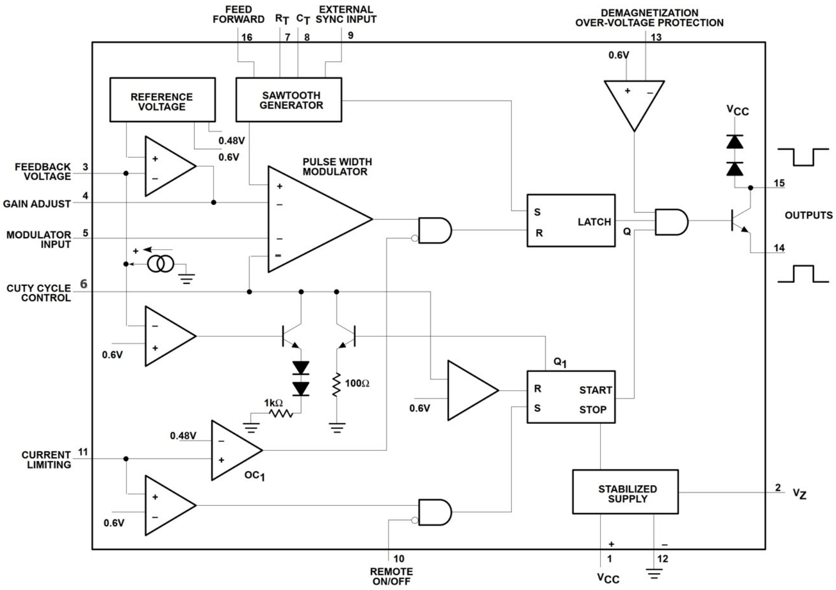
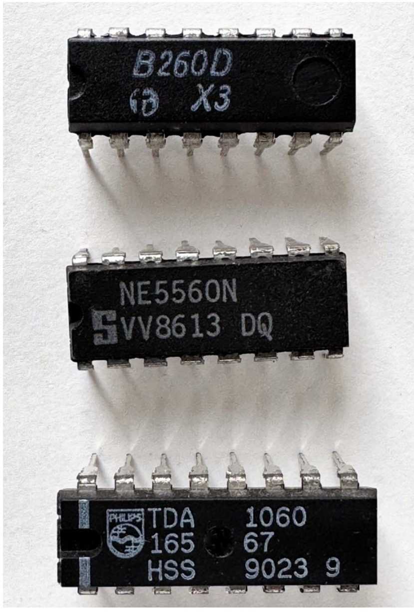
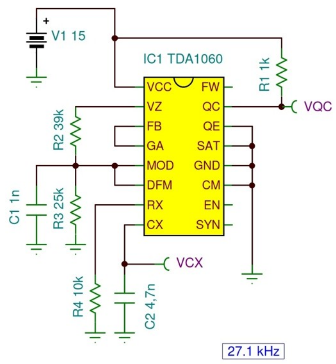
TDA1060 Switched-Mode Power Supply Control Circuit Macro Model

