

Linear Integrated Circuits: Operation and Applications

UNIT - I
BASICS OF OPERATIONAL AMPLIFIERS.

1.1 Introduction:

- The opamp is a direct coupled high-gain Amplifier to which the feedback is externally connected to control its overall response characteristics.
- It is mainly used to perform many Linear operations as well as non linear functions, it is often called "Analog or Linear Integrated circuit".
- Applications: Summation, scaling, differentiation and Integration etc.

1.2 Block Diagram of Operational Amplifiers.

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    graph LR
      NI[Non-Inverting Input] --> IS[Input Stage]
      I[Inverting Input] --> IS
      IS --> IS2[Intermediate Stage]
      IS2 --> LSS[Level shifting Stage]
      LSS --> OS[output Stage]
      OS --> OUT[output]
  
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Non-Inverting Input

Inverting Input

Input Stage

Intermediate Stage

Level shifting Stage

output Stage

output

- The Operational Amplifier is basically a differential Amplifier, and its function is to amplify the difference between the two Input signals.
- The integrated circuit Technology makes it possible to realize a large number of virtually identical transistors.

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