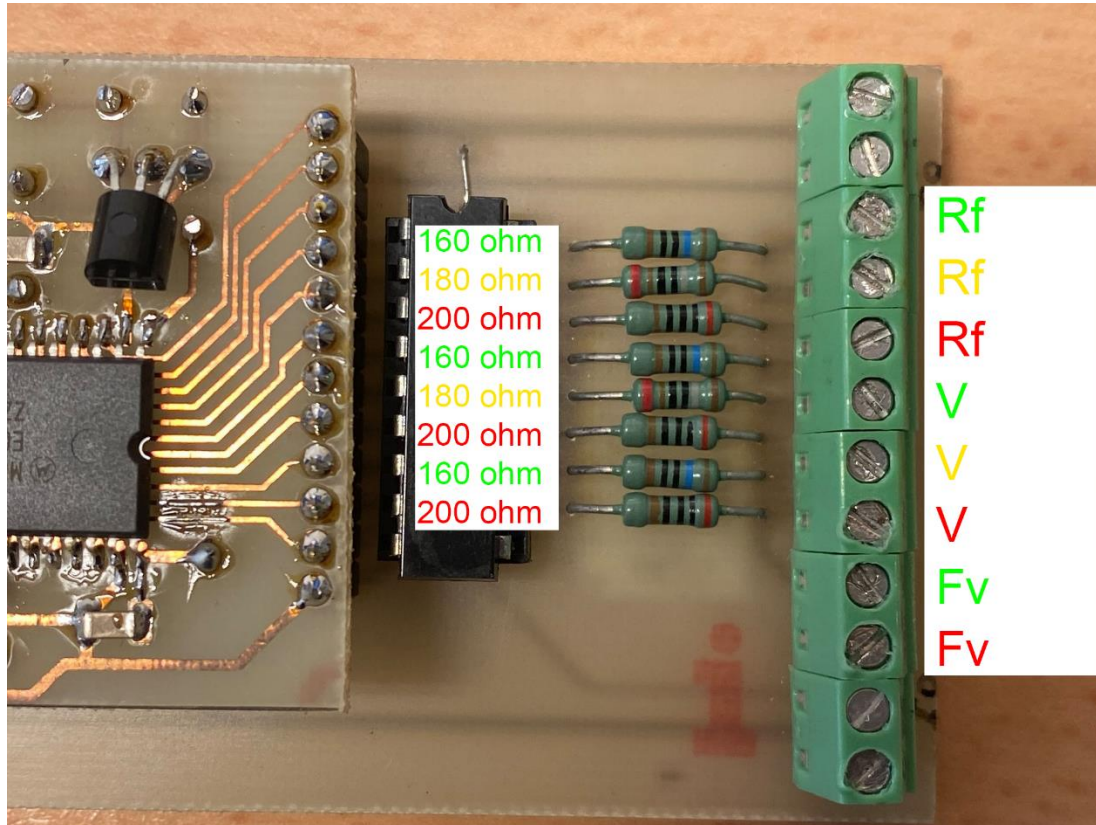


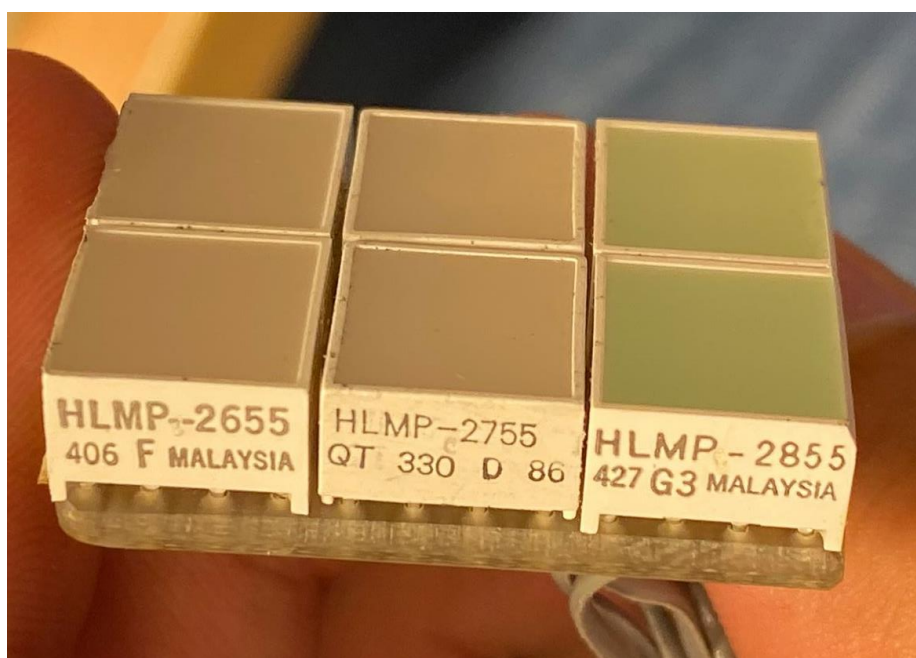
Trafikklys Smartby IQRF

For å forstå tidligere krets:

Kontroller.



Gatelysene.



