Voltage Rating of Capacitor C3 is $V_o * 2 = 5V * 2 = 10V$

3. Output Diode D3
   Since the output rectifier diode turns on and off at the switching frequency, it uses a fast recovery diode that can switch at high speed (66kHz or above).

   The reverse voltage applied to the output diode should be less than or equal to the margin:
   $V_{dr} = \frac{VIN_{max}}{0.7} = \frac{264*1.41}{0.7} = \frac{372}{0.7} = 531V$ => select 600V products
   Diode losses are approximate, but are:
   $P_d = V_F * I_{out} = 1V * 0.17A = 0.17W$
   $V_F$means diode's forward voltage.

4. R_{BIAS}(R4) and R_{FB} (R2)
   The value of R_{BIAS}(R4) and R_{FB} (R2) are selected such that, at the regulated output voltage, the voltage on the FEEDBACK pin(V_{FB}) is 2.0V. This voltage is specified for a FEEDBACK pin current (I_{FB}) of 49uA.

   Let the value of R_{BIAS}(R4) =2.49 kOhm; this bias the feedback network at amount of ~0.8mA

   Hence the value of R_{FB} (R2) is given by

$$R_{FB} = \frac{V_o - V_{FB}}{\frac{V_{FB}}{R_{BIAS}} + I_{FB}} = \frac{(V_o - V_{FB}) * R_{BIAS}}{V_{FB} + (I_{FB} * R_{BIAS})}$$
$$= \frac{(5VDC - 2VDC) * 2.49kOhm}{2V + (49uA * 2.49kOhm)}$$
$$= 3520.25\ Ohm \text{ =>3.48 kOhm}$$

5. Verification
   $$solve\left(\frac{(x-2)\cdot 2490}{2+\left(49\cdot 10^{-6}\cdot 2490\right)} = 3480, x\right)$$
   x = 4.9657 VDC

Part III: Circuit Implementation