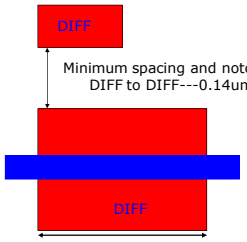
Layout Rules

UMC 90um 1P9M Process

QT-02/09, v2011

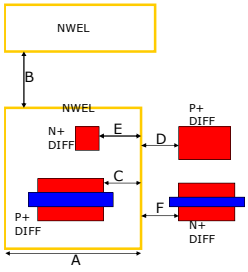
Diffusion Layer (DIFF)



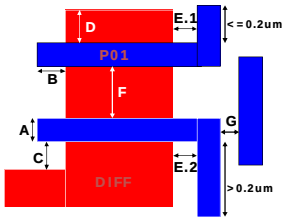
Nwell Layer (NWEL)

- A: minimum Nwell width
  ----0.52um
- B: spacing and notch of Nwell to Nwell of equal potential
  ----0 or >=0.52um
- C: minimum NWEL enclosure of P+ DIFF ----0.21um
- D: minimum NWEL to P+ DIFF ---- 0.16um
- E: minimum NWEL enclosure of N+ DIFF ----0.16um
- F: minimum NWEL to N+ DIFF ---- 0.21um

NOTE: NWEL patterns must be orthogonal

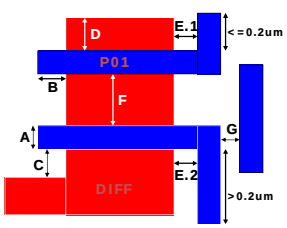


Poly Layer (P01) —1



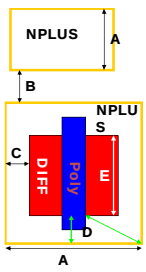
- A: minimum P01 width (gate length) for PMOS and NMOS----0.08um;
- B: minimum P01 overhang of DIFF (Poly1 end cap)----
  1. if Poly1 end cap area >=0.032um^2 ---- 0.14um
  2. if Poly1 end cap area <0.032um^2 ---- 0.18um
- C: minimum end cap P01 to related DIFF spacing
  ----0.06um
- D: minimum DIFF overhang of P01 gate
  ----0.15um

Poly Layer (P01) —2



- E: minimum spacing of P01 corner on field to DIFF
  1.P01 common run length with adjacent, parallel DIFF=<0.2um----0.06um
  2.P01 common run length with adjacent, parallel DIFF>0.2um----0.08um
- F: minimum spacing of parallel P01 gates
  ----0.16um
- G: minimum spacing and notch of P01 on field
  ----0.16um

N$^+$ Implant Layer (NPLUS)

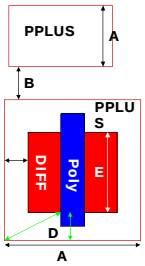


- A: minimum NPLUS width
  ----0.20um
- B: minimum NPLUS spacing and notch
  ----0.20um
- C: minimum NPLUS overhang of N+ DIFF for NMOS
  ----0.11um
- D: minimum NPLUS overhang of NMOS gate
  ----0.18um
- E: minimum overlap of NPLUS to DIFF to form N$^+$ region
  ----0.16um

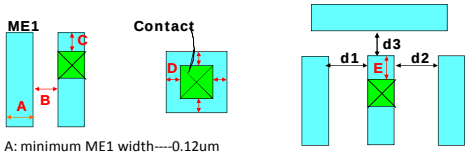
P+ Implant Layer (PPLUS)

A: minimum PPLUS width
----0.20um

- B: minimum PPLUS spacing and notch
  ----0.20um
- C: minimum PPLUS overhang of P+ DIFF over Nwell
  ----0.11um
- D: minimum PPLUS overhang of PMOS gate
  ----0.18um
- E: minimum overlap of PPLUS to DIFF to form P+ region
  ----0.16



Metal 1 Layer (ME1)



- A: minimum ME1 width----0.12um
- B: minimum ME1 spacing and notch----0.12 um, but 0.18um for ME1 with widch>0.70um; 0.34um for ME1 with width>2.8um
- C: minimum ME1 line end enclosure of Contact----0.04um
- D: minimum ME1 line end enclosure of Contact for 4 sides
  ----0.02um
- E: minimum ME1 line end enclosure of Contact----0.08um
  (if ME1 width ≤ 0.14um and the spacing of ME1 line end to 3 adjacent ME1 patterns ≤ 0.14um-i.e. d1, d2 and d3 ≤ 0.14um)

Contact Layer (CONT)