

ADuM5240/ADuM5241/ADuM5242 Dual-Channel Digital Isolators with Integrated DC-to-DC Converter

Features

- Integrated 50 mW dc-to-dc converter
- 8-lead narrow-body SOIC package
- DC to 10 Mbps data rate (NRZ)
- High temperature operation: 105°C
- High common-mode transient immunity: 25 kV/ μ s

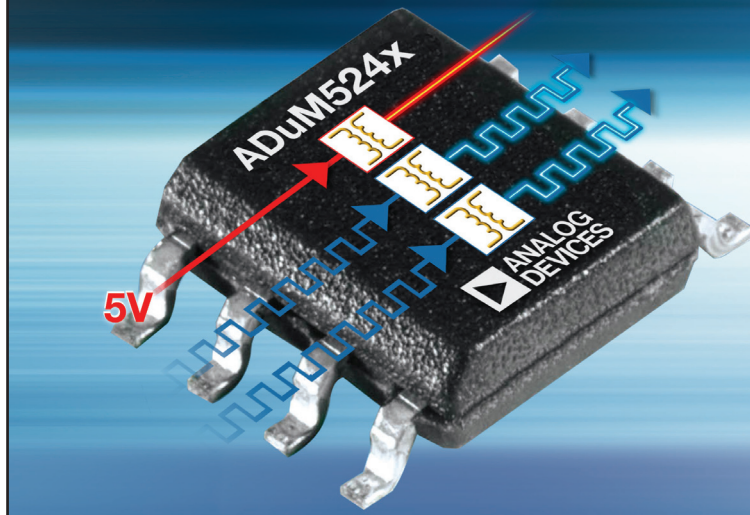
Safety Approvals

- UL 1577: isolation rating = 2.5 kV rms
- VDE (EN60747-5-2): maximum working voltage = 560 V peak
- CSA (CSA/IEC 60950-1): maximum working voltage = 560 V peak

Applications

- Secondary-control power supplies
- RS-232 interface isolation
- Sensor interfaces
- Data acquisition modules

Data and Power Isolation in One Package

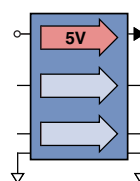


Chip Scale Transformers Combine Digital and Power Isolation in a Single Package

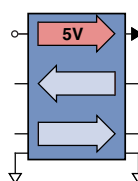
The ADuM524x products integrate a 50 mW isolated power supply with two digital signal isolators in an 8-lead SOIC package. Based on Analog Devices' patented *iCoupler*® technology, these multichannel devices use chip scale transformers to convey data and power across an isolation barrier. This simplifies the challenge of isolated designs with a single-component complete solution that reduces component count, board space, and cost by up to 70%.

These parts operate off a single 5 V supply and provide two high performance digital isolation channels. The three ADuM524x products vary by the directionality of each channel as shown below. All three devices carry a 2.5 kV isolation rating. Having similar UL, CSA, and VDE safety approvals as the rest of the *iCoupler* portfolio, these devices are ideally suited for applications in which small amounts of isolated power are required in a small, simple, low cost solution.

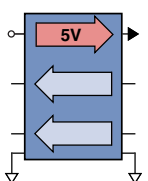
ADuM5240



ADuM5241



ADuM5242

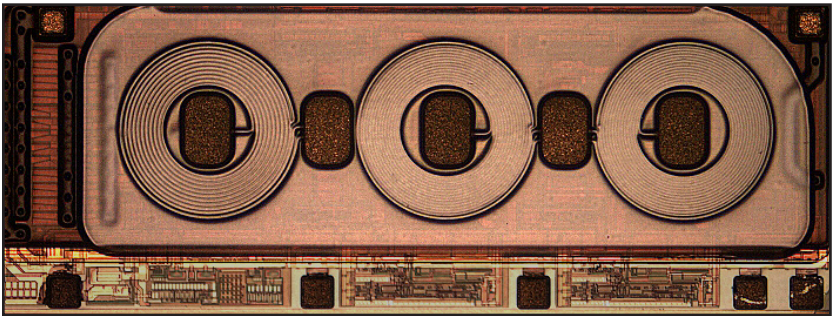




iCoupler Technology

Each ADuM524x device consists of two chips assembled in a common SOIC package. One of the chips contains three iCoupler planar transformers that are post-processed over standard CMOS electronics. High voltage insulation between the top and bottom transformer coils is provided by polyimide layers between the coils. Two of these transformers support the two signal channels. Depending on the communication direction, each of these two transformers conveys encoded signals from top coil to bottom coil or vice versa.

The third transformer supports the isolated power channel. It is driven by a high frequency oscillator and feeds an integrated rectification circuit on the output side of the device. The rectified output is further conditioned by an integrated regulatory to provide a tightly controlled 5 V output. The resulting 50 mW output power is ideal for applications requiring low power levels at a low cost where other, more expensive, alternatives supply excess power.



ADuM524x transformer chip—one power and two signal transformers.

The ADuM524x family consists of three different channel configurations. See summary below.

Part Number	Number of Signal Inputs (Input Power Side)	Number of Signal Inputs (Output Power Side)	Maximum Propagation Delay (ns)	Channel-to-Channel Matching (ns)
ADuM5240BRWZ	2	0	55	3
ADuM5241BRWZ	1	1	55	15
ADuM5242BRWZ	0	2	55	3

For more information, please visit www.analog.com/iCoupler.

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