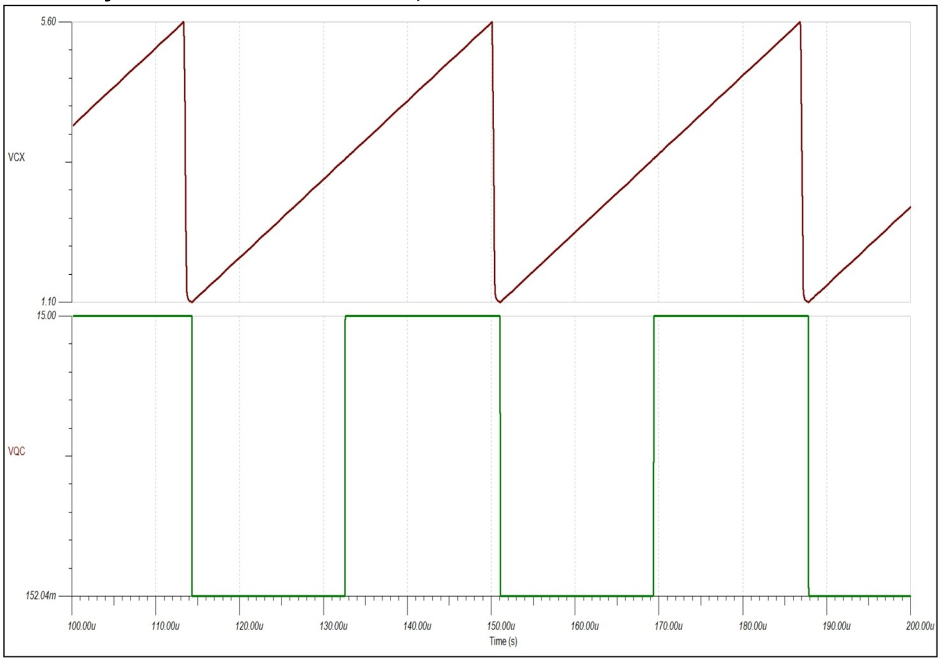
Block Diagram

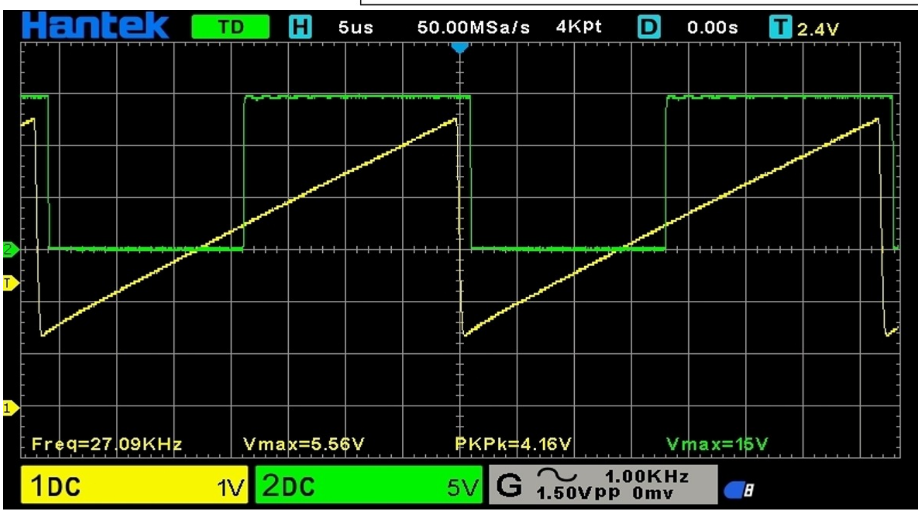




AC Test Circuits (Transient Analysis, Zero initial values)

