

SENSYLINK Microelectronics

(CAD2743)

28V, 12-bit Current, Voltage, and Power Monitor With an I2C/SMBus Interface ,used in Rack Servers, Battery Cell Monitor and Balancing, Power Management etc.

The CAD2743 device integrates low offset, 12-bit delta-sigma ($\Delta\Sigma$) ADC, the device monitors the voltage across an external sense resistor and reports values for current, bus voltage, and power.

It operates from a single 1.7V to 5.5V supply, input common mode range from -0.3 V to 28 V .

28-V, 12-Bit, Current, Voltage, and Power Monitor With I²C Interface

1. Description

The CAD2743 device is a 12-bit digital current monitor with I²C/SMBus-compatible interface, compatible with a wide range of digital bus voltages (1.2 V, 1.8 V, 3.3 V, and 5.0 V). The device monitors the voltage across an external sense resistor and reports values for current, bus voltage, and power.

The CAD2743 features programmable ADC conversion times and averaging. The device also has a programmable calibration value with an internal multiplier that enables direct readouts of current in amperes and power in watts. The device monitors the bus voltage present on the IN⁻ pin and can alert on overcurrent and undercurrent conditions as well as overvoltage and undervoltage conditions. High input impedance while in current measurement mode allows use of larger current sense resistors needed to measure small value system currents.

The CAD2743 senses current on common-mode bus voltages that can vary from -0.3 V to 28 V, independent of the supply voltage. The device operates from a single 1.7-V to 5.5-V supply, drawing a typical supply current of 300 μ A in normal operation.

2. Features

- High-side or low-side current sensing
- Operates from a 1.7-V to 5.5-V power supply
- Programmable full scale range: 20mV / 80mV
- Input common mode range: -0.3 V to 28 V
- Current monitoring accuracy:
 - 12-bit ADC resolution
 - 0.5% gain error (maximum)
 - 100- μ V offset (maximum)
- Low input bias current: 10 nA (maximum)
- Alert limits for over and under current events
- 1.2-V compatible I²C and SMBus interface
- Two device address options with a 4-pin selectable address
- Operating temperature: -40°C and +125°C

3. Application

- Mobile phones
- Smart speakers
- Wearables
- Battery chargers
- Rack Servers

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4. PIN Configurations (Top View)

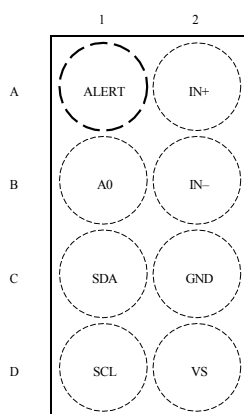


Figure 1 CSP-8 (Package Code J8)

Table 1 Pin Function

PIN		TYPE	DESCRIPTION
NAME	CSP-8		
A0	B1	Digital input	Address pin. Connect to GND, SCL, SDA, or VS. Table 2 lists the pin settings and corresponding addresses.
ALERT	A1	Digital output	Multifunctional alert, open-drain output. This pin alerts to report fault conditions or can be configured to notify host when a conversion is complete.
GND	C2	Ground	Ground for both analog and digital.
IN-	B2	Analog input	Current sensing negative input. For high-side applications, connect to load side of sense resistor. For low-side applications, connect to ground side of sense resistor. Bus voltage measurements are made with respect to this pin.
IN+	A2	Analog input	Current sensing positive input. For high-side applications, connect to bus voltage side of sense resistor. For low-side applications, connect to load side of sense resistor.
SCL	D1	Digital input	Serial bus clock line, open-drain input.
SDA	C1	Digital input/output	Serial bus data line, open-drain input/output
VS	D2	Power Supply	Power supply, 1.7 V to 5.5 V

