Low-Noise Analog Integrator for use with PCB-Based di/dt Sensors

FEATURES

- Single-supply operation: 2.97V to 3.63V
- User configurable integrator gain, ADEMO141A gain at 50Hz, using different feedback capacitor
  - 397.9, C_{FB} = 10nF
  - 265.3, C_{FB} = 15nF
  - 180.9, C_{FB} = 22nF
  - 102.0, C_{FB} = 39nF
- ADEMO141B gain at 50Hz, using different feedback capacitor
  - 49.7, C_{FB} = 10nF
  - 33.2, C_{FB} = 15nF
  - 22.6, C_{FB} = 22nF
- Low noise
  - ADEMO141A: 7.2nV√Hz at f = 45Hz to 65Hz
  - ADEMO141B: 18.8nV√Hz at f = 45Hz to 65Hz

APPLICATIONS

- Single-phase energy meters
- Polyphase energy meters
- Split-phase energy meters
- Power quality monitoring
- Protective devices
- Smart breakers
- EV chargers
- Machine health
- Smart power distribution units

PIN CONNECTION DIAGRAM

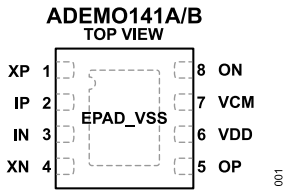

Figure 1. ADEMO141A/ADEMO141B Pin Configuration, 8-Lead LFCSP

GENERAL DESCRIPTION

The ADEMO141A/ADEMO141B is a low-drift, low-noise, fully-differential amplifier which can be operated as an analog integrator, for use with a PCB-based di/dt current sensor and analog-to-digital converter (ADC). It has a output common-mode voltage of 1.2V and supply voltage of 3.3V. The analog integrator amplifies signal and cancels the frequency dependance of the current sensor.

The ADEMO141A/ADEMO141B has high gain, low noise, and excellent common-mode rejection ratio (CMRR) and power-supply rejection ratio (PSRR) specifications, which makes it ideal for high accuracy energy measurement applications. The ADEMO141A/ADEMO141B is specified over the extended industrial temperature (−40°C to +125°C), and is available in a 8-lead LFCSP.

For more details on the ADEMO141A/ADEMO141B, contact the local Analog Devices, Inc., sales office at www.analog.com/sales.

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