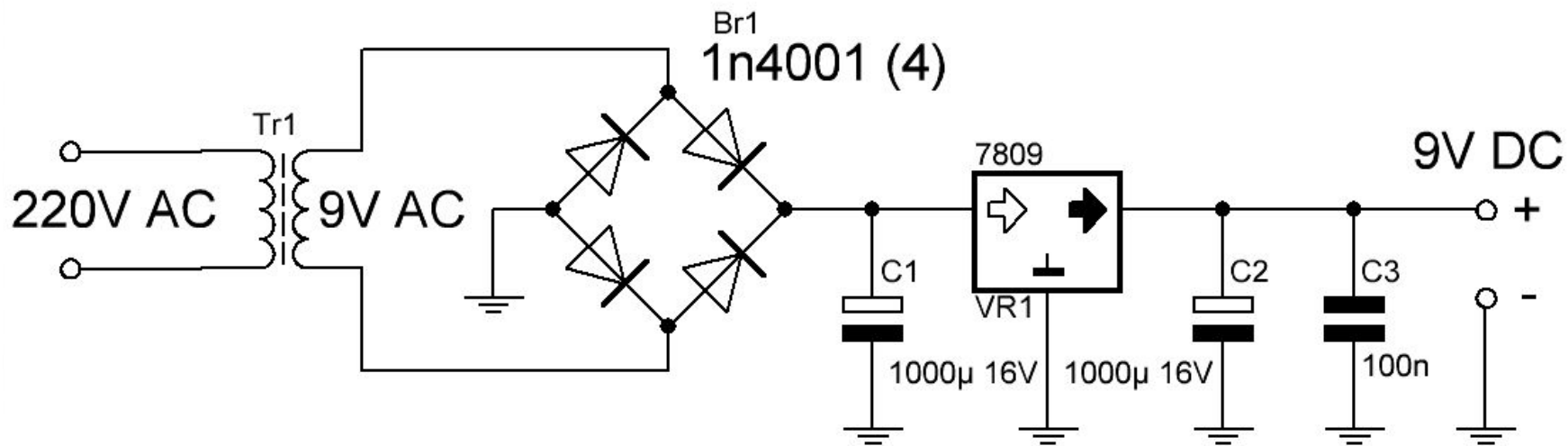
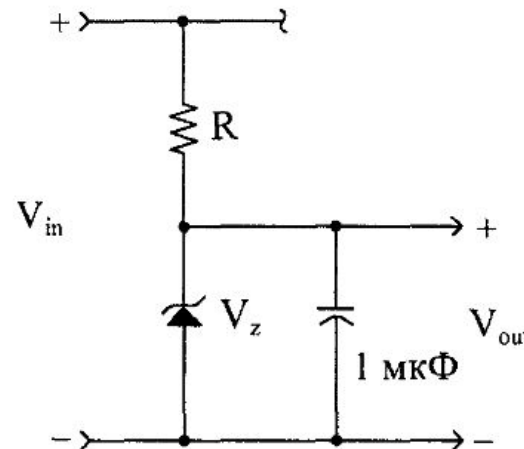
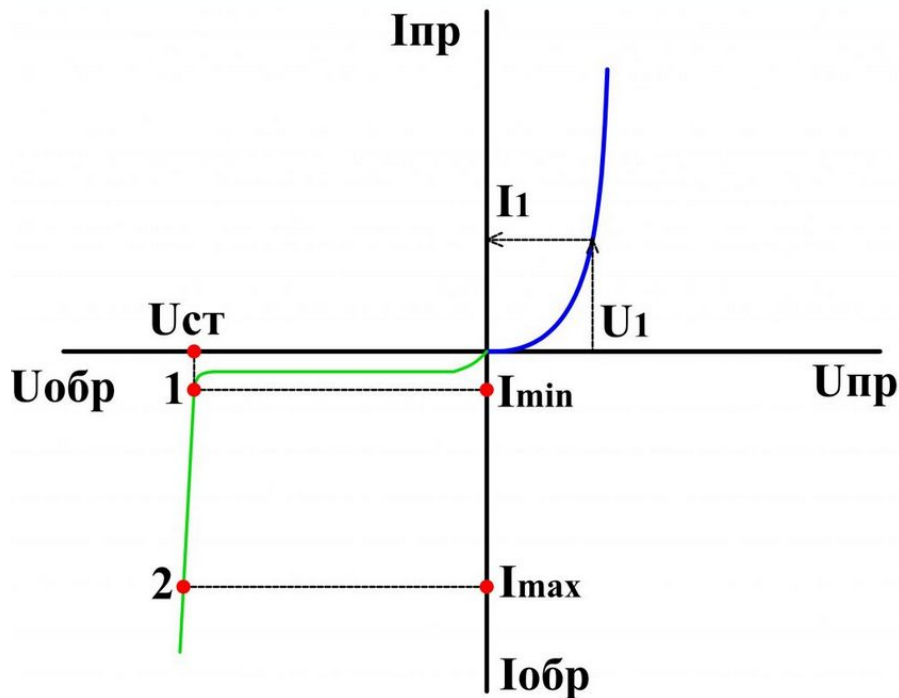
