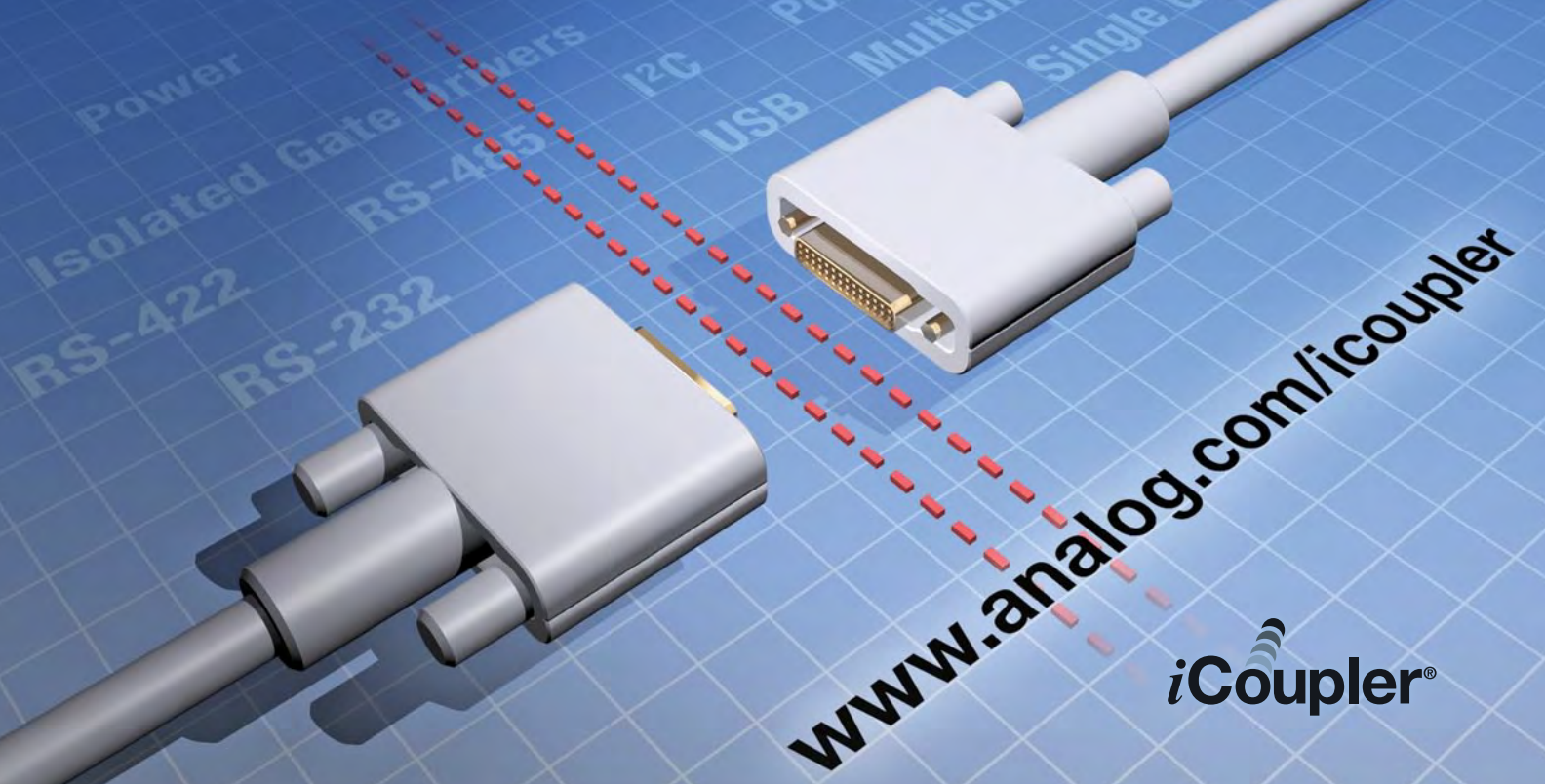


# Digital Isolator Product Selection and Resource Guide



[www.analog.com/icoupler](http://www.analog.com/icoupler)



*Performance • Integration • Efficiency • Reliability • Safety*

Digital isolators with *iCoupler*® technology enable designers to implement isolation in designs without the cost, size, power, performance, and reliability constraints found with optocouplers. *iCoupler* digital isolators also meet the wide range of creepage/clearance requirements and are the industry's only digital isolators with certified 8 mm creepage. With more than half a billion channels shipped into the field, these magnetically isolated products meet the same rigid safety standards as optocouplers.

