

## 20KV SWITCHING POWER SUPPLY

Prepared by: Chee Vooi How

### ABSTRACT

---

A 20kV switching power supply is the device that can produce high output voltage with high switching frequency to support for those applications that needed high voltage supply and high switching speed especially in heavy industry.

This report reveals a switching power supply device that is able to supply a 20kV output voltage from the electrical mains with a low current as 1mA. It has a controllable switching frequency in between 10 KHz to 30 kHz. The switching frequency is controlled by computer and RC circuit for manual manipulation.

Voltage multiplier is used to step up the voltage from electrical mains while the stability of voltage multiplier is increased using Center-Tapped Transformer. Using computer, IGBT switching frequency is manipulated. At RC circuit, adjusting the resistance changes the switching frequency to trigger relay. Both methods are used to convert 20kV DC output voltage from voltage multiplier to an AC output voltage.

Overall, the project is partially successful. The output voltage from voltage multiplier is not able to reach 20kV because it lacks of input voltage. Further research is still needed as this experiment is conducted without a high voltage from electrical mains.