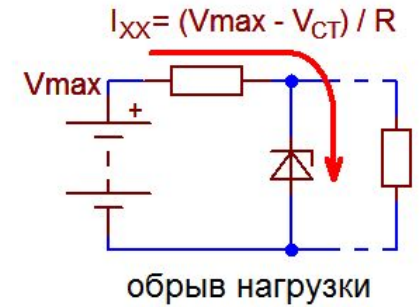
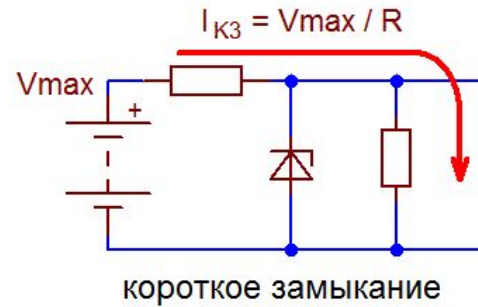
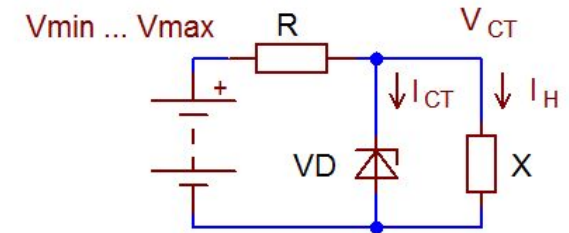


