

Automotive Grade Digital Isolators

ADuM120xW/ADuM130xW/ADuM140xW



Features

- AEC-Q100 qualified
- Operation up to 125°C
- Data rates up to 25 Mbps
- 3.0 V to 5.5 V level translation
- Low power operation
- 8-lead and 16-lead SOIC packaging
- Safety and regulatory approvals
 - UL 1577 component recognition: 2500 V rms for 1 minute
 - CSA Component Acceptance Notice 5A
 - VDE per DIN V VDE V 0884-10 (VDE V 0884-10): 2006-12

Applications

- Hybrid vehicle battery monitoring
- Gate drive for hybrid electric motor
- DC-to-AC inverters
- Electronic power steering
- Interface for sensor clusters

Industry's First Digital Isolators Qualified for Automotive Systems

The ADuM120xW, ADuM130xW, and ADuM140xW families are the first digital isolators to carry an AEC-Q100 qualified -40°C to $+125^{\circ}\text{C}$ automotive temperature rating meeting the reliability and quality needs of emerging electric-hybrid vehicles. These families are based on ADI's award-winning *iCoupler*[®] technology, which is currently employed in over 150 million channels of isolation.

The ADuM120xW, ADuM130xW, and ADuM140xW families of digital isolators are an alternative solution to other isolation technologies, such as optocouplers. *iCoupler* digital isolators are relatively insensitive to temperature and demonstrate excellent long-term reliability. Where optocouplers suffer from performance degradation and wear-out at high temperatures, the ADuM120xW, ADuM130xW, and ADuM140xW families have undergone extended test coverage and high temperature testing allowing them to be qualified for under-the-hood operation up to 125°C . In addition to reliability and temperature, the *iCoupler* devices consume one-tenth to one-sixth the power of optocouplers at comparable data rates with a low power consumption rate of 3.5 mA/channel.



iCoupler Products vs. Optocouplers

	Power Consumption/ Channel Min Typ (mW)	Data Rate (Mbps)	Prop Delay Max (ns)	Prop Delay vs. Temp Typ (ps/°C)	Pulse Width Distortion Max (ns)	Transient Immunity Min (kV/μs)	Interface	Number of Data Channels	Price @ 10k (\$U.S.)
iCoupler Products ADuM140xWTRWZ	18 (5 V, 10 Mbps)	10 (guaranteed)	32	3	3	25	Digital	4	0.90
Optocouplers Logic Isolators	45 (5 V, 50% duty cycle)	10 (typical)	100	120	35	15	Analog	1	2.50

The newest members to the growing iCoupler portfolio provide designers with dual, triple, and quad configurations. With multiple performance grades offered, these families also offer 3.0 V to 5.5 V voltage level translation. Available in 8-lead and 16-lead SOIC packages, the versatility of these AEC-Q100 qualified devices can be used in a variety of automotive applications.

The ADuM120xW, ADuM130xW, and ADuM140xW families can be used in a number of ways within the rising electric-hybrid vehicle industry. Applications include: battery monitoring, gate drive for hybrid electric motor, dc-to-ac inverters for various systems, and electronic power steering. In addition to the benefits they provide in hybrid applications, the new devices can be used as an interface for sensor clusters in all vehicles, eliminating concerns about ground loops and allowing for flexible placement of the sensor clusters.

This extension of the iCoupler portfolio demonstrates ADI's continued commitment to providing innovative solutions that are tailored for application needs and that reduce the overall size, cost, and time to market.

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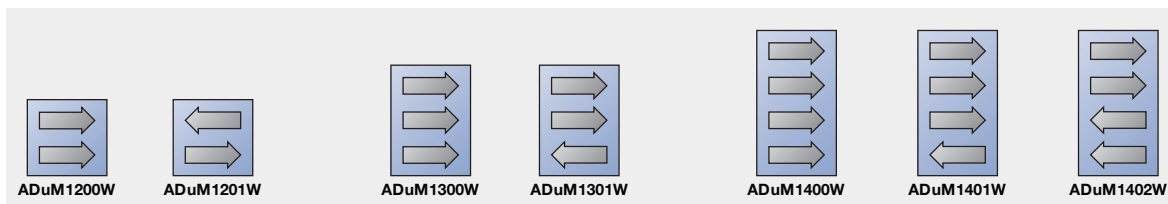
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Digital Isolators for Automotive Applications

Part Number	Number of Data Channels			Max Data Rate (Mbps)	Max Prop Delay (ns)	Output			Package	Price @ 1k (\$U.S.)
	Total	Reverse Direction Options				Default	EN			
		0	1				2	H		
ADuM120xWS	2	•	•	1	150	•			8-lead SOIC_N	2.15
ADuM120xWT		•	•	10	50	•			8-lead SOIC_N	3.14
ADuM120xWU		•	•	25	45	•			8-lead SOIC_N	4.35
ADuM130xWS	3	•	•	1	100	•		•	16-lead SOIC_W	2.45
ADuM130xWT		•	•	10	32	•		•	16-lead SOIC_W	3.67
ADuM140xWS	4	•	•	•	1	•		•	16-lead SOIC_W	3.25
ADuM140xWT		•	•	•	10	32	•		•	16-lead SOIC_W



Reverse direction options.