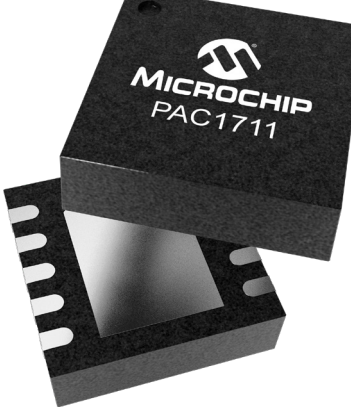
ANALOG SPOTLIGHT

PAC1711

Single-Channel Power Monitor with Accumulator, 42V Full-Scale Range



General Information

PAC1711 is a single-channel power monitor with a bus voltage monitor and current sense amplifier that feed into a 12-bit resolution Analog-to-Digital Converter (ADC). Designed for high-side current sensing, its digital circuitry performs power calculations and energy accumulation. This enables the device to monitor power with integration periods up to one year or longer. The device stores bus voltage (VBUS), shunt resistor voltage (VSENSE) and accumulated proportional power (VPOWER) data. The embedded controller or system host can read the PAC1711 registers and retrieve the stored data. The 10-lead VDFN PAC1711 package has a VBUS+ pin that enables low-side power monitoring. This allows additional power savings using a Power-down feature, which is not available for the 8-lead VDFN package.




Features

- 100 µA active current when sampling at 1,024 sps
- High-side current monitor with a single channel:
  - 100 mv Full-Scale Range (FSR) for sense input voltage (VSENSE) with 12-bit resolution
  - Selectable bipolar current sense capability:
  - −42V to +42V bus voltage (VBUS) FSR
  - −100 mV to +100 mV FSR (12-bit two's complement data format)
  - −50 mV to +50 mV programmable FSR/2
  - Very-low input current simplifies routing
- Voltage monitor with wide VBUS range:
  - 0V to 42V FSR
  - 21V programmable FSR/2 option
- Real-time auto-calibration of offset error for voltage and current; no user adjustment
- 1% power measurement accuracy over a wide dynamic range
- On-chip accumulation of 24-bit results for power measurement:
  - 56-bit power accumulator register for recording accumulated power data
  - 32-bit accumulator count register

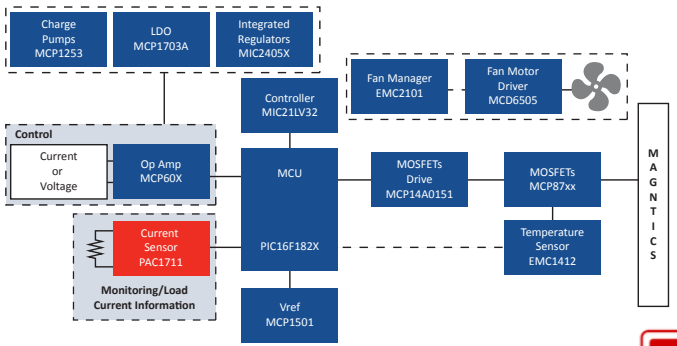
Applications

- Low-current, general-purpose applications
- Portable and embedded computing
- Smart home and smart city applications
- Networking
- Internet of Things (IoT)

Benefits

- PAC1711 includes a configurable alert system that can trigger alerts when the device detects voltage, current or power excursions
- PAC1711 uses real-time calibration to minimize offset error; no input filters are required for this device, and the built-in adjustable averaging function produces very-low-noise, high-resolution measurement results.

Power Supply



microchip.com/en-us/product/PAC1711

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