AC Analysis V1

These various Simplis circuit simulations show where the loop can be broken and measured. Also what is shown are the different types of response measurements that can be made with the simulation.

This is a Simplis model of a 400V input Forward. The output voltage is 12V and capable of up to 10A. This simulation will show the effects of going from resonant reset to hard reset as the load increases. The PWM is a UC3845 by Unitrode.

To better view the schematic, do the following from the SIMetrix command shell to set up the fonts for the text:

File → Options → Font → Schematic – user 1 → Arial,Bold,14

File → Options → Font → Schematic – user 2 → Times New Roman,Bold,22

The following are simulation circuits:

Audio_Susceptibility_Input.sxsch - This finds the periodic operating point, then performs an AC analysis to determine the audio susceptibility from input to output.

Audio_Susceptibility_Bias.sxsch - This finds the periodic operating point, then performs an AC analysis to determine the audio susceptibility from bias to output.

V_Loop_Response.sxsch - This finds the periodic operating point, then performs an AC analysis to show voltage loop response and the transfer function of the power train and error amplifier.

Output Impedance.sxsch - This finds the periodic operating point, then performs an AC analysis to determine the output impedance of the power supply.

The following are required models to run the simulation circuits: The internal schematic can be viewed by highlighting the component, and clicking on Hierarchy → Descend Into

Gen_Opto.sxcmp - This is a component model of a general purpose opto.