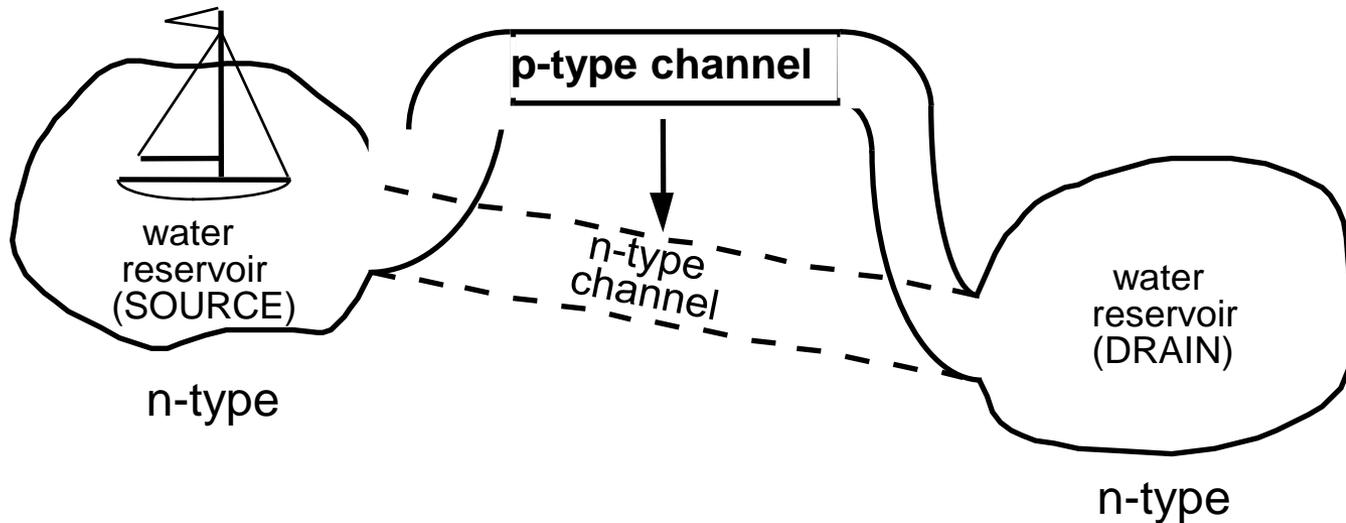


N-Channel MOSFET Operation

- Current (water) will not flow from an n-type reservoir to a p-type region because it would have to flow *uphill*.



- Only way we can get water from one p-type reservoir to another is by way of a *n-type channel*.
- By using a capacitor and applying a positive voltage to that capacitor, we can change the apparent conductivity of the channel from p to n and turn the transistor on.
- In reality, the drain is usually at a lower elevation than the source so the water will flow downhill to the drain.



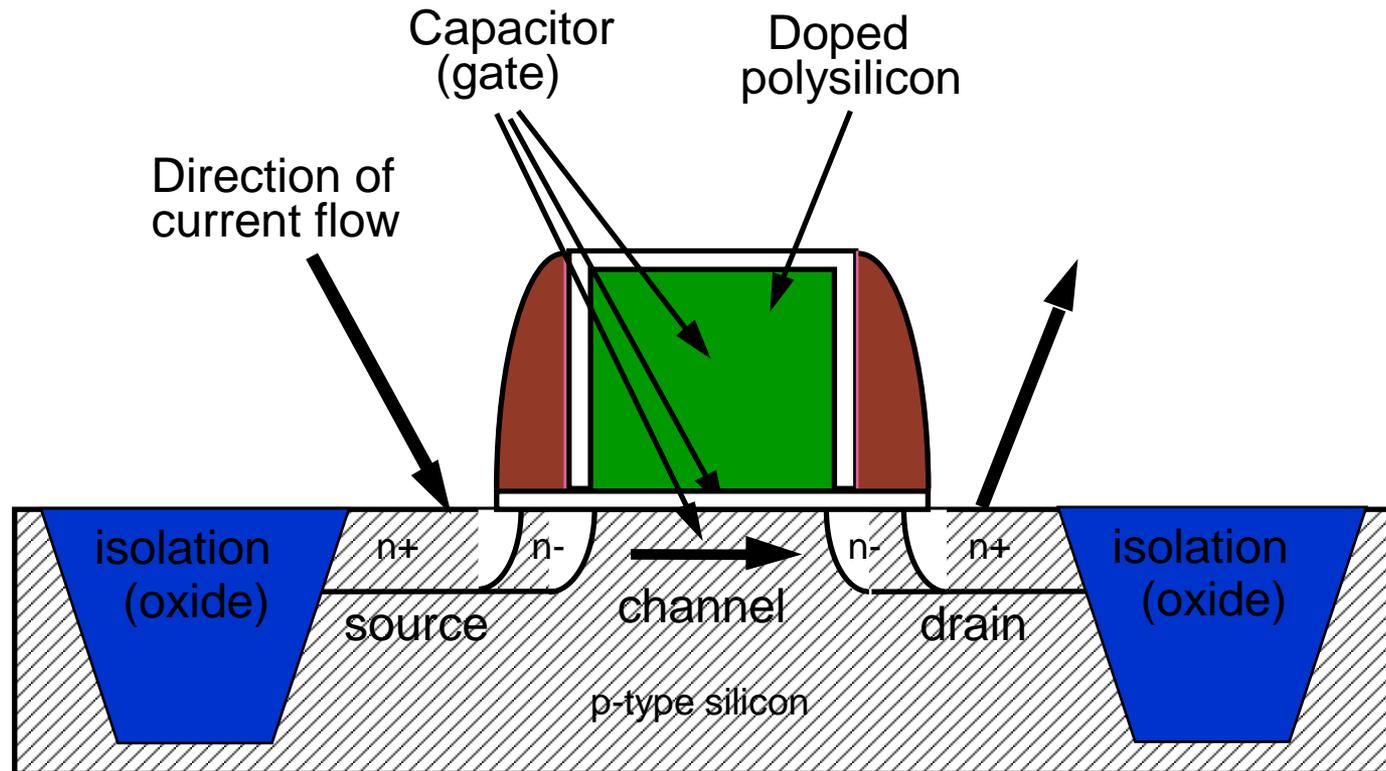
Integrated Circuit Manufacturing Process



