

TPS628600 PSPICE Transient Model Features and Limitations

```
*****
*
* Model Usage Notes:
* A. Features have been modelled
* 1. Switching Characteristics and variation with VIN
* 2. RON and variation with VIN
* 3. Peak, Valley current limit
* 4. Selectable Power Save / Forced PWM Mode
* 5. 100% duty cycle operation
* 6. Output discharge functionality
* 7. Output voltage programmability.
*
* B. Features have not been modelled
* 1. Operating Quiescent Current
* 2. Shutdown Current
* 3. Temperature dependent characteristics
* 4. SDA and SCL pins are not modelled.
* 5. Ground Pins have been tied to OV internally and hence model does not support Inverting
*    topologies.
*
* C. Application Notes
* 1. The parameter STEADY_STATE has been used to reach the steady state faster.
*    Keep STEADY_STATE = 0 to observe startup behaviour.
*    Keep STEADY_STATE = 1 and appropriate IC on Inductor and capacitor to observe for faster Steady state.
* 2. After enabling the device (EN>1V), there is an enable delay (tDelay)= 500us before the device starts switching.
*    After tDelay output voltage ramps up the value set by VSEL pin depending on low and high value in 125us.
*    After 125us the device checks the value at VSEL pin. If VSEL value is low, then VOUT with ramp up or down to the value VOUT_REG1.
*    Otherwise VOUT_REG2.
* 3. SOFTWARE_ENABLE= 0 - Disable the device. All registers values are still kept.
*    SOFTWARE_ENABLE= 1 - Re-enable the device with a new startup without the tDelay.
* 4. If ENABLE_FPWM_DURING_VOUT_CHANGE=1 and ENABLE_FPWM=0, and if the device goes from CCM to DCM, 128 cycles of FPWM is activated.
*    After that the device goes to PFM.If ENABLE_FPWM_DURING_VOUT_CHANGE= 0, then ENABLE_FPWM takes control.
* 5. The ramp speed is defined by VOUT_RAMP_SPEED (0-->10mV/us, 1-->5 mV/us, 2-->1 mV/us and 3-->0.1 mV/us).
* 6. Vout parameter is used to set desired output voltage.
* 7. When ENABLE_OUTPUT_DISCHARGE=1, VOUT discharges through Discharge Resistor. Else discharge is only through load
*
*****
```