Enhancement in BSIMSOI4.0

1. A scalable stress effect model for process induced stress effect, device performance becoming thus a function of the active area geometry and the location of the device in the active area;

2. Asymmetric current/capacitance model S/D diode and asymmetric S/D resistance;

3. Improved GIDL model with BSIM4 GIDL compatibility;

4. Noise model Improvements;
   1) Improved width/length dependence on flicker noise
   2) SPICE2 thermal noise model is introduced as TNOIMOD=2 with parameter NTNOI
    that adjusts the magnitude of the noise density
   3) Body contact resistance induced thermal noise
   4) Thermal noise induced by the body resistance network
   5) Shot noises induced by Ibs and Ibd separated

5. A two resistance body resistance network introduced for RF simulation;

6. Threshold voltage model enhancement;
   1) Long channel DIBL effect model added
   2) Channel-length dependence of body effect improved

7. Drain induced threshold shift(DITS) model introduced in output conductance;

8. Improved model accuracy in moderate inversion region with BSIM4 compatible Vgsteff;

9. Multi-finger device with instance parameter NF;

10. An new instance parameter AGBCPD to improve gate current for body contact;

11. A new instance parameter DELVTO representing threshold voltage variation;

12. FRBODY is both instance/model parameter

13. Updated BSIMSOI4.0 manual.