### Portfolio Offerings

- Single and multichannel data isolators
- Digital isolators with isolated power: *isoPower*®
- USB isolators
- Isolated gate drivers
- I<sup>2</sup>C® digital isolators
- Isolated CAN transceivers
- Isolated RS-485 transceivers
- Isolated RS-232 transceivers
- Isolated  $\Sigma$ - $\Delta$  modulators

### Advantages of the Broadest Portfolio of Digital Isolators

- Performance**  
4× improvement in data rate and timing specifications.
- Integration**  
Multiple isolation channels integrated with other functions reduce size, cost, and design complexity.
- Power Consumption**  
Operates at power levels up to 90% lower than optocouplers.
- Ease of Use**  
Standard digital CMOS interfaces mean no external components needed to connect to other digital devices.
- Reliability**  
Eliminates LED wearout traditionally found in optocouplers.
- Safety**  
Meets same rigid safety standards as optocouplers, including reinforced insulation.



## 1-Channel Digital Isolators

Part Number	Isolation Rating (kV rms)	Reverse Direction Options				Max Data Rate (Mbps)	Output			Max Temperature (°C)	Package
		0	1	2	3		Default		EN		
							H	L	Z		
ADuM1100	2.5	•				25, 100	•			105, 125	8-lead SOIC_N
ADuM3100	2.5	•				25, 50	•			105	8-lead SOIC_N

## 2-Channel Digital Isolators

Part Number	Reverse Direction Options				Max Data Rate (Mbps)	Output			Max Temperature (°C)	Package
	0	1	2	3		Default		EN		
						H	L	Z		
<i>1 kV rms Isolation</i>										
ADuM724x	•	•			1, 25	•			105	8-lead SOIC_N
<i>2.5 kV rms Isolation</i>										
ADuM120x*	•	•			1, 10, 25	•			105, 125	8-lead SOIC_N
ADuM1210	•				10		•		105	8-lead SOIC_N
ADuM128x	•	•			1, 25, 100	•	•		125	8-lead SOIC_N
ADuM320x*	•	•			1, 10, 25	•			105, 125	8-lead SOIC_N
ADuM321x*	•				1, 10		•		105, 125	8-lead SOIC_N
<i>5 kV rms Isolation</i>										
ADuM220x*	•	•			1, 10	•			105	16-lead SOIC_W/16-lead SOIC_IC
ADuM221x*	•	•			1, 10		•		125	16-lead SOIC_W/16-lead SOIC_IC

## 3-Channel Digital Isolators

Part Number	Isolation Rating (kV rms)	Reverse Direction Options				Max Data Rate (Mbps)	Output			Max Temperature (°C)	Package
		0	1	2	3		Default		EN		
							H	L	Z		
ADuM130x*	2.5	•	•			1, 10, 90	•	•	105, 125	16-lead SOIC_W	
ADuM131x	2.5	•	•			1, 10	•	•	105	16-lead SOIC_W	
ADuM330x	2.5	•	•			1, 10, 90	•	•	105	16-lead SOIC_W	

## 4-Channel Digital Isolators

Part Number	Reverse Direction Options				Max Data Rate (Mbps)	Output			Max Temperature (°C)	Package
	0	1	2	3		Default		EN		
						H	L	Z		
<i>1 kV rms Isolation</i>										
ADuM744x	•	•	•		1, 25	•	•		105	16-lead QSOP
<i>2.5 kV rms Isolation</i>										
ADuM140x*	•	•	•		1, 10, 90	•			105	16-lead SOIC_W
ADuM141x	•	•	•		1, 10	•	•		105	16-lead SOIC_W
ADuM340x*	•	•	•		1, 10, 90	•		•	105	16-lead SOIC_W
ADuM344x	•	•	•		150	•			105	16-lead SOIC_W
<i>5 kV rms Isolation</i>										
ADuM240x	•	•	•		1, 10, 90	•			105	16-lead SOIC_W/16-lead SOIC_IC
ADuM440x	•	•	•		1, 10, 90	•	•		105	16-lead SOIC_W/16-lead SOIC_IC

## 5-Channel Digital Isolators

Part Number	Reverse Direction Options				Max Data Rate (Mbps)	Output			Max Temperature (°C)	Package
	0	1	2	3		Default		EN		
						H	L	Z		
<i>1 kV rms Isolation</i>										
ADuM7510	•				10		•		105	16-lead QSOP
<i>2.5 kV rms Isolation</i>										
ADuM1510	•				10		•		105	16-lead SOIC_W