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5. Typical Application

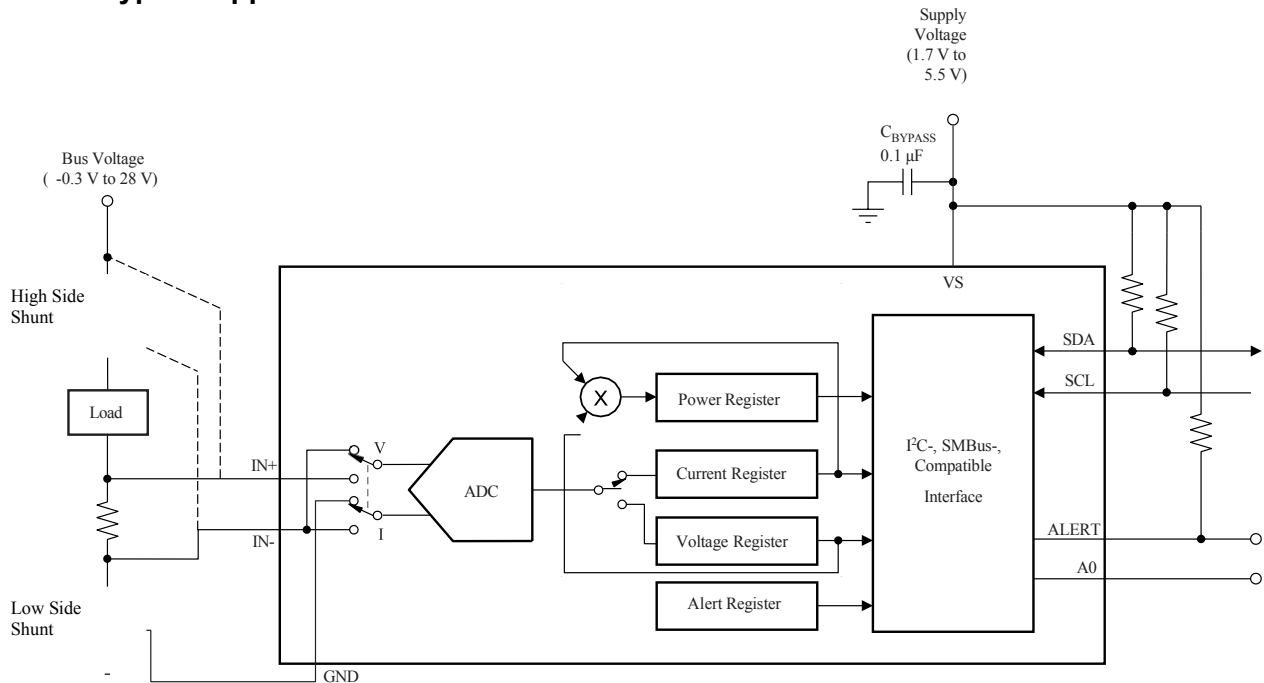
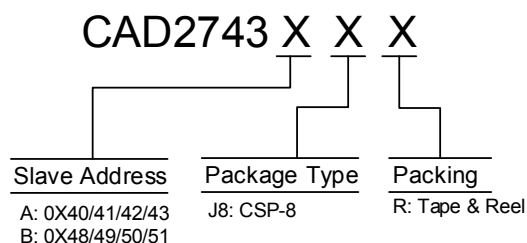


Figure 2 CAD2743 Function Block

28-V, 12-Bit, Current, Voltage, and Power Monitor With I²C Interface

6. Order Information



Order PN	Green ¹	Package	Marking ID ²	Packing	MPQ	Operation Temperature
CAD2743AJ8R	Halogen free	CSP-8	PJ	Tape & Reel	3000	-40~+125℃
CAD2743BJ8R	Halogen free	CSP-8	PK	Tape & Reel	3000	-40~+125℃

- Sensylink can meet RoHS 2.0/REACH requirements. For most package types, offer only states halogen free, instead of lead free.
- Marking ID includes 2 rows of characters. In general, the 1st row characters are part number, and the 2nd row of characters are date code plus production information.



SENSYLINK Microelectronics Inc.

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