

# TPSM82866AA0HRDMR PSpice Transient Model Features and Limitations

## \* Model Usage Notes:

### \* A. The following features have been modeled

- \* a. 100% duty cycle operation
- \* b. RON and variation with VIN
- \* c. Current Limit and HICCUP
- \* d. Output discharge functionality
- \* e. Selectable Fixed and Adjustable output voltage configuration.
- \* f. Power Save Mode or Forced PWM Mode.
- \* g. Power Good and UVLO

### \* B. Features have not been modeled

- \* 1. Operating Quiescent Current
- \* 2. Shutdown Current
- \* 3. Temperature dependent characteristics.
- \* 4. Ground pins have been tied to 0V internally. Therefore, this model cannot be used for inverting topologies.

### \* C. Application Notes

- \* 1. The parameter STEADY\_STATE and VOUT has been used to reach the steady state faster.
  - \* Keep STEADY\_STATE = 0 and VOUT = output voltage value, to observe startup behaviour
  - \* Keep STEADY\_STATE = 1 and VOUT = output voltage value, for faster Steady state.
- \* 2. After enabling the device (EN>1V), there is an enable delay (tDelay)= 700us before the device starts switching.
  - \* After tDelay output voltage ramps up the value set by external resistor R4 (at VSET/MODE pin) in 1ms.
- \* 3. For R4=10K or LOW and R4=249K or HIGH, Device works in Adjustable Output Voltage Configuration.
- \* 4. Once the device reaches steady state, VSET/MODE pin can be used to run the device in FPWM/PFM mode.
  - \* Keep VSET/MODE = LOW, device runs in PFM
  - \* Keep VSET/MODE = HIGH, device runs in FPWM
  - \* Connect VSET/MODE to 5.5V DC (not to VIN) to model the device in FPWM mode with an adjustable output voltage.
  - \* In the actual application, connect VSET/MODE to VIN.
- \* 5. The PG pin becomes high under the condition-  $0.91 \times VOUT\_NOM = VVOS = 1.11 \times VOUT\_NOM$