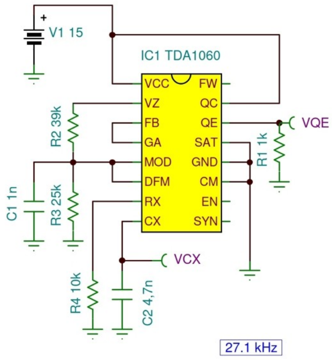


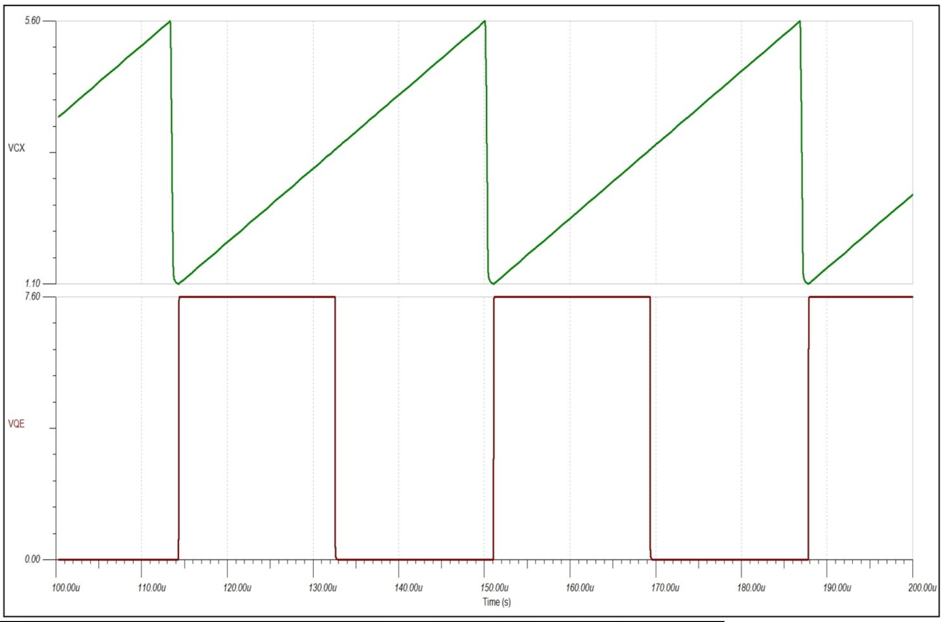


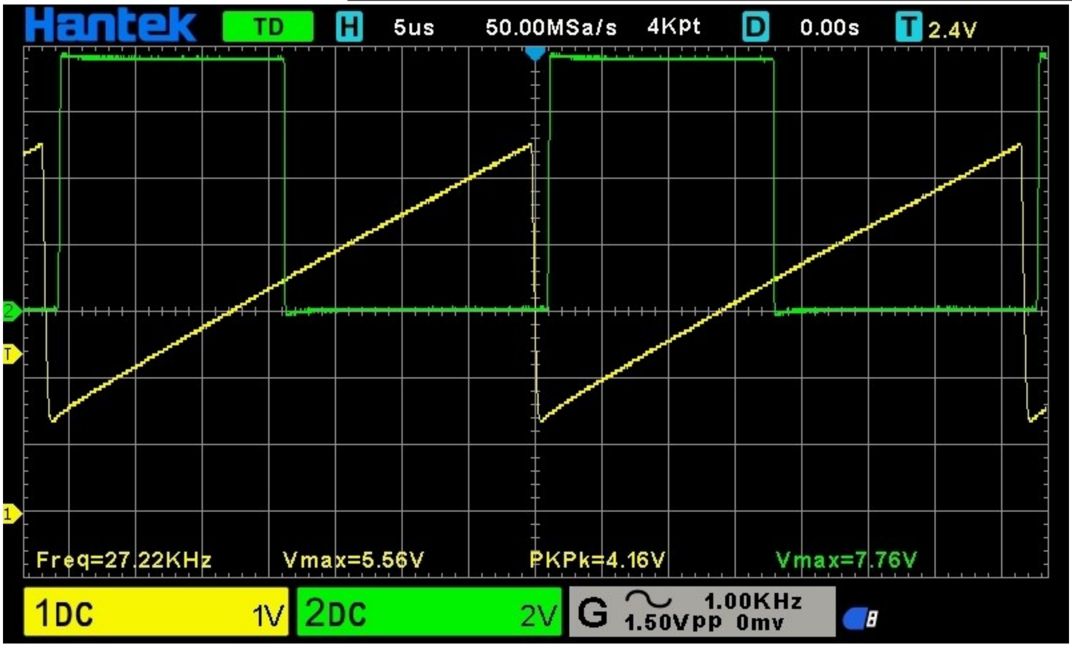


Collector Output

This model is valid for the following devices (within max. ratings): TDA1060 /Philips/ NE/SE5560 /Signetics/ B260D /VEB Halbleiterwerk Frankfurt GDR/

