



$$V_{ref} = 1.24 V_{dc}$$

$$\left. \begin{array}{l} 0.05 mA < I_{ref} < 3 mA \\ 0.1 mA < I_{ZA} < 15 mA \end{array} \right\} \text{As told in datasheet}$$

$$R_3 = \frac{V_{in} - V_{out}}{I_Z + I_L + I_{ref}}$$

lets ignore I_{ref} since it needs to be too small (5-6 nA)

Assuming $I_Z \approx 5 mA$ since we don't want it to draw too much power

$$\therefore I_{in} \approx 4 mA$$

$$R_3 = 820 \Omega \quad \text{market value (114 metal film)}$$

$$\text{let } R_1 = 100 k\Omega \quad (114 \text{ metal film})$$

$$V_{out} = V_{ref} \left(1 + \frac{100 k\Omega}{R_2} \right)$$

$$1.75 V = 1.24 \left(1 + \frac{100 k\Omega}{R_2} \right)$$

$$R_2 = 220 k\Omega \quad \text{market value (114 metal film)}$$

$$V_{out} = 1.24 \left(1 + \frac{100 k\Omega}{220 k\Omega} \right) = 1.803 V$$

good enough for me

$$I_{ref} \ll I_{in} \quad \text{since it's voltage divider current}$$

$$\text{Roughly } I_{ref} = \frac{1.8 V}{320 k} \approx 5.6 nA \quad (\text{it's between range})$$