# Блоки питания



# Линейный стабилизатор

## Параллельный стабилизатор СТАБИЛИТРОН



$$V_{in(min)} > V_{out} + 3V$$

$$V_Z = V_{out}$$

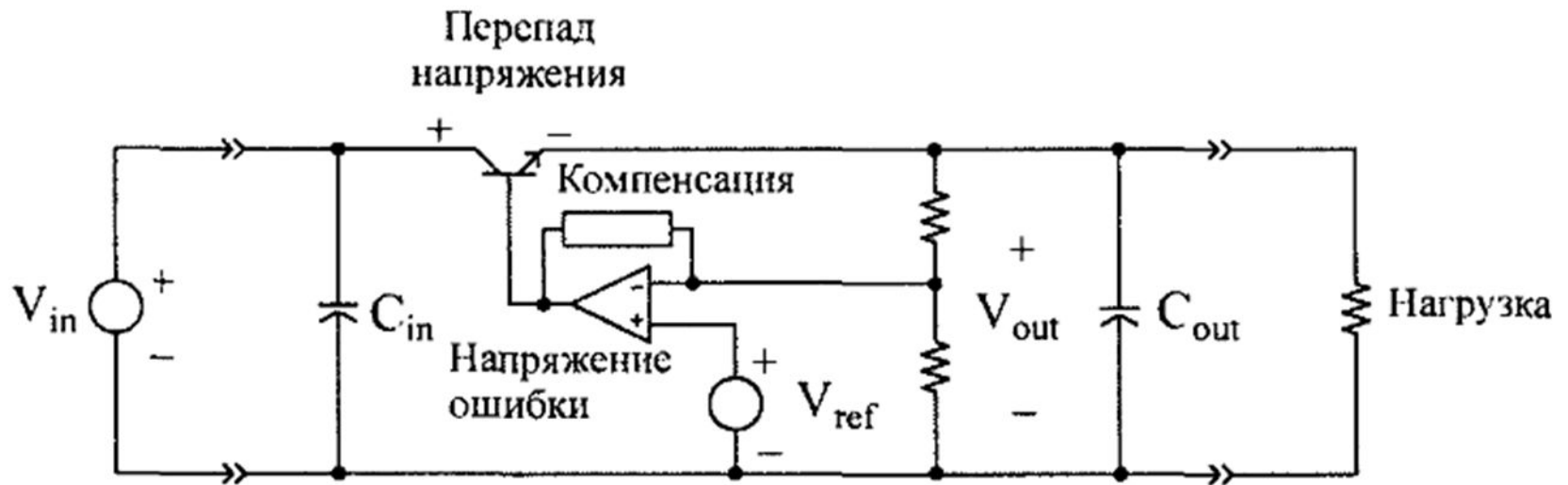
$$R \approx \frac{V_{in(min)}}{1.1 I_{out(max)}}$$