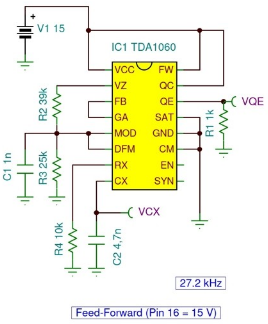


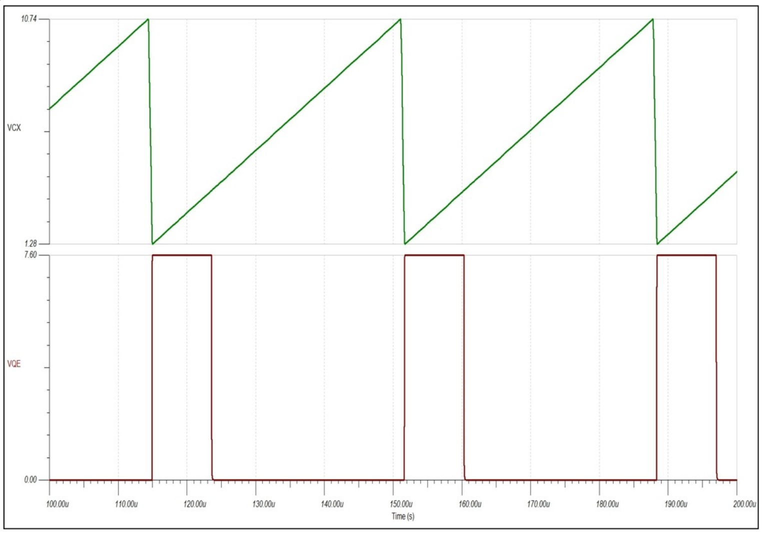


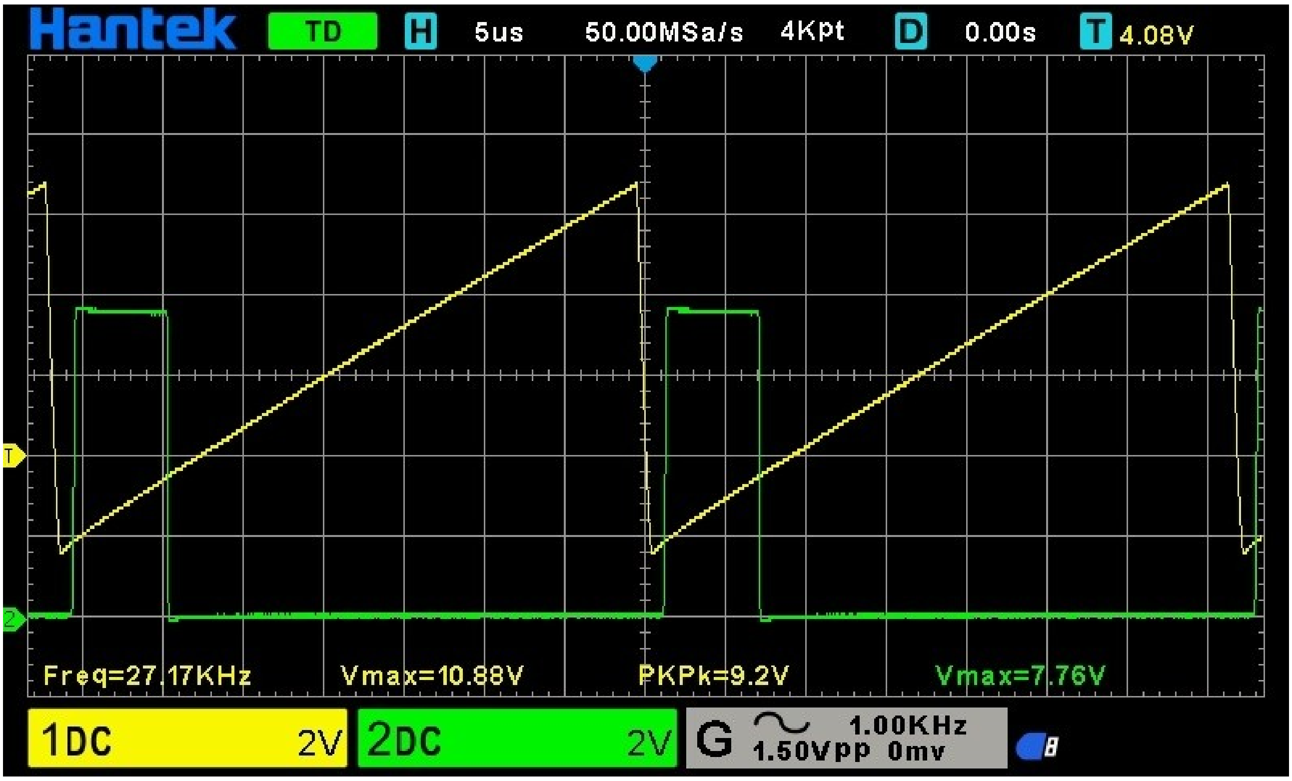


Emitter Output

Feed-Forward (Pin 16 = 15 V)

