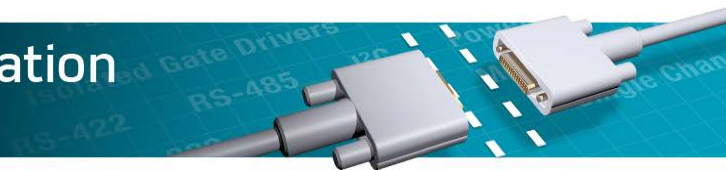




Fall 2014

Interface and Isolation Update



New Products

[SPIsolator[®] Digital Isolators: We've Got Your SPI Bus Covered](#)



Supporting up to 40 MHz SPI clock speeds, the new 5 kV rms digital isolators are six times faster, over 80% smaller, and cost as much as 85% less than competing optocoupler or digital isolator-based solutions.

- The ADuM4150 supports a delayed clock output on the master side of the part that can be used with an additional general-purpose port on the master to support up to 40 MHz clock speeds.

The ADuM4150 is production released. Sample and evaluate now.



- The ADuM4151/ADuM4152/ADuM4153 provide four high speed channels and three additional independent, low data rate channels in different configurations.

The ADuM4151/ADuM4152/ADuM4153 is production released. Sample and evaluate now.



- The ADuM4154 digital isolator provides a slave select multiplexing system that allows up to four slave drives to be serviced from one isolator

The ADuM4154 is production released. Sample and evaluate now.



[High Accuracy, Isolated \$\Sigma\$ - \$\Delta\$ Modulator with LVDS Interface](#)



AD7405 increases the efficiency of motor drivers and power inverters and features:

- 87 dB SINAD (signal noise and distortion ratio), 14.2 ENOB
- Low offset drift (3.8 μ V/ $^{\circ}$ C max)
- 1250 V_{PEAK} working insulation voltage
- Conforms to insulation and safety related specifications: UL 1577, CSA, and VDE

The AD7405 is production released. Sample and evaluate now.



[CN0349: Fully Isolated Conductivity](#)

Measurement Data Acquisition System

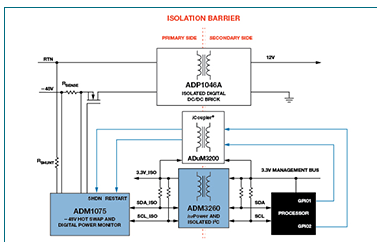
This design solution is optimized for high precision and low cost, and it uses only five active devices. The circuit has a total error of less than 1% FSR after calibration. The small footprint of all the components makes the circuit ideal for applications where printed circuit board (PCB) real estate is at a premium. The digital output of the circuit is fully isolated; therefore, the ground loop interference is eliminated, making it ideal for harsh industrial environments.

[Read this circuit note and download the design files.](#)

Circuit Note 

Explore in Signal Chain Designer 

Featured Analog Dialogue



[Designing Robust, Isolated I²C/PMBus Data Interfaces for Industrial, Telecommunications, and Medical Applications](#)

Featured Webcast



[Working with Digital Isolators in Motor Control Applications: Webcast Now On-Demand](#)

Featured Technical Article



Technical Article
MS-2711

Digital Isolators Provide an Alternative Approach to the Design of a 2 Watt Isolated DC-to-DC Power Supply

by Brian Kennedy, applications engineer
Analog Devices, Inc.

This article explores a variety of approaches to the design of a 2 watt isolated dc-to-dc power supply. It includes information about an isolated switching regulator with integrated feedback. Power supply designers who want to improve output voltage accuracy over a wide operating temperature range without adding the complexity of designing compensation networks to stabilize the control loop may use this information. The function of an isolated dc-to-dc power supply is to provide a stable dc voltage at the secondary side. A well-designed closed loop power supply is

amplifier. The output is fed to the optocoupler LED driver circuit. The error amplifier needs a compensation network to stabilize the voltage loop, which requires engineering time to develop. The optocoupler LED current is provided by the shunt regulator output biased by a current source. The amount of current needed is based on the optocoupler current transfer ratio (CTR) characteristics as described in its data sheet. The CTR characteristics are the ratio of output transistor current to input LED current, which are not linear and vary from part to part. Optocouplers typically have a two-to-one uncertainty in initial CTR, and will have 50% low CTR after years of use in service in high temperature environments found in high power and high density supplies. Other issues in an optocoupler include its use in a dc-to-dc power supply, the optocoupler performance and the effective operating temperature range.

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