$$P_{D(R)} = (V_{in(max)} - V_{out})^2 R$$

$$P_{D(Z)} \approx 1.1 V_Z I_{out(max)}$$

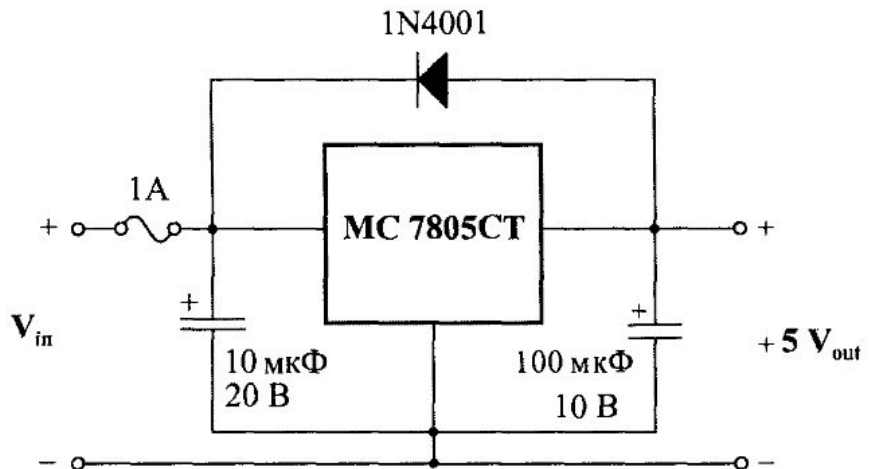
# Линейный стабилизатор

## Последовательный стабилизатор

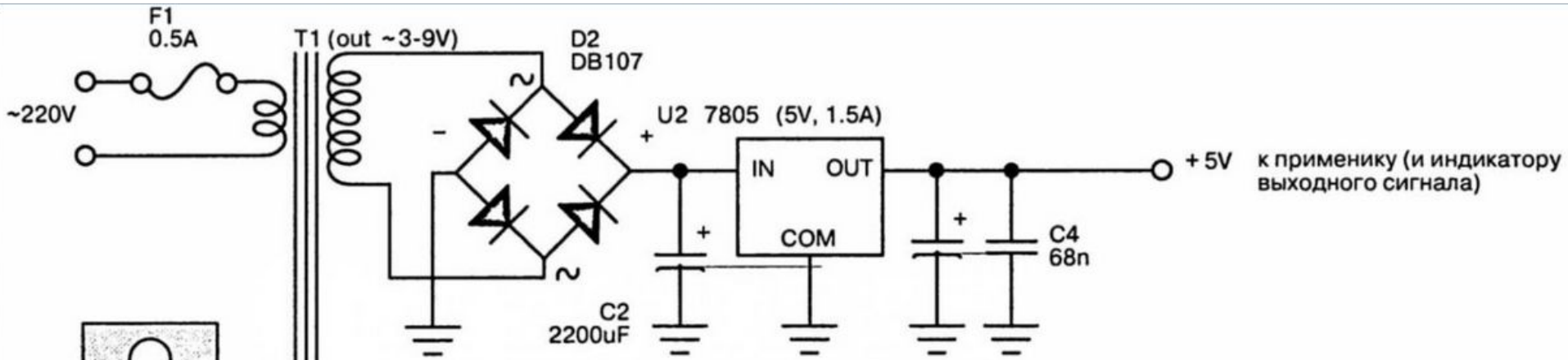
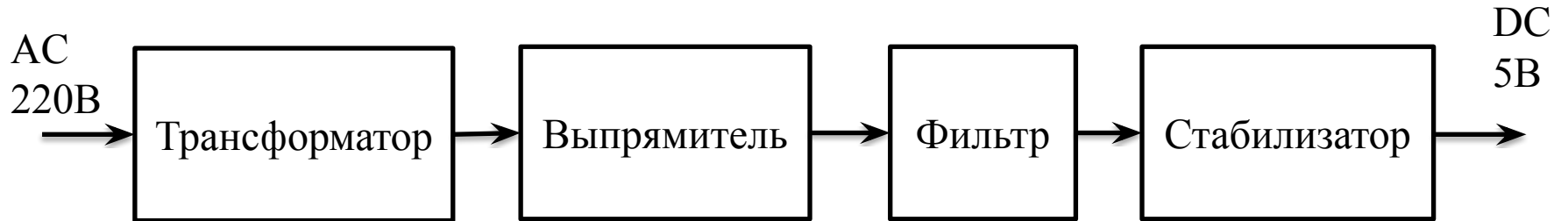


$$P_{HR} = (V_{in(max)} - V_{out}) * I_{load(rated)}$$

Потеря мощности



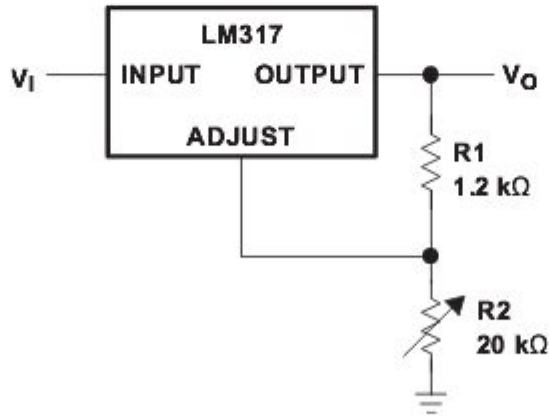
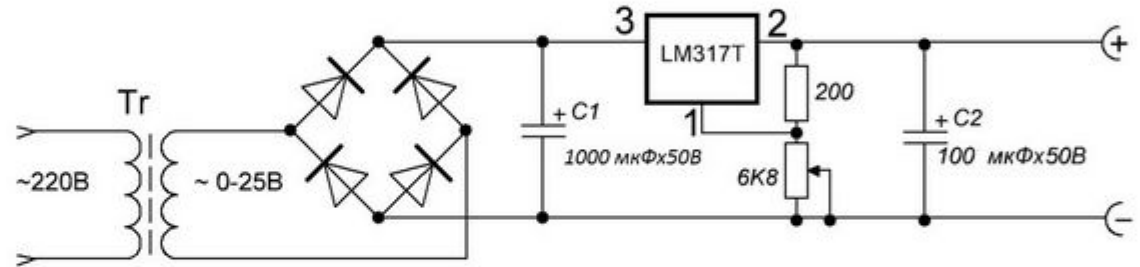
# Блок питания на 7805