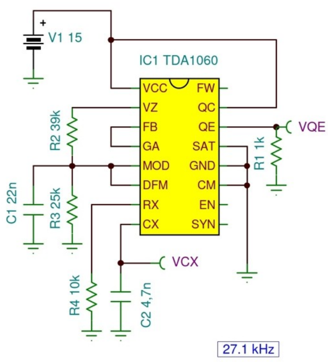


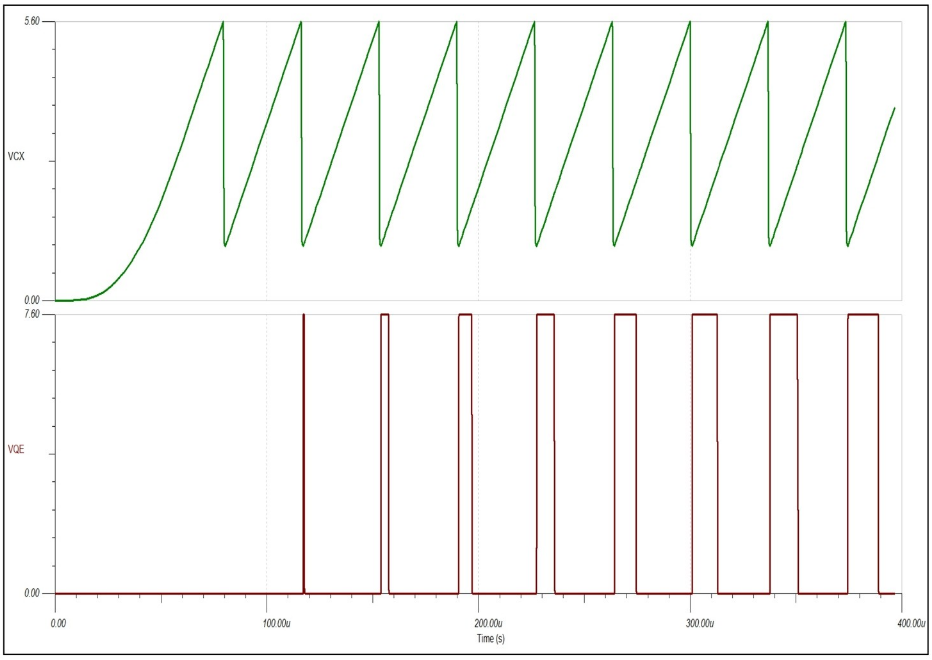




Feed-Forward

Soft-Start





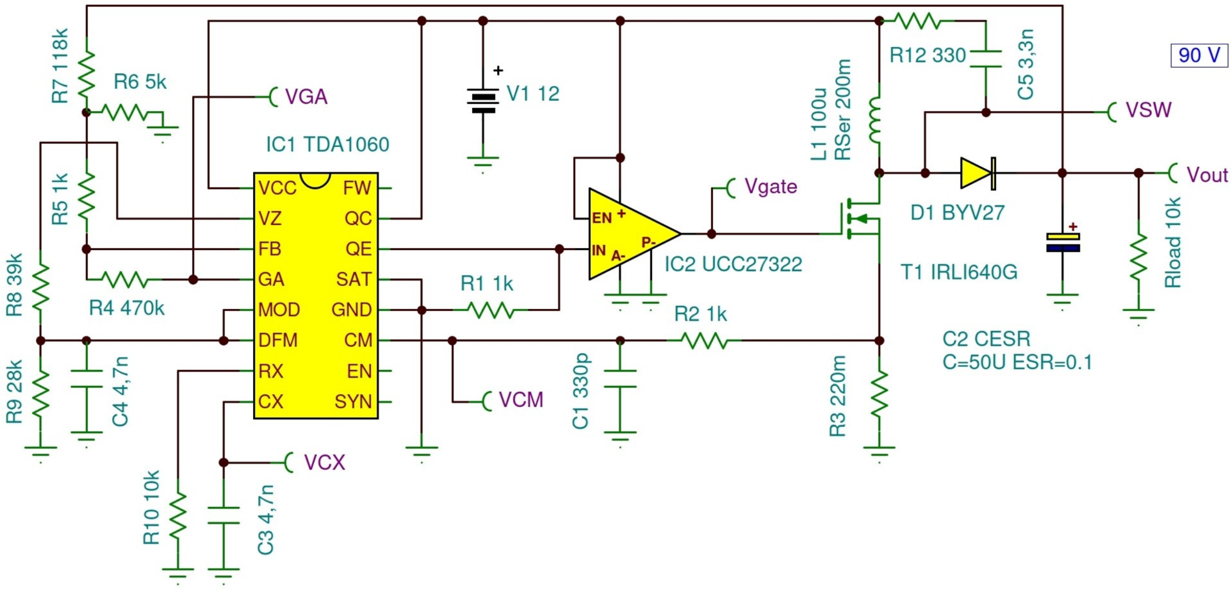
The dead time and the soft-start are determined by an external capacitor (C1) that is connected to Pin 6. The output starts delivering very narrow pulses as soon as V6 exceeds the lower sawtooth level. The duty cycle of the output pulse now gradually increases to a value determined by the feedback on Pin 3 (FB), or by the static δMAX setting on Pin 6 (DFM).

