Small Signal parameters

$$g_{m1} = g_{m2} = \sqrt{2 \times \frac{8I_o}{2} \times k_1 \times 16}$$

$$= \sqrt{8 \times 200\mu \times 400\mu \times 16} = 3200\mu S$$

$$g_{m3} = g_{m4} = \sqrt{2 \times \frac{8I_o}{2} \times k_3 \times 64} = 3200\mu S$$

$$g_{m5} = \sqrt{2 \times 40 I_o \times k_5 \times 640}$$

$$= \sqrt{2 \times 40 \times 200\mu \times 100\mu \times 640} = 3200\mu S$$

$$g_{ds1} = g_{ds2} = \lambda_n \frac{I_o \times 8}{2} = 0.05 \times \frac{8 \times 200\mu}{2} = 40\mu S$$

$$g_{ds3} = g_{ds4} = \lambda_p \frac{I_o \times 8}{2} = 40\mu S$$

$$g_{ds5} = \lambda_p (40 I_o) = 0.05 \times 40 \times 200 = 400\mu S$$

$$g_{ds6} = \lambda_n (40 I_o) = 400\mu S$$