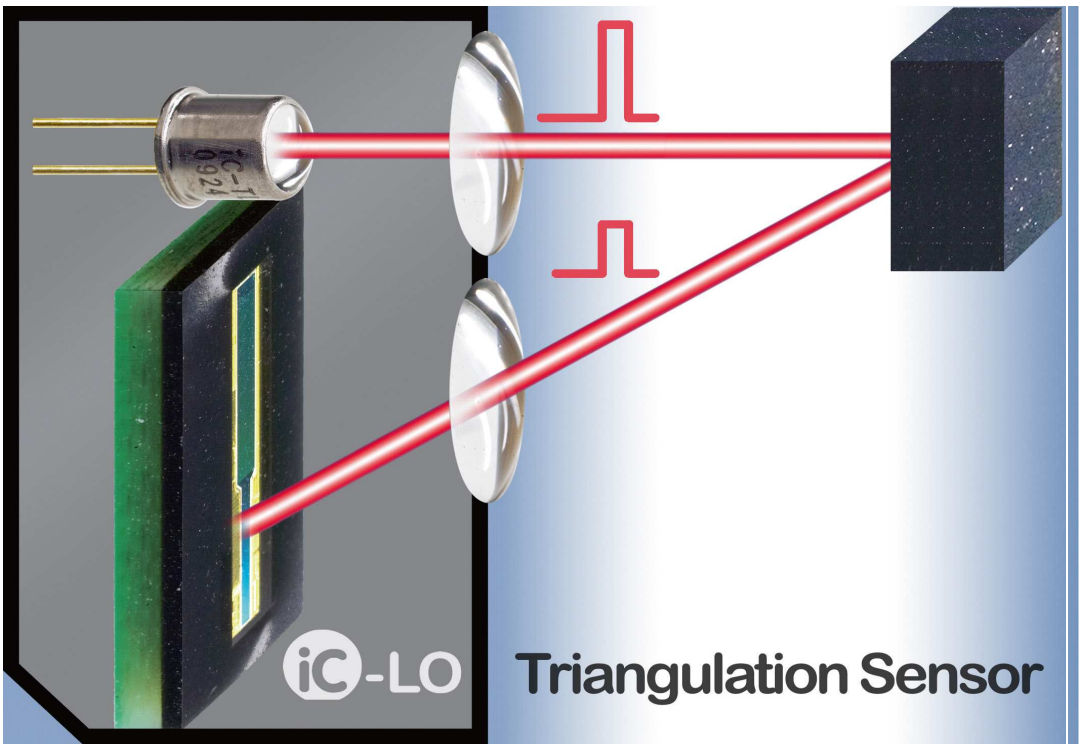
iC-LO: triangulation sensor with high ambient light suppression for high switching frequencies

Integrated optosystem for measuring and classifying distances via switching output

The new iC-LO device is a triangulation sensor specifically designed as a system on chip for the assembly of diffuse reflective photoelectric sensors with switching outputs. Thanks to the high integration of the functions, which includes the photodiodes, LED driver, microcontroller interface, signal conditioning circuitry, and signal filter unit, the overall system is extremely small. Besides the iC-LO, all that is needed to create a triangulation measurement setup are a transmitting LED



and a low-cost microcontroller.

Download text and photo at http://www.ichaus.de/pressroom/ichaus_lo_pren.zip

The specially designed optical array is divided into one near diode, 127 middle diodes, and one far diode.

Two AC amplifiers are integrated together with the optical array to enable high interference and ambient light suppression and a dynamic range of up to 100 dB. Using a filter glass, an ambient light suppression of up to 100 kLux can be obtained.

The number of averaged measurements can be set to digitally filter the signals with measurement rates of up to 13.9 kHz. The integrated lowside LED driver generates transmitting pulse currents of up to 1.2 A. An external laser diode driver can also be activated for laser triangulation. The pulse duration of the illumination signal can be set through the SPI interface.

Data is output through two antivalent switching outputs and an additional output for the weak received light alarm. Alternatively, the SPI interface implemented for the configuration of the device can be used to output sensor results and states to a field bus interface through a microcontroller.

iC-LO operates from 4.5 V to 5.5 V in an operating temperature range of -40°C to +85°C. The 15-pin optoBGA package can be used with SMDs and requires just approximately 4 mm x 9 mm of board space.

The design-in process is supported by ready-to-operate demo boards and software for evaluation with a PC.

Further information is available at http://www.ichaus.com/iC-LO.

Introducing iC-Haus

iC-Haus GmbH is a leading independent German manufacturer of standard iCs (ASSP) and customized ASiC semiconductor solutions. The company has been active in the design, production, and sales of application-specific iCs for industrial, automotive, and medical technology for over 25 years and is represented worldwide. The iC-Haus cell libraries in CMOS, bipolar, and BCD technologies are fully equipped to realize the design of sensor, laser/opto, and actuator ASiCs, among others.

The iCs are assembled in standard plastic packages or using iC-Haus chip-on-board technology to manufacture complete microsystems, multichip modules, and optoBGA™, the latter in conjunction with sensors.
Further information is available at http://www.ichaus.com.

If you have any questions, please contact:

Marko Hepp
iC-Haus GmbH, Am Kuemmerling 18, 55294 Bodenheim, Germany
Tel.: +49 (6135) 9292-302 Web: www.ichaus.com
Fax: +49 (6135) 9292-192 Email: marko.hepp@ichaus.de