Grønn chip (LED):

High Performance Green HLMP-2500/2800/2965 Series

| Parameter | HLMP- | Symbol | Min. | Typ. | Max. | Units | Test Conditions |
|--|---------------------|-------------------------|------|------|------|--------------------------|-------------------------|
| Luminous Intensity per Lighting Emitting Area ^[1] | 2500/2800/2820 | I_V | 5 | 25 | | mcd | $I_F = 20 \text{ mA}$ |
| | 2550/2835/2855/2870 | | 11 | 50 | | mcd | |
| | 2965 ^[4] | | 25 | 50 | | mcd | |
| | 2885 | | 22 | 100 | | mcd | |
| Peak Wavelength | | λ_{PEAK} | | 565 | | nm | |
| Dominant Wavelength ^[2] | | λ_d | | 572 | | nm | |
| Forward Voltage per LED | | V_F | | 2.2 | 2.6 | V | $I_F = 20 \text{ mA}$ |
| Reverse Breakdown Voltage per LED ^[5] | | V_R | 6 | 15 | | V | $I_R = 100 \mu\text{A}$ |
| Thermal Resistance LED Junction-to-Pin | | $R\theta_{J-PIN}$ | | 150 | | $^{\circ}\text{C/W/LED}$ | |

Slik som de er koblet nå er de seriekoblet.

Det vil si at $V_{f, \text{grønn}} = V_{f1} + V_{f2} + V_{f3} + V_{f4} = 2.2\text{V} + 2.2\text{V} + 2.2\text{V} + 2.2\text{V} = \mathbf{8.8V}$.

Dersom vi bruker 12V spenning, vil det si at det må ligge 3.2V over motstanden. Det betyr at vi må ha motstand $R_{\text{grønn}} = 3.2\text{V} / 20\text{mA} = \mathbf{160 \text{ ohm}}$.

Gul chip (LED):

Yellow HLMP-2400/2700/2950 Series

| Parameter | HLMP- | Symbol | Min. | Typ. | Max. | Units | Test Conditions |
|--|---|-------------------------|------|------|------|--------------------------|-------------------------|
| Luminous Intensity per Lighting Emitting Area ^[1] | 2400/2700/2720 | I_V | 6 | 20 | | mcd | $I_F = 20 \text{ mA}$ |
| | 2450/2735/2755/2770/2950 ^[3] | | 13 | 38 | | mcd | |
| | 2785 | | 26 | 70 | | mcd | |
| Peak Wavelength | | λ_{PEAK} | | 583 | | nm | |
| Dominant Wavelength ^[2] | | λ_d | | 585 | | nm | |
| Forward Voltage per LED | | V_F | | 2.1 | 2.6 | V | $I_F = 20 \text{ mA}$ |
| Reverse Breakdown Voltage per LED ^[5] | | V_R | 6 | 15 | | V | $I_R = 100 \mu\text{A}$ |
| Thermal Resistance LED Junction-to-Pin | | $R\theta_{J-PIN}$ | | 150 | | $^{\circ}\text{C/W/LED}$ | |

$V_{f, \text{gul}} = V_{f1} + V_{f2} + V_{f3} + V_{f4} = 2.1\text{V} + 2.1\text{V} + 2.1\text{V} + 2.1\text{V} = \mathbf{8.4V}$.

Bruker 12V spenning, vil det si at det må ligge 3.6V over motstanden.

$R_{\text{gul}} = 3.6\text{V} / 20\text{mA} = \mathbf{180 \text{ ohm}}$.

Rød chip (LED):

High Efficiency Red HLMP-2300/2600/2900 Series

| Parameter | HLMP- | Symbol | Min. | Typ. | Max. | Units | Test Conditions |
|--|---|-------------------------|------|------|------|--------------------------|-------------------------|
| Luminous Intensity per Lighting Emitting Area ^[1] | 2300/2600/2620 | I_V | 6 | 23 | | mcd | $I_F = 20 \text{ mA}$ |
| | 2350/2635/2655/2670/2950 ^[3] | | 13 | 45 | | mcd | |
| | 2965 ^[4] | | 19 | 45 | | mcd | |
| | 2685 | | 22 | 80 | | mcd | |
| Peak Wavelength | | λ_{PEAK} | | 635 | | nm | |
| Dominant Wavelength ^[2] | | λ_d | | 626 | | nm | |
| Forward Voltage per LED | | V_F | | 2.0 | 2.6 | V | $I_F = 20 \text{ mA}$ |
| Reverse Breakdown Voltage per LED ^[5] | | V_R | 6 | 15 | | V | $I_R = 100 \mu\text{A}$ |
| Thermal Resistance LED Junction-to-Pin | | $R\theta_{J-PIN}$ | | 150 | | $^{\circ}\text{C/W/LED}$ | |

$$V_{f, \text{rød}} = V_{f1} + V_{f2} + V_{f3} + V_{f4} = 2.0\text{V} + 2.0\text{V} + 2.0\text{V} + 2.0\text{V} = 8.0\text{V}.$$

Bruker 12V spenning, vil det si at det må ligge 4.0V over motstanden.

$$R_{\text{rød}} = 4.0\text{V} / 20\text{mA} = 200 \text{ ohm}.$$

Hvilket stemmer med forrige krets.