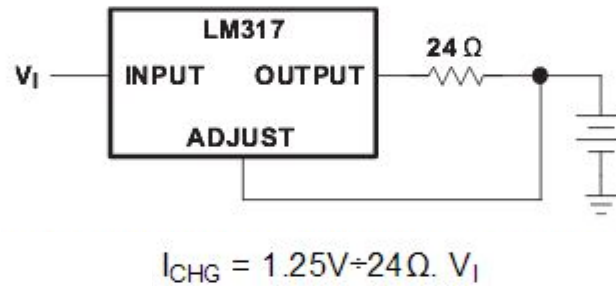
# Блок питания на LM317

## Feature summary

- Output voltage range: 1.2 to 37V
- Output current in excess of 1.5A
- 0.1% Line and load regulation
- Floating operation for high voltages
- Complete series of protections: current limiting, thermal shutdown and SOA control

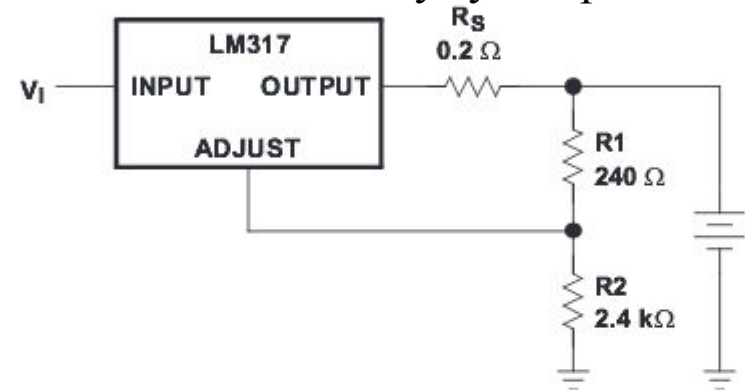


$$V_O = V_{REF} (1 + R_2/R_1) + I_{ADJ} R_2$$



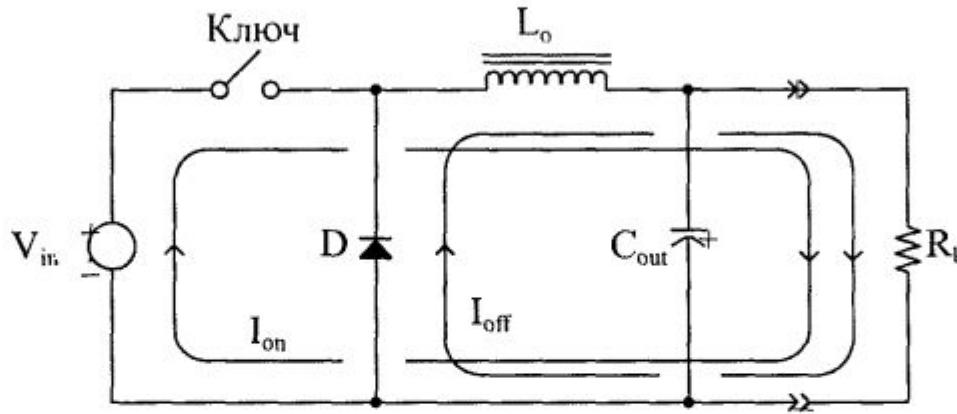
$$I_{CHG} = 1.25V \div 24\Omega \cdot V_1$$

