9.2.1.2.1.1 Output Inductor Selection

Equation 9 gives the current ripple flowing in the inductor in CCM.

$$\Delta I_L = \frac{V_{out} \times \left(1 - \dfrac{V_{out}}{V_{in}}\right)}{L \times f_{sw}}$$

L = [2.0*(1-2.0/6.4)]/(1.2A * 2.2e6) = 520.8nH

where

- ΔI_L is the current ripple in the inductor. Set to 0.3*4A = 1.2A
- V_{out} is the output voltage. Set to 2.0V
- V_{in} is the input voltage of the converter. Set to 6.4V
- L is the value of the inductor in henry. calculate
- f_{SW} is the switching frequency of the converter. Set to 2.2MHz

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Typically, the value of L is chosen to have the ripple current be 0.1× to 0.3× the full-load current. Choose the inductor so that the saturation current is higher than the maximum expected current plus half the current ripple at maximum operating temperature.