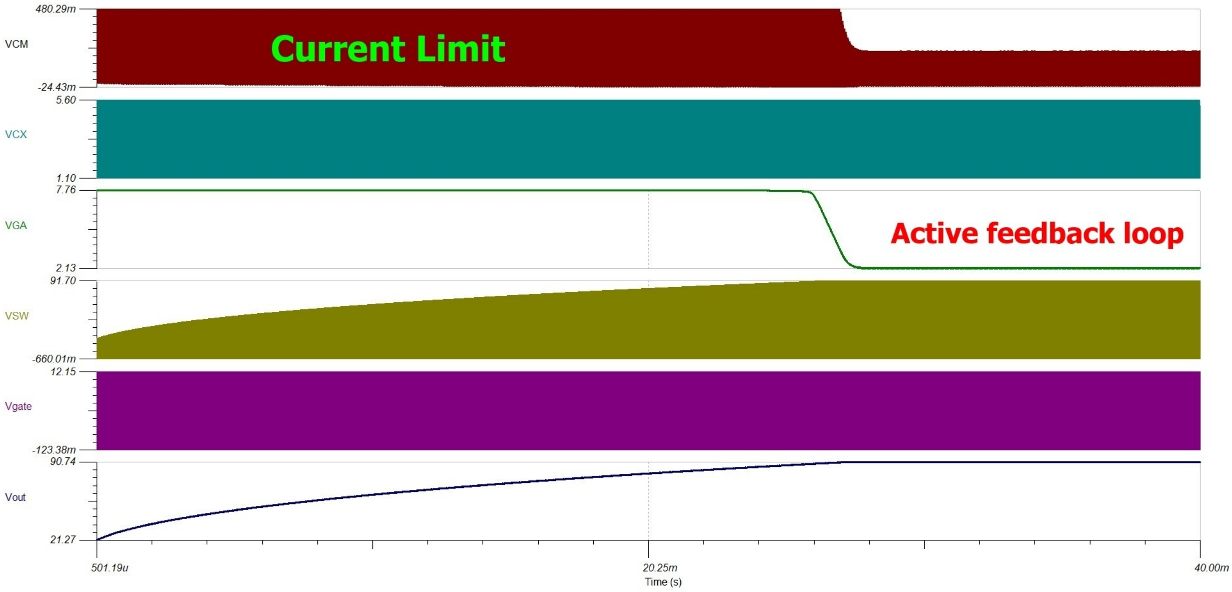
Remote On/Off Circuit (Pin 10 EN)

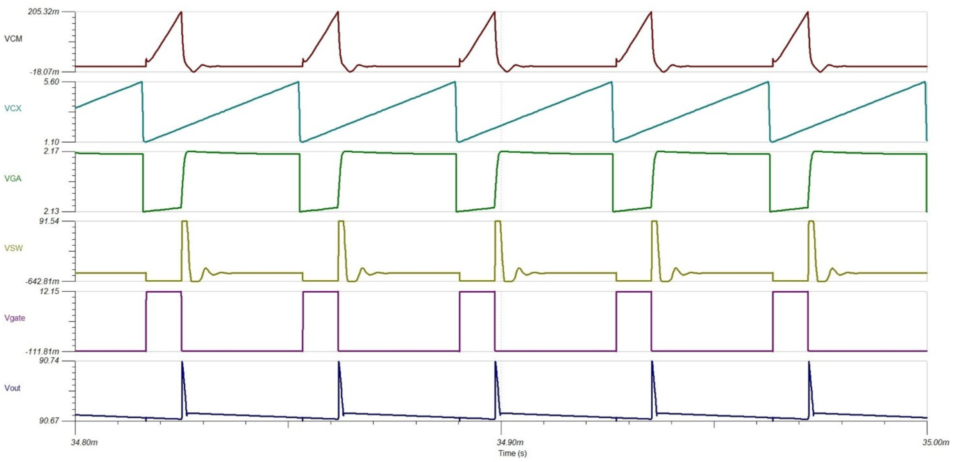
The output pulse is inhibited for levels below 0.8V. The output of the IC is no longer blocked when the remote on/off input is left floating or when a voltage >2V is applied. Start-up occurs via the slow-start circuit.

Synchronization at a frequency lower than the free-running frequency is accomplished via the gate on Pin 9 (SYN). The PWM has an additional inverting input: Pin 5 (MOD). It allows for attacking the duty cycle via the PWM circuit, independently from the feedback and the δMAX information. When not used, Pin 5 should be tied to Pin 6 (DFM).

Step−Up Converter 90 V







Zabb Csaba