

$$E_{sat} = \frac{2v_{sat}}{\mu_{eff}}$$

B.1.5 Effective V_{ds}

$$V_{dseff} = V_{dsat} - \frac{1}{2} \left(V_{dsat} - V_{ds} - \delta + \sqrt{(V_{dsat} - V_{ds} - \delta)^2 + 4\delta V_{dsat}} \right)$$

B.1.6 Drain Current Expression

$$I_{ds} = \frac{I_{dso}(V_{dseff})}{1 + \frac{R_{ds}I_{dso}(V_{dseff})}{V_{dseff}}} \left(1 + \frac{V_{ds} - V_{dseff}}{V_A} \right) \left(1 + \frac{V_{ds} - V_{dseff}}{V_{ASCE}} \right)$$

$$I_{dso} = \frac{W_{eff}\mu_{eff}C_{ox}V_{gsteff} \left(1 - A_{bulk} \frac{V_{dseff}}{2(V_{gsteff} + 2v_t)} \right) V_{dseff}}{L_{eff}[1 + V_{dseff} / (E_{sat}L_{eff})]}$$

$$V_A = V_{Asat} + \left(1 + \frac{P_{vag}V_{gsteff}}{E_{sat}L_{eff}} \right) \left(\frac{1}{V_{ACLM}} + \frac{1}{V_{ADIBLC}} \right)^{-1}$$

$$V_{ACLM} = \frac{A_{bulk}E_{sat}L_{eff} + V_{gsteff}}{P_{CLMA_{bulk}E_{sat}litl}} (V_{ds} - V_{dseff})$$