How to calculate the maximum output current for backlight driver

Specs:

Minimum input voltage: $Vin\_min := 3.2V$

Maximum output voltage: $Vout\_max := 7V$

Inductor value: $L := 22 \cdot 10^{-6} H$

Switching Frequency: $fsw := 0.5 \cdot 10^{6} Hz$

Schottky diode forward voltage: $Vd := 0.35V$

Minimum current limit: $Isw\_min := 0.56A$

Efficiency: $\eta := 0.85$

Inductor peak to peak current ripple:

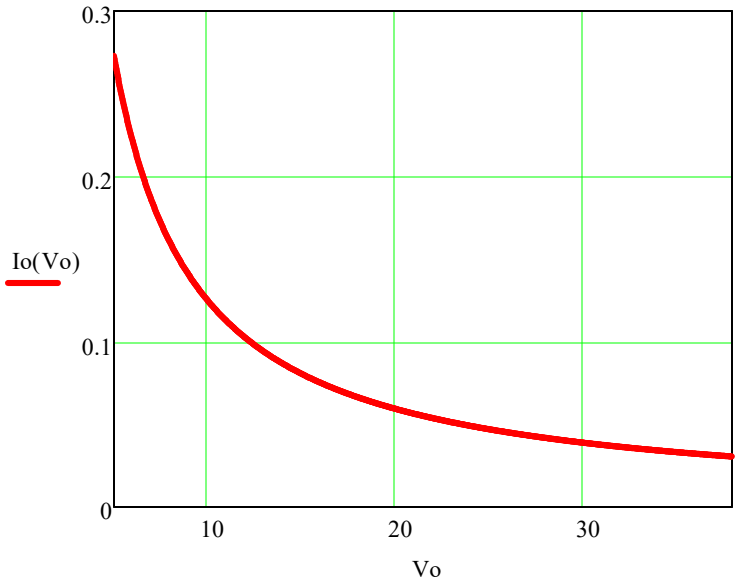
$$ILR := \frac{1}{\left[L \cdot fsw \cdot \left(\frac{1}{Vout\_max + Vd - Vin\_min} + \frac{1}{Vin\_min}\right)\right]} = 0.164\,A$$

Maximum output current:

$$Iout\_max := Vin\_min \cdot \left(Isw\_min - \frac{ILR}{2}\right) \cdot \frac{\eta}{Vout\_max} = 0.186\,A$$

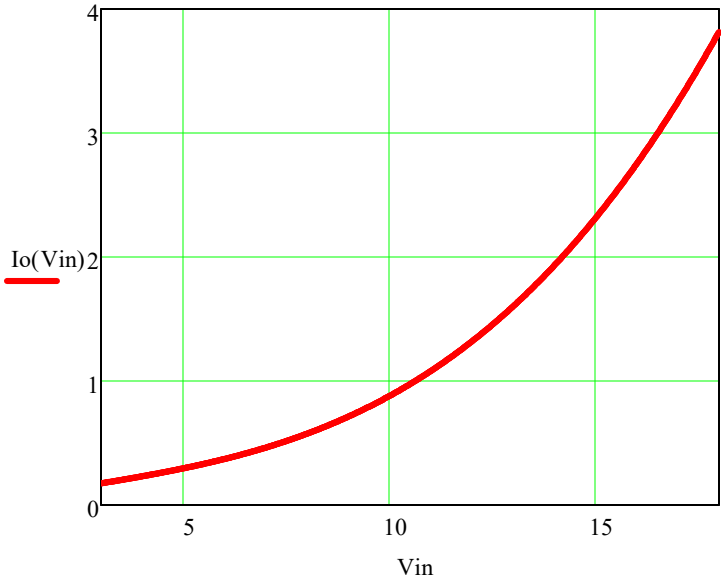
$$Io(Vo) := Vin\_min \cdot \left[Isw\_min - \frac{\frac{1}{\left[L \cdot fsw \cdot \left(\frac{1}{Vo + Vd - Vin\_min} + \frac{1}{Vin\_min}\right)\right]}}{2}\right] \cdot \frac{\eta}{Vo}$$

Io with Vo

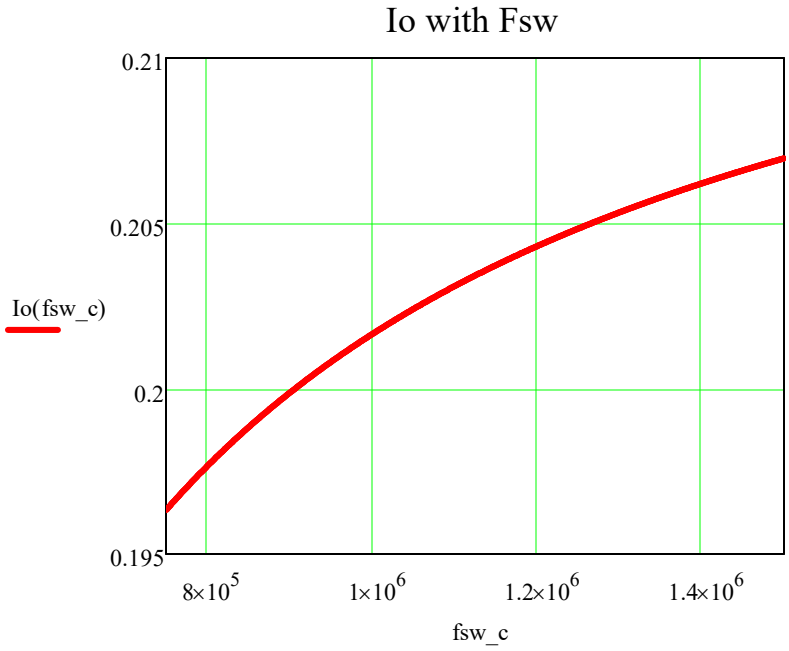


$$Io(Vin) := Vin \cdot \left[Isw\_min - \frac{\left[L \cdot fsw \cdot \left(\frac{1}{Vout\_max + Vd - Vin} + \frac{1}{Vin} \right) \right]^{-1}}{2} \right] \cdot \frac{\eta}{Vout\_max}$$

Io with Vin



$$Io(fsw\_c) := Vin\_min \cdot \left[Isw\_min - \frac{1}{\left[L \cdot fsw\_c \cdot \left(\frac{1}{Vout\_max + Vd - Vin\_min} + \frac{1}{Vin\_min} \right) \right]} \right] \cdot \frac{\eta}{Vout\_max}$$



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