## 6-Channel Digital Isolator

Part Number	Isolation Rating (kV rms)	Reverse Direction Options			Max Data Rate (Mbps)	Output			Max Temperature (°C)	Package
		1	2	3		Default		EN		
						H	L	Z		
ADuM764x	1	•	•	•	1, 25	•			105	20-lead QSOP

## Digital Isolators with Isolated Power, isoPower

Part Number	Number of Data Channels						Max Data Rate (Mbps)	Isolated Supply Output		Max Temperature (°C)	Package
	Total	Reverse Direction Options						Current (mA)	Range (V)		
		0	1	2	3	4					
<i>2.5 kV rms Isolation</i>											
ADuM5000	0						100	3.3 or 5.5	105	16-lead SOIC_W	
ADuM520x*	2	•	•				1, 25	100	3.3 or 5.5	105	
ADuM524x	2	•	•	•			1	10	4.5 or 5.5	105	
ADuM540x*	4	•	•	•	•	•	1, 25	100	3.3 or 5.5	105	
<i>5 kV rms Isolation</i>											
ADuM6000	0						100	3.3 or 5.5	105	16-lead SOIC_W/16-lead SOIC_IC	
ADuM620x	2	•	•	•			1, 25	100	3.3 or 5.5	105	
ADuM640x	4	•	•	•	•	•	1, 25	100	3.3 or 5.5	105	

\*AEC-Q100 qualified models available for use in automotive applications. Please visit product pages for more information.

## Isolated Switching Regulators

Part Number	Number of Data Channels						Max Data Rate (Mbps)	Isolated Supply Output		Max Temperature (°C)	Package
	Total	Reverse Direction Options						Current (mA)	Range (V)		
		0	1	2	3	4					
<b>2.5 kV rms Isolation</b>											
ADuM3070	0						1, 25	500	3.3 to 24	105	16-lead QSOP
ADuM347x	4	•	•	•	•	•		400	3.3 to 24	105	20-lead SSOP
<b>5 kV rms Isolation</b>											
ADuM4070	0							500	3.3 to 24	105	16-lead SOIC_IC
ADuM447x	4	•	•	•	•	•	1, 25	500	3.3 to 24	105	20-lead SOIC_IC

## USB 2.0 Certified Isolators

Part Number	Insulation Rating (kV rms)	Data Rate	Max Temperature (°C)	Package
ADuM3160	2.5	Low Speed: 1.5 Mbps Full Speed: 12 Mbps	105	16-lead SOIC_W
ADuM4160	5	Low Speed: 1.5 Mbps Full Speed: 12 Mbps	105	16-lead SOIC_W/16-lead SOIC_IC

## Isolated Gate Drivers

Part Number	Isolated Channels	Insulation Rating (kV rms)	Frequency (MHz)	Output Voltage Range (V)	Max Output Current (A <sub>PEAK</sub> )	Power Level (mW)	Input Logic Levels	Max Temperature (°C)	Package
ADuM6132	1	3.7	1	12.5 to 17	0.2	275	CMOS	85	16-lead SOIC_W
ADuM7234	2	1	1	12 to 18	4		CMOS	105	16-lead SOIC_N
ADuM1233	2	2.5	5	12 to 18	0.1		TTL	105	16-lead SOIC_W
ADuM1234	2	2.5	5	12 to 18	0.1		CMOS	105	16-lead SOIC_W
ADuM3220*	2	2.5	1	4.5 to 18	4		CMOS	125	8-lead SOIC_N
ADuM3221*	2	2.5	1	4.5 to 18	4		CMOS	125	8-lead SOIC_N
ADuM5230	2	2.5	1	12 to 18	0.1	150	CMOS	105	16-lead SOIC_W
ADuM3223	2	3	1	4.5 to 18	4		CMOS	125	16-lead SOIC_N
ADuM4223	2	5	1	4.5 to 18	4		CMOS	125	16-lead SOIC_W

## Isolated I<sup>2</sup>C-Compliant Bidirectional Digital Isolators

Part Number	Insulation Rating (kV rms)	Serial Data	Serial Clock	Max Data Rate (Mbps)	Max Temperature (°C)	Package
ADuM1250*	2.5	Bidirectional	Bidirectional	1	105	8-lead SOIC_N
ADuM1251*	2.5	Bidirectional	Unidirectional	1	105	8-lead SOIC_N
ADuM2250	5	Bidirectional	Bidirectional	1	105	16-lead SOIC_W/16-lead SOIC_IC
ADuM2251	5	Bidirectional	Unidirectional	1	105	16-lead SOIC_W/16-lead SOIC_IC

