AFE4403YZPR

AFE General Purpose 1 ADC 8bit 3.3V 36-Pin DSBGA T/R

Manufacturer:	Texas Instruments, Inc
Package/Case:	DSBGA36
Product Type:	Data Conversion ICs
RoHS:	RoHS Compliant/Lead free
Lifecycle:	Active

Images are for reference only

Inquiry

General Description

The AFE4403 is a fully-integrated analog front-end (AFE) ideally suited for pulse oximeter applications. The device consists of a low-noise receiver channel with an integrated analog-to-digital converter (ADC), an LED transmit section, and diagnostics for sensor and LED fault detection. The device is a very configurable timing controller. This flexibility enables the user to have complete control of the device timing characteristics. To ease clocking requirements and provide a low-jitter clock to the AFE4403, an oscillator is also integrated that functions from an external crystal. The device communicates to an external microcontroller or host processor using an SPI interface.

The device is a complete AFE solution packaged in a single, compact DSBGA-36 (3.07 mm × 3.07 mm × 0.5 mm) and is specified over the operating temperature range of –20°C to 70°C.

Key Features

Fully-Integrated AFE for Pulse Oximeter and Heart Rate Monitoring Applications:

Transmit:
Integrated Dual LED Driver(H-Bridge or Common Anode)

Option for a Third LED Support for Optimized SPO2, HRM, or Multi-Wavelength HRM

Up to 110-dB Dynamic Range

LED Current:
Programmable to 100 mA with 8-Bit Current Resolution

30 µA + Average LED Current

Programmable LED On-Time

Independent LED2 and LED1 Current Reference

Receive Channel with High Dynamic Range:
22-Bit Output in Twos Complement Format

Up to 105-dB Dynamic Range

Low Power: < 650 µA

Dynamic Power-Down Mode to Reduce Current to 300 µA

Adaptable to a Very Wide Range of Signal Amplitudes:
Total Programmable Gain: 10 kΩ to 4 MΩ

Integrated Digital Ambient Estimation and Subtraction

Flexible Clocking by External Clock or Crystal:
Pulse Frequency: 62.5 SPS to 2000 SPS

Flexible Pulse sequencing and Timing Control

Input Clock Range: 4 MHz (Min) to 60 MHz (Max)

Integrated Fault Diagnostics:
Photodiode and LED Open andShort Detection

Supplies:
Rx = 2.0 V to 3.6 V

Tx = 3.0 V to 5.25 V

Package: Compact DSBGA-36(3.07 mm × 3.07 mm × 0.5 mm)

Specified Temperature Range: –20°C to 70°C

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Recommended For You

AFE5807ZCF

Texas Instruments, Inc

BGA

AFE1205E

Texas Instruments, Inc

XX

AFE1104E

Texas Instruments, Inc

SSOP

AFE2124E

Texas Instruments, Inc

SSOP48

AFE4300PNR

Texas Instruments, Inc

LQFP80

AFE1103E

Texas Instruments, Inc

SSOP

AFE5818ZBV

Texas Instruments, Inc

BGA

AFE4403YZPT

Texas Instruments, Inc

DSBGA36

AFE4404YZPR

Texas Instruments, Inc

DSBGA15

AFE4400RHAT

Texas Instruments, Inc

VQFN40

AFE4490RHAT

Texas Instruments, Inc

QFN

AFE4405YZR

Texas Instruments, Inc

DSBGA

AFE4404YZPT

Texas Instruments, Inc

DSBGA15

AFE5808AZCF

Texas Instruments, Inc

BGA

AFE5812ZCF

Texas Instruments, Inc

BGA135