Operational Amplifier Basics

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In this tutorial, we will learn about Operational Amplifiers in general, its characteristics, few applications and some of the important Operational Amplifier Basics.

Operational Amplifier or simply Op-amp is one of the most frequently and widely used electronic component. They are the main building blocks in Analog Circuits (https://www.electronicshub.org/analog-circuits-and-digital-circuits/) and are used in a wide range of consumer electronics, industrial equipment and scientific devices.

Outline

Introduction

An operational amplifier commonly known as op-amp is a two-input single-output differential voltage amplifier which is characterized by high gain, high input impedance and low output impedance.

The operational amplifier is called so because it has its origins in analog computers, and was mainly used to perform mathematical operations.

Depending on its feedback circuit and biasing, an op-amp can be made to add, subtract, multiply, divide, negate, and interestingly even perform calculus operations like differentiation and integration.

Today, op-amps are very popular building blocks in electronic circuits. Op-amps are used for a variety of applications such as AC and DC signal amplification, filters, oscillators, voltage regulators, comparators and in most of the consumer and industrial

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