SIMPLIS MODELLING GUIDE FOR AHV85110

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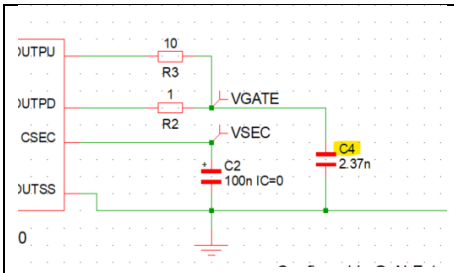
The AHV85110 model is encrypted and runs only in SIMPLIS versions 9.1 and above. There are two Simplis test benches for modelling AHV85110; unipolar and bipolar (matches the EVM) configuration.

V1: VDRV is set to 12V and typical range is 10.2V < V_{DRV} < 13V.

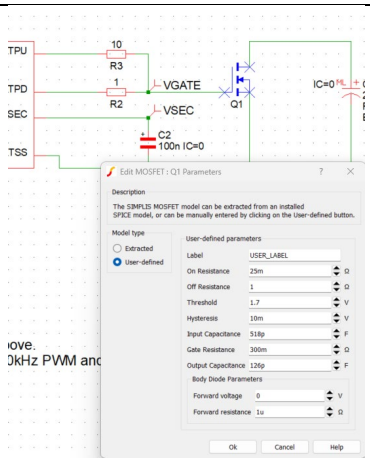
V3: IN PWM frequency, duty cycle, delay and pulse amplitude are user programable.

C2: C_{SEC} capacitance is set to 100nF, typ. C_{SEC} = 20 x C_{OUT}.

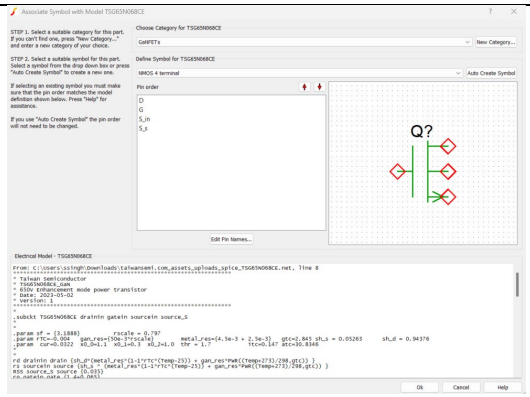
The Simplis model allows for additional flexibility where user can configure the loading either of these three ways:



Use the Load capacitance for the chosen Fet, which can be calculated using the equation below.



Manually add Fet parameters from its datasheet.



Import a GaN Fet Pspice model (if available from the vendor)

The FET used in the test bench is GS-66516-B from GaN Systems. From the GaN datasheet, the $Q_{G(TOT)}$ is specified at 14.2 nC at 6 V VGS swing.

Therefore, the equivalent C_{OUT} = 2.37nF

RUNNING THE MODEL

The model is programmed to plot all node voltages on the schematic. First run will generate a graph file with VSEC, VGATE, IN, EN and VDRV.

For Voltage limitations on the AHV85110 device pins please refer to the AHV85110 Datasheet available on Allegro website.