$$(C_{dsc} + C_{dscd}V_{ds} + C_{dscb}V_{bseff})\left(\exp(-D_{VT1}\frac{L_{eff}}{2l_t}) + 2\exp(-D_{VT1}\frac{L_{eff}}{l_t})\right)$$

represents the coupling capacitance between the drain or source to the channel. The parameters C_{dsc}, C_{dscd} and C_{dscb} are extracted. The parameter C_{it} in Eq. (2.7.3) is the capacitance due to interface states. From Eq. (2.7.3), it can be seen that subthreshold swing shares the same exponential dependence on channel length as the *DIBL* effect. The parameter *Nfactor* is introduced to compensate for errors in the depletion width capacitance calculation. *Nfactor* is determined experimentally and is usually very close to 1.

2.8 Effective Channel Length and Width

The effective channel length and width used in all model expressions is given below

$$L_{eff} = L_{drawn} - 2dL \tag{2.8.1}$$

$$W_{eff} = W_{drawn} - 2dW \tag{2.8.2a}$$

$$W_{eff}' = W_{drawn} - 2dW' \tag{2.8.2b}$$

The only difference between Eq. (2.8.2a) and (2.8.2b) is that the former includes bias dependencies. The parameters *dW* and *dL* are modeled by the following