

Dear John and the rest of the readers,

Thanks for your message. Regrettably your suggestion to use a switching frequency of 50 kHz is very confusing to me. I do have a hard time formulating the best questions to you to have the highest chance to be the most useful for me yet take the least time for you to answer. So please provide me direct answers to my questions. I don't want to be rude but I think it will also be the most efficient use of your time. I mean, you would reduce the risk that I have to ask a follow up question about the same topic.

Questions:

1) In a broad sense do you consider it possible not to go with an primary inductance of about 1.2 mH but with an 544 uH one for my very low power 1W flyback design, and adjust component values (other than transformer) accordingly?

For the following set of questions please take a look on the following picture from the datasheet:

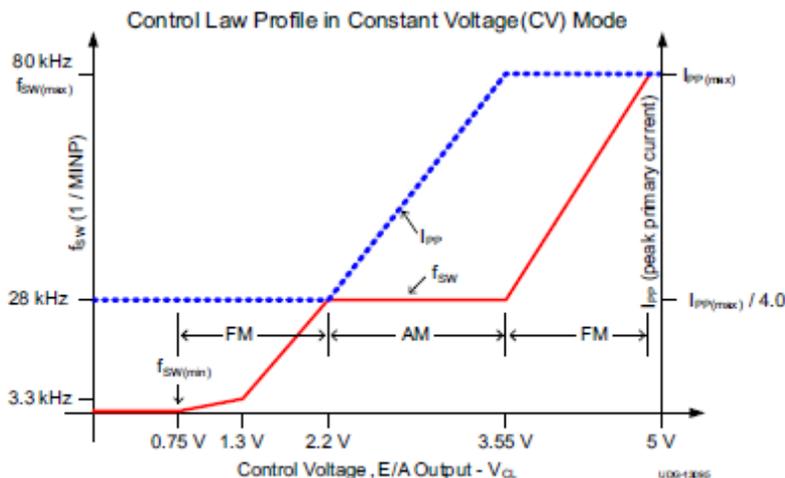


Figure 16. Frequency and Amplitude Modulation Modes (during voltage regulation)

2) For the low power FM part (when control voltage is between 0.75 and 2.2 V), is the duty cycle fixed? If yes, what is the duty cycle?

3) The AM part is what is referred as primary peak current modulation in the FUNCTIONAL DESCRIPTION section of the datasheet, correct? I assume the voltage regulation is controlled by varying the duty cycle up to DMAX of 50.1% when the control voltage is 3.55V, correct?

4) For the high power FM part (when control voltage is between 3.55 and slightly below 5V), is the duty cycle fixed at DMAX of 50.1%?

Now about the calculation of IPP(max)

5) As the objective is to find the correct value of IPP(max), I don't understand why you are talking about a AVERAGE switching frequency. In the example of the USB charger the value of 74 kHz for fMAX is also used. I'm also confused about the following: Are you actually constraining the UCC28720 to a maximum fMAX of 50 kHz, or is the frequency of 74 kHz actually reached at IOCC (200 mA in my case)? In the latter scenario I would very much like to receive a more complete equation than this one

$$L_P = \frac{2(V_{OCV} + V_F + V_{OCBC}) \times I_{OCC}}{\eta_{XFMR} \times I_{PP(max)}^2 \times f_{MAX}}$$

To account for the losses you mentioned. I mean an equation to be able to use the correct value of fMAX of 74 kHz.

So, that would be it for now. I really hope you can give me those answers. I depend on it to be able to continue.

Best regards,
Maarten