Зарядное устройство  
для аккумулятора

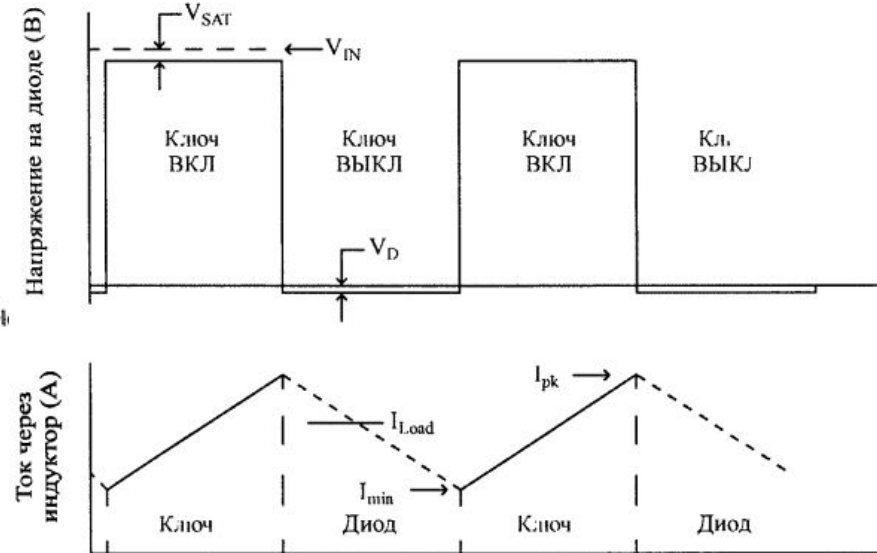


# Импульсный блок питания

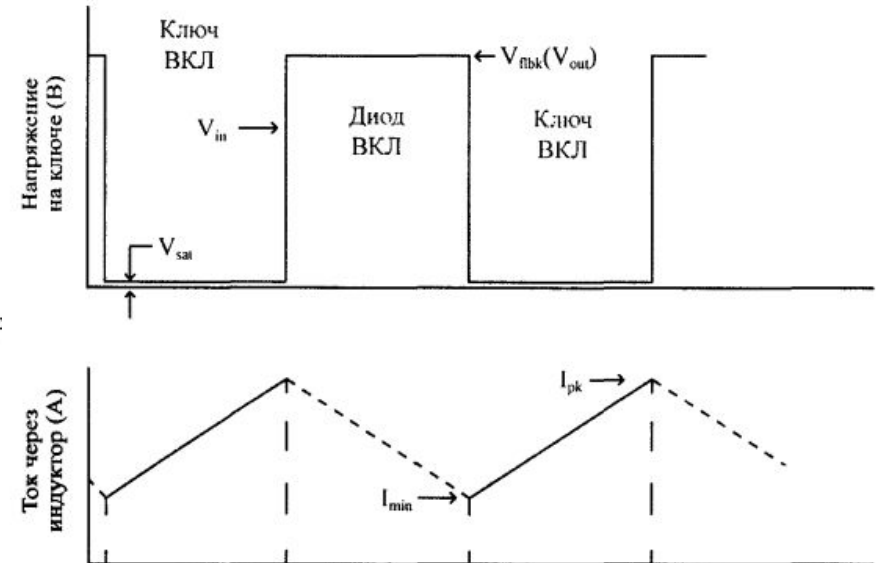
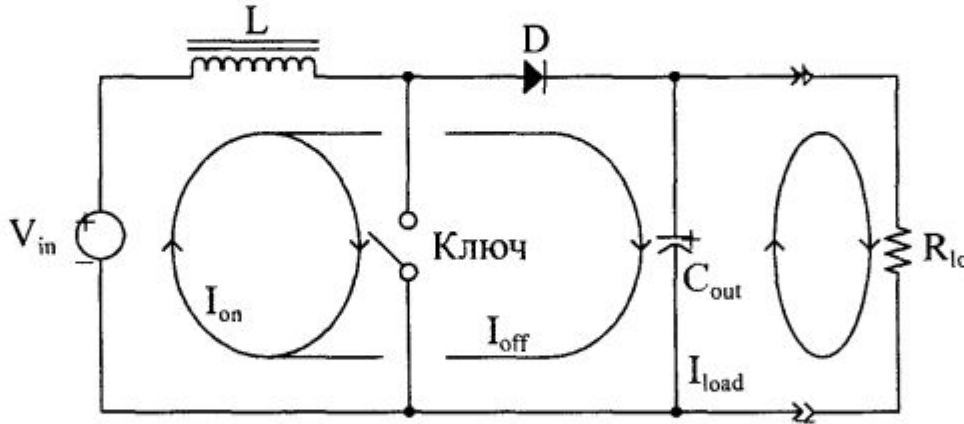
## Понижающий преобразователь



