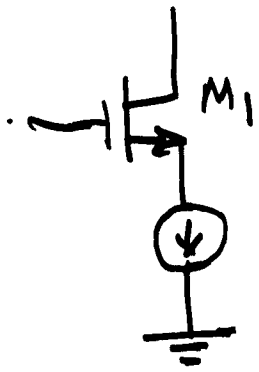
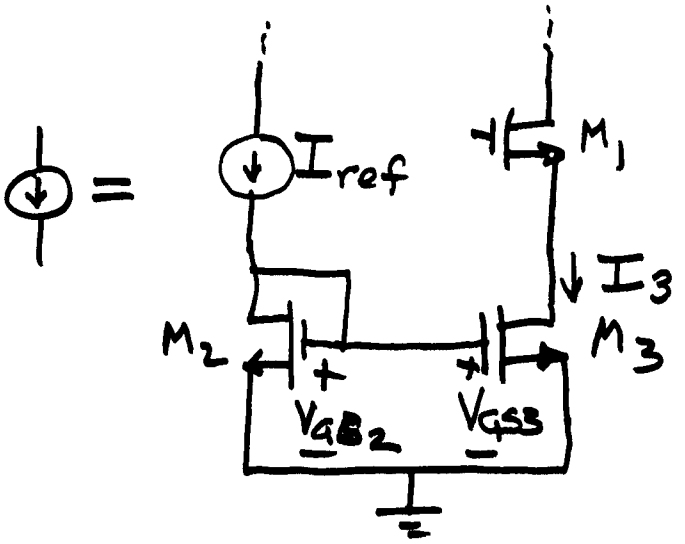
INTEGRATED-CIRCUIT AMPLIFIERS

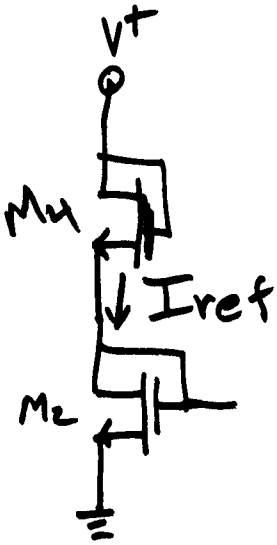
AVOID RESISTORS

USE CURRENT SOURCE BIASING

CURRENT MIRROR







I_{ref} ESTABLISHES V_{GS2}

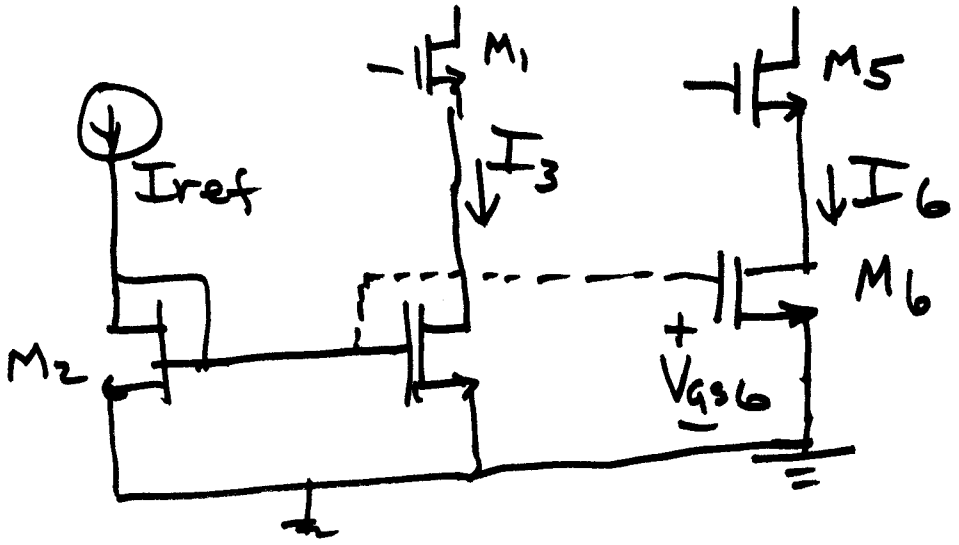
$V_{GS3} = V_{GS2}$

$$I_3 = K_{n3}\left(V_{GS3} - V_{TN3}\right)^2$$

$$\frac{I_3}{I_{ref}} = \frac{K_{n3}\left(V_{GS3} - V_{TN3}\right)^2}{K_{n2}\left(V_{GS2} - V_{TN2}\right)^2} = \frac{K_{n3}}{K_{n2}}$$

$$= \frac{\left(\frac{W}{L}\right)_3}{\left(\frac{W}{L}\right)_2}$$

$K_n = \frac{k'_n}{2}\frac{W}{L}$



$$\frac{I_6}{I_{ref}} = \frac{\left(\frac{W}{L}\right)_6}{\left(\frac{W}{L}\right)_2}$$