

Design update

(A) (a) LED Driver

$$R_{\text{sense}} = 4\text{m}\Omega; I_{\text{LED}} = 1\text{A} \quad V_{\text{out}} (I_{\text{NA210}}) = 4\text{mV} \times 200 = 0.8\text{V}$$

(B) 1st LM334 temp sensor

$$\text{At } 25^\circ\text{C} = 298^\circ\text{K}$$

$$V_R = 67.7\text{mV}$$

$$\text{For } 1\mu\text{A}/^\circ\text{K}, R = 67.7\text{mV}/298\mu\text{A} = 227\Omega$$

(C) 2nd LM334 Tempco current source
at 95°C or $368\mu\text{A}$

$$I_{\text{set}} = \frac{83.4\text{mV}}{R_1} + \frac{83.4\text{mV} + 0.65\text{V}}{R_2} = \frac{1.57\text{V}}{10R_1}$$

$$I_{\text{set}} = 368\mu\text{A} \Rightarrow R_2 = 4.266\text{K}$$

$$R_1 = 426.6\text{K}$$

(D) setting R

$$R = \frac{0.8\text{V}}{10\mu\text{A}} = 80\text{K}$$

(E) summing up.

