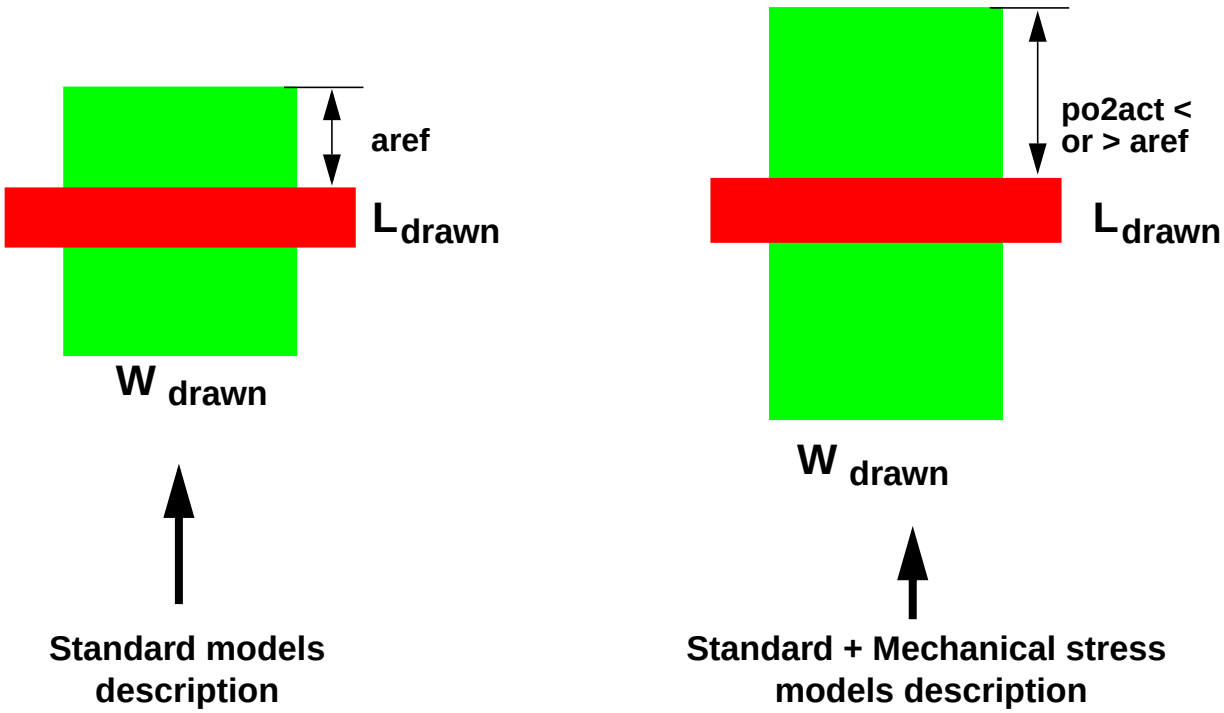
MECHANICAL STRESS MODELLING

1. PRINCIPLE

Mechanical Stress models are based on the variation of the poly to active distance (see graph below).



2. APPLICATION

This model is dedicated to take into account the variations of the electrical characteristics of the MOS transistor when the poly to active distance varies.

3. NOMENCLATURE

No special nomenclature is dedicated to Mechanical Stress models. Indeed these models are applied to all models present in the model card.

One instance parameter is added to define the poly to active dimension: po2act (see scheme above).

- Examples:

  XM1 D G S B nsvt25 W=10u L= 0.5u po2act = 0.82u

  XM2 D G S B phvt W= 5u L= 0.1u po2act = 0.24u

If po2act is not present in the instantiation line, simulation results will use po2act values in the following table :

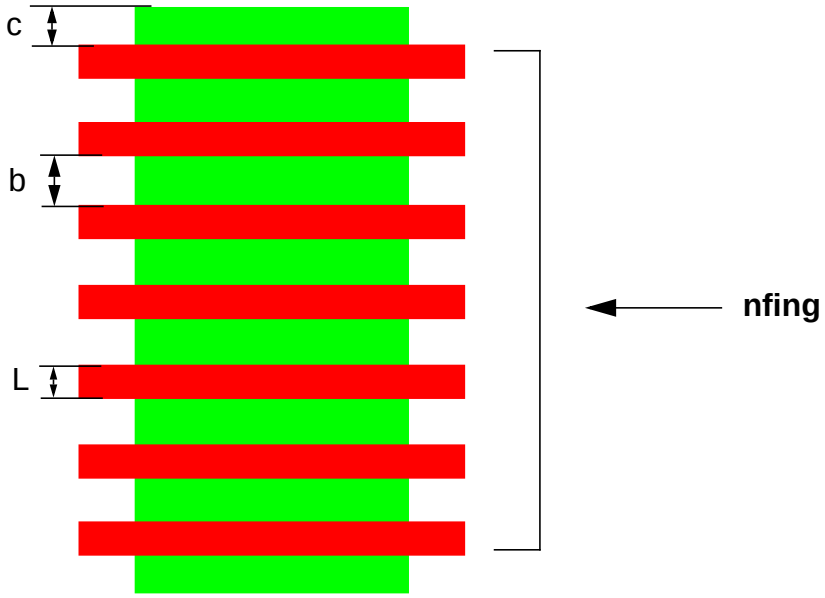
	GO1 models	GO2 models
Compact MOS models	**0.24μm**	**0.27μm**

Table 1: default po2act values depending on gate oxide thickness

NB : po2act is called SA in documentation putting forward the stress impact on MOS electrical characteristics.

4. MULTI FINGER MOS TRANSISTORS

Concerning multifingered MOS transistors, nfing instantiation is **now** taken into account in the stress computation of the concerned MOS transistor.



The equivalent poly to active idstance is calculated as :

$$po2act\_eq = c\left[1 + \frac{nfing - 1}{1 + 2.5\left(\frac{c}{b + L}\right)}\right]$$