PMT Progress

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Amplifier Noise

- A constant 28 MHz signal is present in the output
- Power supply is suspected
  - Due to the fact that the power supply is a switching power supply
  - It can be modified to produce less noise however

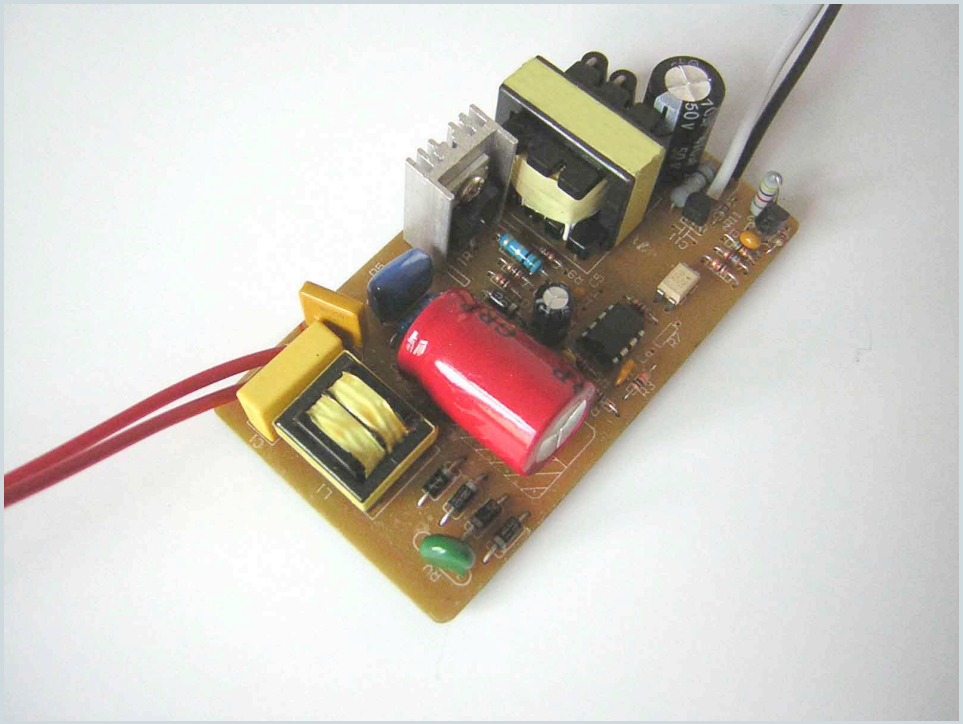
Switching Power Supply

- A switching power supply is typically used in devices that need compactness
  - Typically found in cellphone chargers
  - Found in computer power supplies
  - Use very high frequency AC

Switching Power Supply

- A switching power supply is compact based on the skin effect
- At high frequencies, electricity conducts only on the surface of a conductor
- Litz wire is very thin wire meant for conducting at high frequencies
- As a result the high frequency allows for smaller more compact power supplies

Switching Power Supply



Power Supply Solution

- Capacitors to bypass high frequency noise
- Inductors to create impedance at high frequencies
- RC filters or RL filters
- Alternatively we can build our own power supply
  - Simple two battery supply
  - Power supply ripple would be very small

Goals

- Eventually we would place our amplifier in a box where you can plug a BNC connector into the input and a BNC connector into the output.
- The amplifier chip actually contains two amplifiers, so later this box could amplify two incoming signals.