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Anatomy of a MOSFET: Cross-Section

- A MOS transistor is nothing more than a voltage-controlled switch.
- A MOS transistor is really just a capacitor with two extra terminals.



Cross-Section View



Semiconductor Fabrication Equipment



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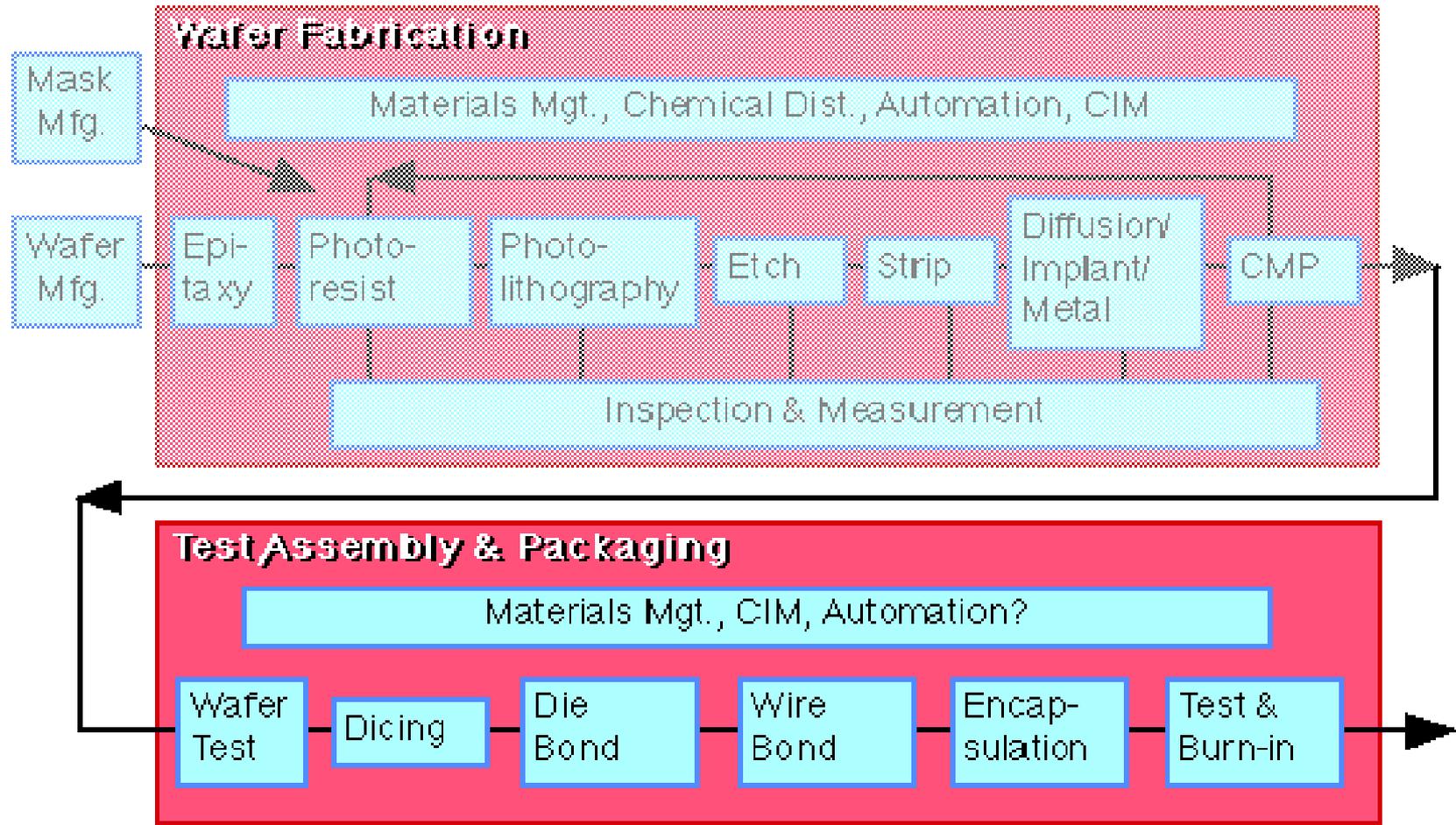


Integrated Circuit Back-End Manufacturing Processes



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Test and Assembly Process





Semiconductor Market Trends



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Drivers for Semiconductor Fabrication Process Change



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Quality and Failure Analysis



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Freescale Manufacturing



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