## Isolated CAN Transceivers

Part Number	Insulation Rating (kV rms)	High Voltage Bus Side Regulator	Max Data Rate (Mbps)	Integrated isoPower	Power Supply (V)		Max Temperature (°C)	Package
					Logic Side	Bus Side		
ADM3053	2.5		1	•	5		85	20-lead SOIC_W
ADM3052	5	•	1		3 to 5.5	24	85	16-lead SOIC_W
ADM3054	5		1		3 to 5.5	5	125	16-lead SOIC_W

## Isolated RS-485 Transceivers

Part Number	Insulation Rating (kV rms)	Full Duplex	Half Duplex	Max Data Rate	Integrated isoPower	Integrated Transformer Driver	Power Supply (V)		Max Temperature (°C)	Package
							Logic Side	Bus Side		
ADM2481	2.5		•	500 kbps			3.0 to 5.0	5	85	16-lead SOIC_W
ADM2482E	2.5	•	•	16 Kbps		•	3.0 to 5.0	3.3	85	16-lead SOIC_W
ADM2483	2.5		•	500 kbps			3.0 to 5.0	5	85	16-lead SOIC_W
ADM2485	2.5		•	16 Mbps		•	3.0 to 5.0	5	85	16-lead SOIC_W
ADM2486	2.5		•	20 Mbps			3.0 to 5.0	5	85	16-lead SOIC_W
ADM2487E	2.5	•	•	500 kbps		•	3.0 to 5.0	3.3	85	16-lead SOIC_W
ADM2582E	2.5	•	•	16 Mbps	•		3.0 to 5.0	—	85	20-lead SOIC_W
ADM2587E	2.5	•	•	500 kbps	•		3.0 to 5.0	—	85	20-lead SOIC_W
ADM2484E	5	•	•	500 kbps			3.0 to 5.0	3.3	85	16-lead SOIC_W
ADM2490E	5	•	•	16 Mbps			3.0 to 5.0	5	105	16-lead SOIC_W
ADM2491E	5	•	•	16 Mbps			3.0 to 5.0	5	85	16-lead SOIC_W
ADM2682E	5	•	•	16 Mbps	•		3.0 to 5.0	—	85	16-lead SOIC_IC
ADM2687E	5	•	•	500 kbps	•		3.0 to 5.0	—	85	16-lead SOIC_IC

## Isolated RS-232 Transceivers

Part Number	Insulation Rating (kV rms)	ESD Protection (kV)	Max Data Rate (kbps)	Number Tx	Number Rx	Integrated isoPower	Max Temperature (°C)	Package
ADM3251E	2.5	15	460	1	1	•	85	20-lead SOIC_W
ADM3252E	2.5	15	460	2	2	•	85	BGA

## Isolated Σ-Δ ADCs

Part Number	Insulation Rating (kV rms)	Resolution (Bits)	Clock Rate (MHz)	Clock Source	Power (mW)	Power Supply (V)		Package
						ADC Side	Bus Side	
AD7400	3.75	16	10	Internal	72	3.0 to 5.0	5.0	16-lead SOIC_W
AD7400A	3.75	16	10	Internal	75	3.0 to 5.0	5.0	8-lead PDIP_SMD
AD7401	3.75	16	20	External	72	3.0 to 5.0	5.0	16-lead SOIC_W
AD7401A	3.75	16	20	External	72	3.0 to 5.0	5.0	16-lead SOIC_W

\*AEC-Q100 qualified models available for use in automotive applications. Please visit product pages for more information.

## Wide Range of Applications

With over 750 million channels of isolation shipped into the field, *iCoupler* digital isolators are used in applications such as:

- Medical devices
- Power supply/regulation systems
- Instrumentation devices
- Networking equipment
- Metering
- Battery charging systems
- Light and building controls
- Industrial process controls
- Motor drives
- Solar/wind energy
- Communications
- Industrial field buses
- Automotive systems
- All *iCoupler* devices can undergo AEC-Q100 automotive qualification. Please contact your local sales representative for more information.

## *iCoupler* Support Resources

To learn more about *iCoupler* digital isolators, visit [www.analog.com/icoupler](http://www.analog.com/icoupler). This page will provide you with information on items like:

- Existing [application notes](#) such as:
  - AN-1109 Application Note, [Recommendations or Control of Radiated Emissions with \*iCoupler\* Devices](#)
  - AN-0971 Application Note, [Recommendations for Control of Radiated Emissions with \*iSoPower\* Devices](#)
- [Evaluation boards](#)
- [Safety standards/certifications](#)
- [Technical articles](#)
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