

$$\begin{aligned}
 & > R1 = \left(\frac{(R2 \cdot (Vbat - 1.245))}{(1.245 + (R2 \cdot 0.3 \cdot 10^{-6}))} \right) \\
 & \qquad \qquad \qquad R1 = \frac{R2 (Vbat - 1.245)}{1.245 + 3.000000000 \cdot 10^{-7} R2} \tag{1} \\
 & &= \\
 & > \left(\frac{(12400 \cdot (4.2 - 1.245))}{(1.245 + (12400 \cdot 0.3 \cdot 10^{-6}))} \right) \\
 & \qquad \qquad \qquad 29343.64789 \tag{2} \\
 & &= \\
 & > \text{Boost Cconverter Calculations} \\
 & \qquad \qquad \qquad \text{Boost Cconverter Calculations} \tag{3} \\
 & &= \\
 & > Vin = 3.3 \\
 & \qquad \qquad \qquad Vin = 3.3 \tag{4} \\
 & &= \\
 & > Vout = 5.2 \text{ V} \\
 & \qquad \qquad \qquad Vout = 5.2 \text{ V} \tag{5} \\
 & &= \\
 & > fosc = 2000000 \\
 & \qquad \qquad \qquad fosc = 2000000 \tag{6} \\
 & &= \\
 & > DC = \frac{(Vout - Vin + 0.5)}{(Vout + 0.5 - 0.3 \text{ V})} \\
 & \qquad \qquad \qquad DC = \frac{Vout - Vin + 0.5}{Vout + 0.5 - 0.3 \text{ V}} \tag{7} \\
 & &= \\
 & > \frac{(5.2 - 3.3 + 0.5)}{(5.2 + 0.5 - 0.3)} \\
 & \qquad \qquad \qquad 0.4444444444 \tag{8} \\
 & &= \\
 & > Ltyp = \frac{((Vin - 0.3) \cdot DC)}{(fosc \cdot 1)} \\
 & \qquad \qquad \qquad Ltyp = \frac{(Vin - 0.3) DC}{fosc} \tag{9} \\
 & &= \\
 & > \frac{((3.3 - 0.3) \cdot 0.4444)}{(2000000 \cdot 1)} \\
 & \qquad \qquad \qquad 6.666000000 \cdot 10^{-7} \tag{10} \\
 & &= \\
 & > Lmin = \frac{((Vin - 0.3) \cdot (2 \cdot DC - 1))}{(2.2 \text{ A} \cdot fosc \cdot (1 - DC))} \\
 & \qquad \qquad \qquad Lmin = \frac{0.4545454545 (Vin - 0.3) (2 DC - 1)}{\text{A} fosc (1 - DC)} \tag{11} \\
 & &= \\
 & > \frac{((3.3 - 0.3) \cdot (2 \cdot 0.4444 - 1))}{(2.2 \cdot 2000000 \cdot (1 - 0.4444))} \\
 & \qquad \qquad \qquad -1.364618103 \cdot 10^{-7} \tag{12} \\
 & &= \\
 & > Lmax = \frac{((Vin - 0.3 \text{ V}) \cdot DC)}{(fosc \cdot 0.35 \text{ A})} \\
 & \qquad \qquad \qquad Lmax = \frac{2.857142857 (Vin - 0.3 \text{ V}) DC}{fosc \text{ A}} \tag{13} \\
 & &= \\
 & > \frac{((3.3 - 0.3 \text{ V}) \cdot 0.4444)}{(2000000 \cdot 0.35)} \\
 & \qquad \qquad \qquad 2.095028572 \cdot 10^{-6} - 1.904571429 \cdot 10^{-7} \text{ V} \tag{14}
 \end{aligned}$$

$$\begin{aligned} &> \frac{((3.3 - 0.3) \cdot 0.4444)}{(2000000 \cdot 0.35)} \\ &= 1.904571429 \cdot 10^{-6} \end{aligned} \quad (15)$$

$$\begin{aligned} &> I_{ripple} = \frac{((V_{in} - 0.3) \cdot DC)}{(f_{osc} \cdot L1)} \\ &= I_{ripple} = \frac{(V_{in} - 0.3) DC}{f_{osc} L1} \end{aligned} \quad (16)$$

$$\begin{aligned} &> \frac{((3.3 - 0.3) \cdot 0.4444)}{(2000000 \cdot 1.904571429 \cdot 10^{-6})} \\ &= 0.3499999999 \end{aligned} \quad (17)$$

$$\begin{aligned} &> I_{out} = \left(3.3 A - \left(\frac{I_{ripple}}{2} \right) \right) \cdot (1 - DC) \\ &= I_{out} = \left(3.3 A - \frac{I_{ripple}}{2} \right) (1 - DC) \end{aligned} \quad (18)$$

$$\begin{aligned} &> \left(3.3 - \left(\frac{0.3499999999}{2} \right) \right) \cdot (1 - 0.4444) \\ &= 1.736250000 \end{aligned} \quad (19)$$

$$\begin{aligned} &> C_{iout} = C_{2out} = \frac{(I_{out} \cdot DC)}{(f_{osc} \cdot (0.01 \cdot V_{out} - 0.50 \cdot I_{out} \cdot RDSON_{PMOS}))} \\ &= false \end{aligned} \quad (20)$$

$$\begin{aligned} &> R_{fb} = \frac{(V_{out} - 1.215 V)}{(83.3 \cdot 10^{-6} A)} \\ &= R_{fb} = \frac{0.01200480192 (V_{out} - 1.215 V)}{10^{-6} A} \end{aligned} \quad (21)$$

$$\begin{aligned} &> \frac{(5.2 - 1.215)}{(83.3 \cdot 10^{-6})} \\ &= 47839.13565 \end{aligned} \quad (22)$$

$$\begin{aligned} &> R_t = \left(\frac{87.6}{f_{osc}} \right) - 1 \\ &= R_t = \frac{87.6}{f_{osc}} - 1 \end{aligned} \quad (23)$$

$$\begin{aligned} &> \left(\frac{87.6}{2000000} \right) - 1 \\ &= -0.9999562000 \end{aligned} \quad (24)$$