



## Avago Technologies Launches Three Precision Isolation Amplifiers for Industrial Motor Control and Renewable Energy Markets

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### Optical Isolation Amplifiers with Increased Accuracy, Faster Response Time and Smaller Footprints

SAN JOSE, Calif. & SINGAPORE, May 04, 2010 (BUSINESS WIRE) --Avago Technologies (Nasdaq:AVGO), a leading supplier of analog interface components for communications, industrial and consumer applications, today announced three Miniature Precision Isolation Amplifiers with increased accuracy, bandwidth and high insulation made possible by proprietary optical isolation technology.

Based on sigma-delta analog-to-digital converters and chopper stabilized amplifiers, the new isolation amplifiers feature high gain accuracy, low temperature drift, 3.3 V/5 V output supply operation and a wide -40 to +105°C operating temperature range. These features are delivered in a stretched SO-8 package that has a footprint 30% smaller than the standard DIP-8 package. When mounted on a PCB, it occupies a space that is a fraction of that for a traditional Hall Effect or transformer based isolation amplifier.

The series is implemented with a fully differential circuit topology with a gain accuracy of  $\pm 0.5\%$  (ACPL-C79B),  $\pm 1\%$  (ACPL-C79A), and  $\pm 3\%$  (ACPL-C790). Normalized gain drift is -50 ppm/°C. With a 200 kHz bandwidth and 1.6  $\mu$ s response time, the ACPL-C79x captures transients during short circuit and overload conditions. Operating from a single 5 V supply, the isolation amplifier series features an excellent nonlinearity of 0.05% and a SNR of 60 dB.

The ACPL-C79x high common-mode transient immunity of 15 kV/us provides the precision and stability needed to accurately monitor current in high noise motor control environments. This ensures smoother control with less "torque ripple" in many motor control applications.

Pending safety and regulatory approvals include:

- IEC/EN/DIN EN 60747-5-5: 1140 V<sub>peak</sub> working insulation voltage
- UL 1577: 5000 V<sub>rms</sub>/1 minute double protection rating
- CSA: Component Acceptance Notice #5

#### Isolation Amplifier Applications and Markets

Widely used for motor phase and rail current sensing, servo motor drive, switching power supply feedback isolation, DC link voltage monitoring, inverter current sensing and switching power supply feedback isolation, the ACPL-C97x targets industrial automation and instrumentation, renewable energy, and HVAC markets.

In a typical motor drive application, currents through a small value current sense resistor cause a voltage drop that is sensed by the ACPL-C79x isolation amplifier and a differential output voltage, proportional to the current, is created on the output side of the isolation barrier.

#### Key Features

- High gain tolerance options:  $\pm 0.5\%$  (ACPL-C79B),  $\pm 1\%$  (ACPL-C79A), and  $\pm 3\%$  (ACPL-C790)
- High Signal-to-Noise ratio: 60 dB
- Excellent linearity: 0.05%
- Low input offset voltage and drift: 0.6 mV and 3 $\mu$ V/°C
- Low gain change vs. temperature: -50 ppm/°C
- High bandwidth: 200 kHz typical, 140 kHz minimum
- 3.3 V compatible outputs
- 15 kV/us common-mode transient immunity at V<sub>cm</sub> = 1500 V
- Fast response time: 1.6  $\mu$ s
- Advanced Sigma-Delta Analog-to-Digital converter and full differential isolation
- Safety and regulatory approval (pending)
  - IEC/EN/DIN EN 60747-5-5: 1140 V<sub>peak</sub> working insulation voltage
  - UL 1577: 5000 V<sub>rms</sub>/1 minute double protection rating
  - CSA: Component Acceptance Notice #5

- 0.5 mm internal package distance-through-insulation (DTI)
- 8 mm minimum package creepage and clearance
- Wide supply voltage: 3 V to 5.5 V
- Compact 8-pin stretched SO-8 package: 30% smaller than DIP-8 package
- Extended temperature operation: -40° C to 105° C

#### Packaging and Temperature Range

The ACPL-C79x isolation amplifiers are available in a compact 8-pin stretched SO-8 package for automatic SMT assembly and are RoHS compliant. All devices operate over a very wide temperature range, -40 ° C to +105° C.

In order to achieve high insulation ratings, package creepage and clearance is 8 mm and distance-through-isolation, DTI, is 0.5 mm.

#### U.S. Pricing and Availability

Avago's ACPL-C79B, ACPL-C79A and ACPL-C790 are priced at \$6.25, \$5.00 and \$3.75 respectively, each in 10,000 piece quantities.

Samples and production quantities are available now through Avago's direct sales channel and worldwide distribution partners. More information about Avago's isolation amplifier and isolation products can be found at [www.avagotech.com/optocouplers](http://www.avagotech.com/optocouplers).

#### About Avago Technologies

Avago Technologies is a leading supplier of analog interface components for communications, industrial and consumer applications. By leveraging its core competencies in III-V compound and silicon semiconductor design and processing, the company provides an extensive range of analog, mixed signal and optoelectronics components and subsystems to approximately 40,000 end customers. Backed by strong customer service support, the company's products serve four diverse end markets: wireless communications, wired infrastructure, industrial and automotive electronics, and consumer and computing peripherals. Avago has a global employee presence and heritage of technical innovation dating back 40 years to its Hewlett-Packard roots. Information about Avago is available on the Web at [www.avagotech.com](http://www.avagotech.com)

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#### Safe Harbor Statement

This announcement and supporting materials may contain forward-looking statements which address our expected future business and financial performance. These forward looking statements are based on current expectations, estimates, forecasts and projections of future Company or industry performance based on management's judgment, beliefs, current trends and market conditions, and involve risks and uncertainties that may cause actual results to differ materially from those contained in the forward-looking statements. Accordingly, we caution you not to place undue reliance on these statements. Avago Technologies Limited's Quarterly Report on Form 10-Q, filed with the U.S. Securities and Exchange Commission ("SEC") and other filings with the SEC (which you may obtain for free at the SEC's website at <http://www.sec.gov>) discuss some of the important risk factors that may affect our business, results of operations, and financial condition.

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