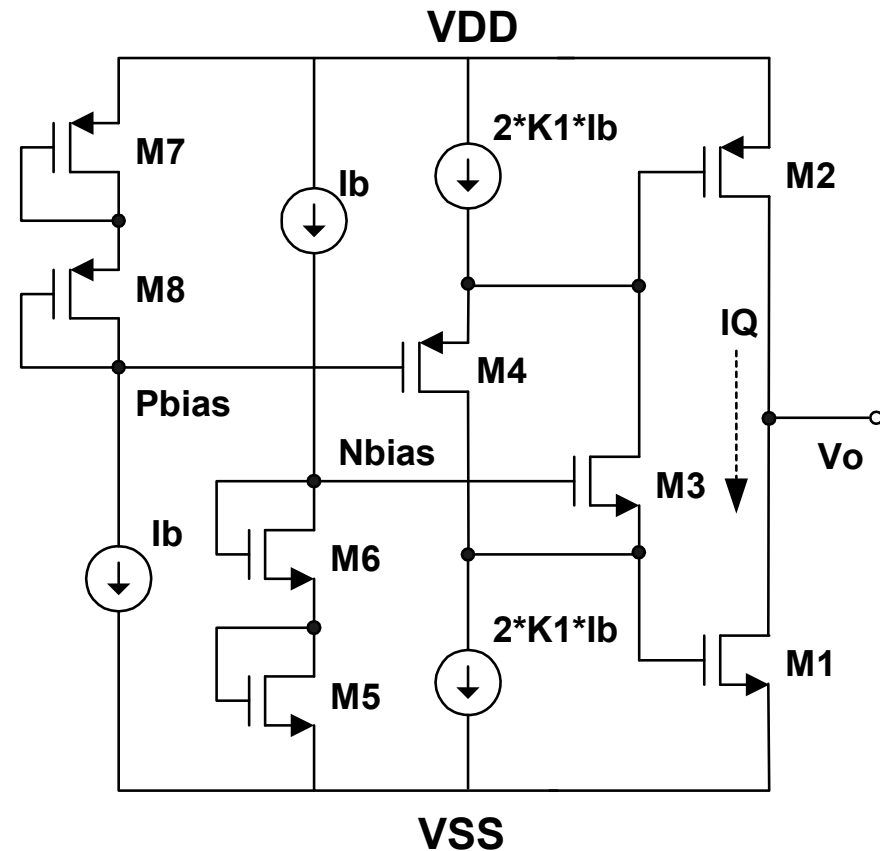# Class-AB bias circuit

- Introduced by Monticelli [†]

- Transistor M3,4 acts as a "floating current mirror"

- Biasing is based on Quadratic translinear principle (QTL) [††]

- Vgs5+Vgs6 = Vgs1+Vgs3

- If $\left(\dfrac{W}{L}\right)_3 = K1*\left(\dfrac{W}{L}\right)_6$ and

  $\left(\dfrac{W}{L}\right)_1 = K2*\left(\dfrac{W}{L}\right)_5$

  then $\boxed{I_Q = K2*Ib}$

Monticelli's Class-AB biasing scheme

† D. M.Monticelli, "A quad CMOS single-supply opamp with rail-to-rail output swing," *IEEE J. Solid-State Circuits*, vol. SSC-21, pp. 1026-1034, Dec. 1986

† † W. Gai, H. Chen, E.Seevinck, *"Quadratic-translinear CMOS multiplier-divider circuit,"* *Electron. Lett.*, vol. 33, Issue 10, pp. 860-861, 8 May 1997