$$V_{out} = V_{in} * T_{on} / T_{all}$$

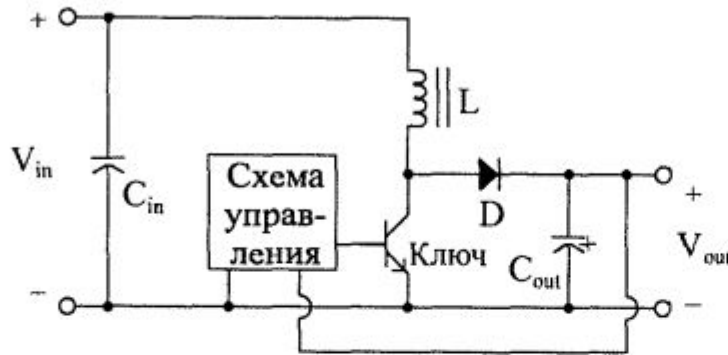


## Повышающий преобразователь



# Импульсный блок питания

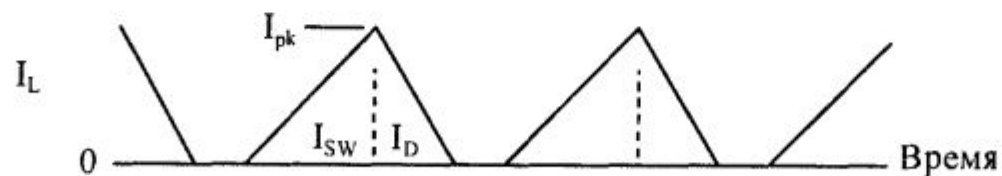
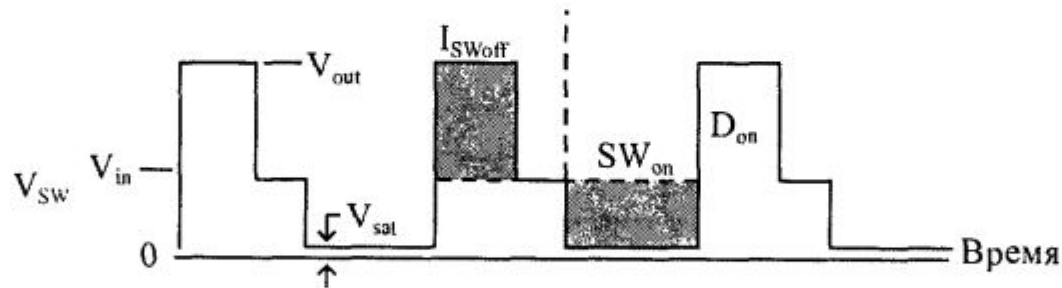
## Повышающий преобразователь



$$I_{pk} \approx \frac{5.5(P_{out})}{V_{in(min)}}$$

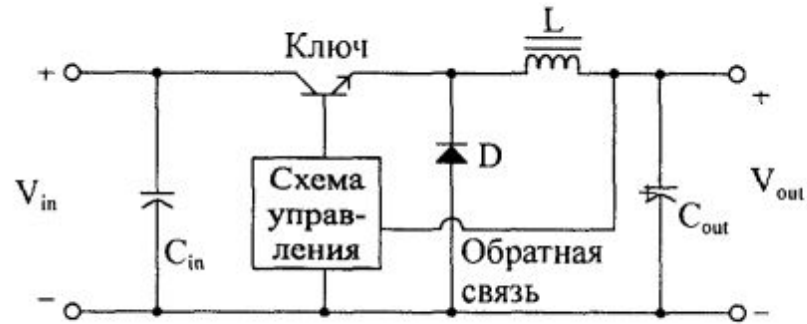
$$V_{sw} \approx V_{out} = V_{flyback}$$

$$P_{out} \approx 0W-100W$$



# Импульсный блок питания

Понижающий преобразователь



$$I_{pk} \approx \frac{1.4(P_{out})}{V_{in(min)}}$$

$$V_{sw} \approx V_{in}$$

$$P_{out} \approx 0W-1kW$$

