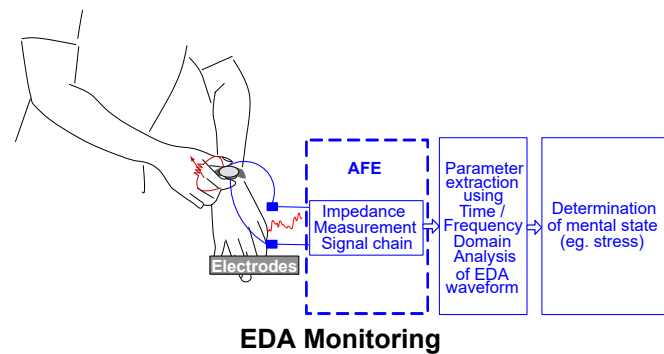
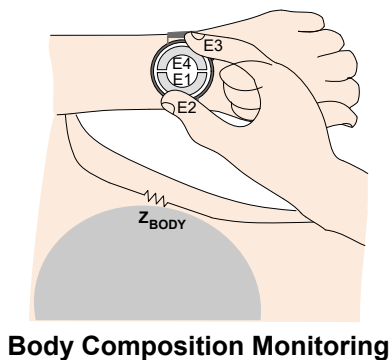


Product Overview

Bioimpedance (Bio-Z) Applications Using Integrated Analog Front End (AFE)



The measurement of bioimpedance enables applications like Body Composition Measurement and Electrodermal Analysis. Body Composition Measurement (BCM) using Bioimpedance Analysis (BIA) refers to the estimation of various components that make up the body composition (water, muscle, fat, and so forth) by measuring the electrical impedance between one or more segments of the human body, usually at 50 kHz. The challenges of realizing a BCM application on a wearable device arise from high and time-varying contact impedances. The TI AFE4500 device solves these challenges with a unique approach to impedance measurement that adapts dynamically to time-varying contact impedance while measuring the body impedance accurately. Electrodermal Analysis (EDA) refers to the variation of the electrical conductance of the skin in response to sweat secretion and is linked to mental states like stress, emotion, and cognitive states. TI's AFE4500 has two signal chains for EDA measurement, one that enables EDA monitoring with high accuracy, and the other that enables EDA monitoring at extremely low power.



Recommended Parts

Part Number	Description
AFE4500	Integrated analog front end (AFE) for bioimpedance analysis and electrical and optical biosensing

TI Resources

- [Electrodermal Activity \(EDA\) for Wearable Devices](#) Application Brief
- [Body Composition Measurement \(BCM\) for Wearables](#) Application Brief
- [BCM design guide using AFE4500](#) Design Guide (under NDA)
- [EDA design guide using AFE4500](#) Design Guide (under NDA)

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