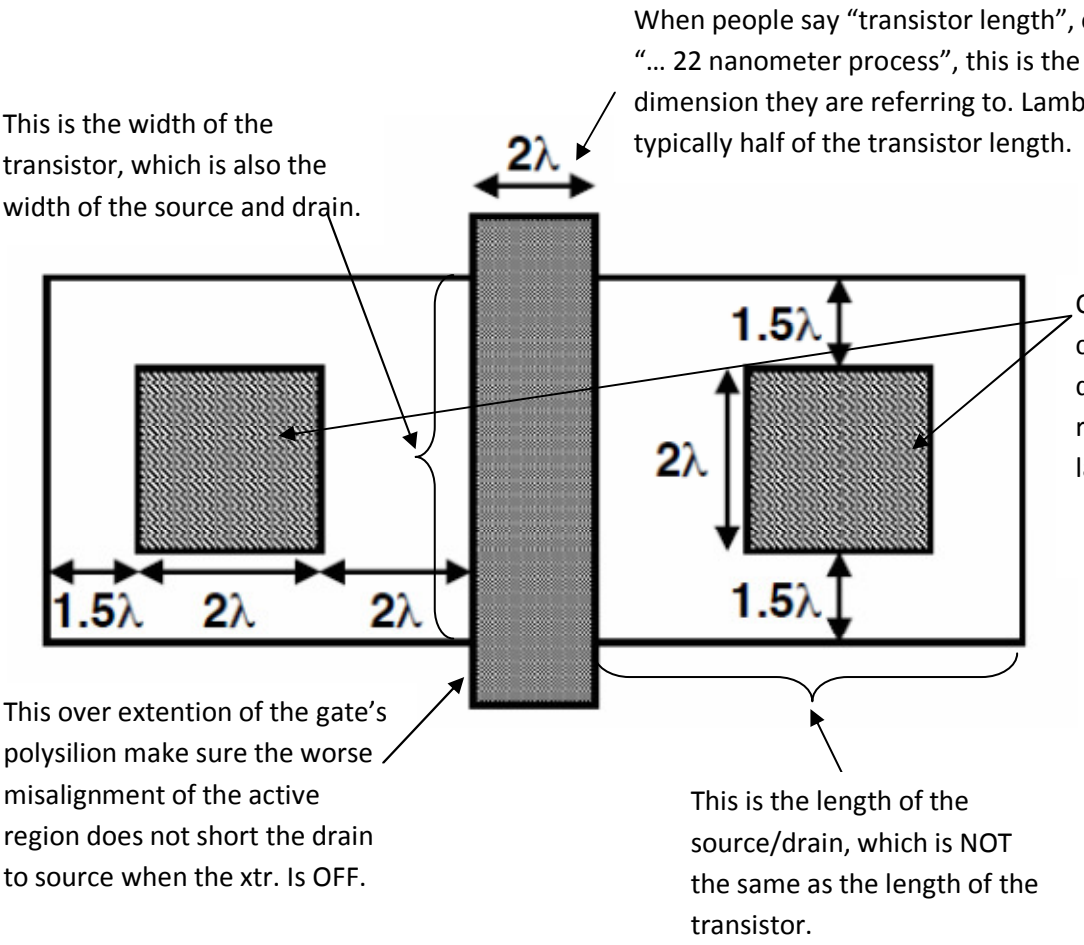
EEC116 Prelab #1 Solution



1.1 Parameters below apply to both source and drain.
Width = 1.5+2+1.5 = 5 lambda = 450 nm
Length = 1.5+2+2 = 5.5 lambda = 495 nm
Perimeter = 1*width + 2*lengths = 16 lambda = 1440 nm
Area =Width * Length = 27.5 squared lambda = 222750 square nm = 0.22 square um

1.2 PMOS with 3 times the width.
Parameters below apply to both source and drain.
New Width = 5 lambda * 3 = 15 lambda = 1350 nm
Length = 5.5 lambda – same as before = 495 nm
Perimeter = 1*New Width + 2*lengths = 26 lambda = 2340 nm
Area =New width * Length = 82.5 squared lambda = 668250 square nm = 0.67 square um

1.3 Doubling the length of a transistor will only change the length of the channel (2 lambda -> 4 lambda).
All parameters for the source and drain regions calculated in 1.1 and 1.2 above stay the same.