

AMI 0.5 μ m Process Design Rules

Summary

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1 General Rules

- Minimum transistor width is 0.8 μ m
- NCHAN and NWELL layers should be identical and overlapping
- PPLS and NPLS layers should be identical and overlapping
- Minimum NWELL to PPLS spacing is 1.5 μ m
- Minimum diffusion width is 0.5 μ m
- Minimum diffusion spacing is 0.9 μ m
- Contacts (CNT) should be used to connect NWELL and PWELL to METAL1 (M1) layer. Otherwise, *floating NWELL* or *floating PWELL* errors will be shown.

2 POLY Layer Rules

- Minimum POLY width is 0.6 μ m
- Minimum POLY spacing is 0.6 μ m
- Minimum ACTIVE (ACT) extension beyond POLY is 0.65 μ m
- Min POLY extension beyond ACT is 0.5 μ m
- Minimum POLY to ACT spacing is 0.2 μ m

3 Metal Layers Rules

- Minimum M1 width is 0.6 μ m
- Minimum M1 spacing is 0.6 μ m
- Minimum Wide-M1 to M1 spacing is 1.2 μ m
- Minimum M2 width is 0.7 μ m

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- Minimum M2 spacing is $0.7\mu\text{m}$
 - Minimum Wide-M2 to M2 spacing is $1.2\mu\text{m}$
 - Minimum M3 width is $0.8\mu\text{m}$
 - Minimum M3 spacing is $0.7\mu\text{m}$
 - Minimum Wide-M3 to M3 spacing is $1.2\mu\text{m}$

4 VIA Rules

- VIA should be $0.5\mu\text{m}$ by $0.5\mu\text{m}$
- VIA should be covered by M1 and M2
- Minimum VIA spacing is $0.6\mu\text{m}$
- Minimum M1 enclosure of VIA is $0.2\mu\text{m}$
- Minimum M2 enclosure of VIA is $0.2\mu\text{m}$

5 VIA2 Rules

- VIA2 should be $0.5\mu\text{m}$ by $0.5\mu\text{m}$
- VIA2 should be covered by M2 and M3
- Minimum VIA2 spacing is $0.8\mu\text{m}$
- Minimum M2 enclosure of VIA2 is $0.2\mu\text{m}$
- Minimum M3 enclosure of VIA2 is $0.2\mu\text{m}$

6 Contact (CNT) Rules

- CNT should be $0.5\mu\text{m}$ by $0.5\mu\text{m}$
- Minimum CNT spacing is $0.5\mu\text{m}$
- CNT should be covered by M1 (CNT without M1 will give the error: CTNOM1)
- Minimum ACT enclosure of CNT is $0.3\mu\text{m}$
- Minimum CNT to any POLY spacing is $0.4\mu\text{m}$
- Minimum POLY enclosure of CNT is $0.2\mu\text{m}$
- Minimum POLY2 enclosure of CNT is $0.2\mu\text{m}$
- Minimum POLY-CONTACTS to ACT spacing is $0.4\mu\text{m}$

7 N+ Implant Rules

- Minimum PPLS to ACT spacing is $0.3\mu\text{m}$
- Minimum PPLS enclosure of ACT is $0.3\mu\text{m}$
- Minimum PPLS to NWELL spacing is $1.5\mu\text{m}$
- Minimum PPLS width is $0.7\mu\text{m}$
- Minimum PPLS spacing is $0.7\mu\text{m}$
- Minimum N-Diffusion enclosure of Gate is $0.65\mu\text{m}$
- Minimum P-Diffusion enclosure of Gate is $0.65\mu\text{m}$