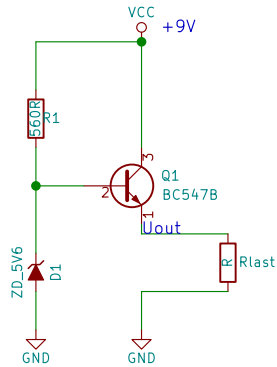


Spannungsstabilisierung



Ausgangsspannung:

$$U_{out} = U_z - U_{be} = 5V$$

Transistor:

$$P_{tot} = 0,5W$$

$$\beta = 300$$

$$U_{ce} = 4V$$

$$I_{Cmax} = P_{tot}/U_{ce} = 0,125A$$

$$I_{Bmax} = I_{Cmax}/\beta = 400\mu A$$

Lastwiderstand:

$$R_{min} = U_{out}/I_{Cmax} = 40 \text{ Ohm}$$

Zenerdiode:

$$P_{tot} = 0,5W$$

$$I_{min} = 5mA$$

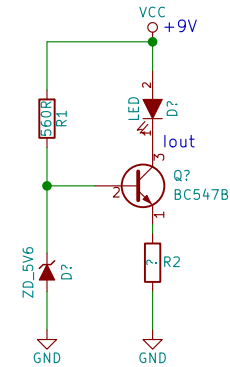
$$I_{max} = P_{tot}/U_z = 100mA$$

$$I_z = 6mA$$

R1:

$$R1 = (V_{cc} - U_z)/I_z = 560 \text{ Ohm}$$

Stromstabilisierung



LED:

$$U_{led} = 2,2V$$

$$I_{led} = 15mA$$

Transistor:

$$P_{tot} = 0,5W$$

$$\beta = 300$$

$$I_c = I_{led} = 15mA$$

$$U_{ce} = V_{cc} - U_{led} - U_{r2} =$$

$$I_b = I_c/\beta =$$

R2:

$$U_{r2} = U_z - U_{ce}$$

$$R2 = U_{r2} / I_{led} =$$

$$P_{r2} = U_{r2} * I_{r2} =$$

Zenerdiode:

$$P_{tot} = 0,5W$$

$$I_{min} = 5mA$$

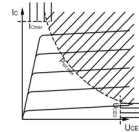
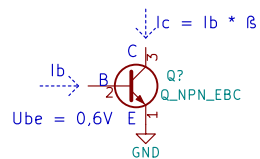
$$I_{max} = P_{tot}/U_z = 100mA$$

$$I_z = 6mA$$

R1:

$$R1 = (V_{cc} - U_z)/I_z = 560 \text{ Ohm}$$

Transistoreigenschaften



Elektronik für Anfänger Teil 22

Sheet: /
File: E-Kurs-2016_22.sch

Title:

Size: A4
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