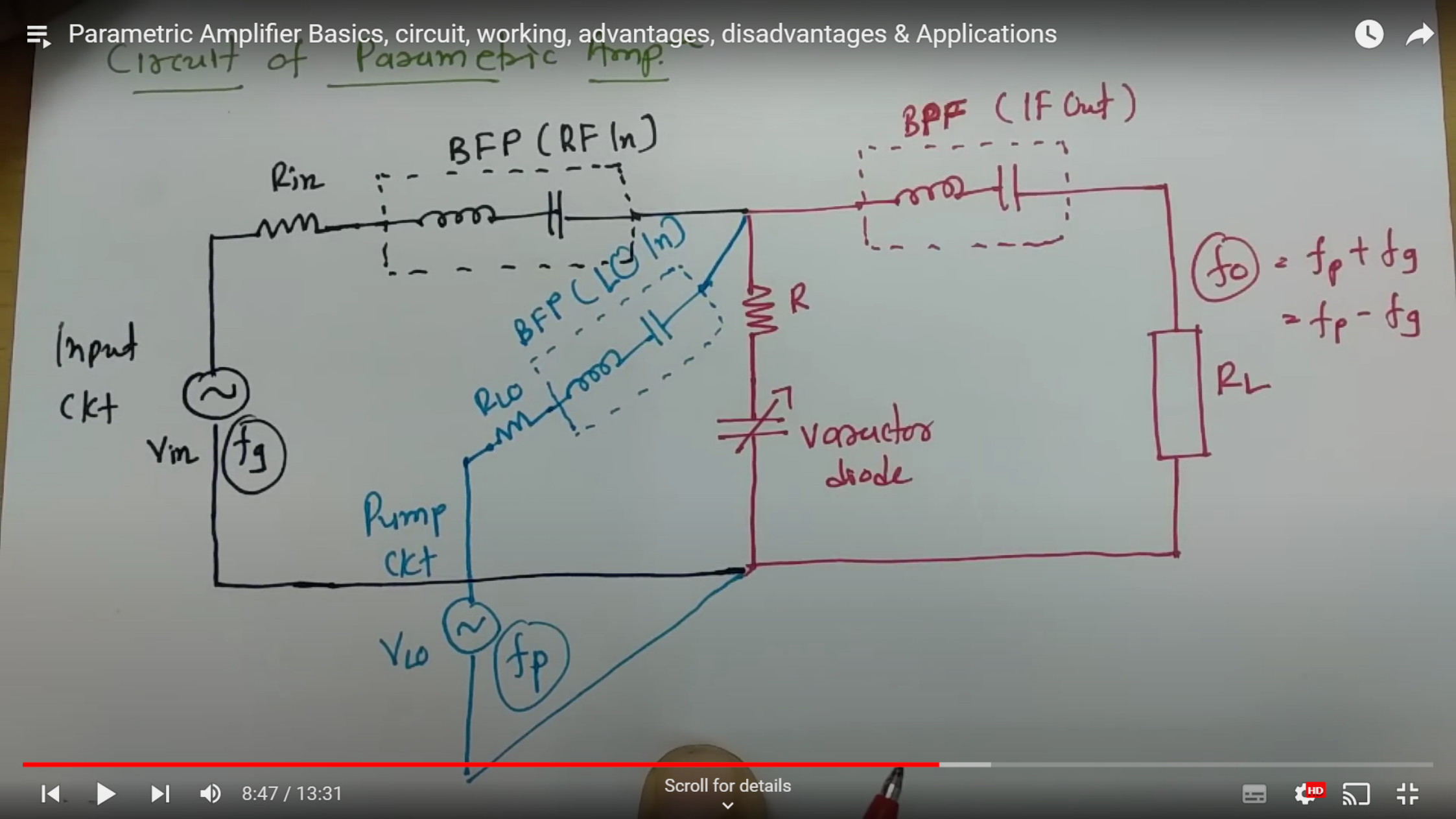
Basics of Parametric Amp.

- It is highly sensitive low noise amp.
- It is used for ultrahigh freq. and microwave freq.
- It utlized active elements like Inductor & Capacitor.
- By changing reactance, It amplifies signals using pump ckt.
- Varactor diode is most commonly used as variable reactor.

...t of Paramebric Amp.



Parametric Amplifier Basics, circuit, working, advantages, disadvantages & Applications



8:47 / 13:31

Scroll for details

- Hence o/p power is either at $f_g + f_p$ or $f_p - f_g$.
- As per Manley - Rowe, maximum gain

$$= \frac{f_o}{f_g} = \frac{f_p + f_g}{f_g} = 1 + \frac{f_p}{f_g}$$

- This is theoritical gain but practically, it is less than it.
- If o/p freq. is $f_p + f_g$, then parametric amp.^{n} is called up convertor and works as amp.^{n}
- If o/p freq. is $f_p - f_g$, then parametric amp^{n} is called down convertor and it does not amplify signal rather it creates losses.

theoritical gain but practically, it is less than it.

- If O/p freq. is $f_p + f_g$, then parametric amp.^{n} is called up convertor and works as amp.^{n}
- If O/p freq. is $f_p - f_g$, then parametric amp^n is called down convertor and it does not amplify signal rather it creates losses.

Advantages

- Noise Figure - Due to less resistance, it is there in range of 1-2 dB
- Freq. Range - It covers wide range of frequencies (about 1 GHz [illegible] GHz)

Advantages

- Noise Figure - Due to less resistance, it is there in range of 1-2 dB
- Freq. Range - It covers wide range of frequencies (about 1 GHz to 200 GHz)

Disadvantages

- Bandwidth - Less due to tuned ckt but it can be increased by stagger tuning.
- Gain - limited to (20 - 80 dB)

(about 1 GHz to 200 GHz)

~~Bandwidth~~ Disadvantages

- Bandwidth - Less due to tuned ckt but it can be increased by stagger tuning.
- Gain - limited to (20 - 80 dB)

Applications

- LNA (Low Noise Amp.)
- Space Communication
- Tropo receiver.
- Radio telesc