

New VCSEL-Powered VCNL36825T Proximity Sensor With Small 1.6 mm Light Hole Offers Power Consumption Down to 6.63 μ A in Compact 2.0 mm x 1.25 mm x 0.5 mm SMD Package for Consumer and Industrial Applications

Product Benefits:

- Combines a VCSEL and photodiode
- Integrated signal processing IC and 12-bit ADC
- Compact 2.0 mm by 1.25 mm by 0.5 mm surface-mount package with a small 1.6 mm light hole
- Operating range of 200 mm
- Low power consumption down to 6.63 μ A increases efficiency
- Supports the I²C bus communication interface for easy access to the proximity signal
- Intelligent cancellation eliminates cross-talk
- A smart persistence scheme ensures accurate sensing and faster response time
- VCSEL wavelength peaks at 940 nm and has no visible “red-tail”
- Excellent temperature compensation from -40 °C to +85 °C
- Moisture Sensitivity Level (MSL) of 3 — in accordance with J-STD-020 — for a floor life of 168 hours
- RoHS-compliant, halogen-free, and Vishay Green



Market Applications:

- Detect if users are wearing or not wearing true wireless stereo (TWS) earphones or virtual reality / augmented reality (VR / AR) headsets
- Collision detection in toys and consumer and industrial robots

The News:

The Optoelectronics Group of Vishay Intertechnology introduces a new fully integrated proximity sensor designed to increase efficiency and performance in consumer and industrial applications. Featuring a vertical-cavity surface-emitting laser (VCSEL), the Vishay Semiconductors VCNL36825T combines a photodiode, signal processing IC, and 12-bit ADC in a compact 2.0 mm by 1.25 mm by 0.5 mm surface-mount package with a small 1.6 mm light hole.

- Compared to previous-generation devices, the VCNL36825T offers a 76 % smaller package, while its reduced light hole opening provides increased design flexibility — all at a lower cost
- The device’s small size makes it ideal for space-constrained battery-powered applications
- Programmable interrupt function allows designers to specify high and low thresholds to reduce the continuous communication with the microcontroller



The Key Specifications:

Part number	VCNL36825T
Function	PS + VCSEL
Package size (mm)	2.0 x 1.25 x 0.5
Supply voltage (V)	2.64 to 3.6
I ² C bus voltage (V)	1.7 to 3.6
VCSEL Driving current (mA)	20
Operating range (mm)	200
Min. Power consumption (µA)	6.63
Proximity resolution	12 bits

Availability:

Samples and production quantities of the VCNL36825T are available now, with lead times of eight to 12 weeks for large orders.

To access the product datasheet on the Vishay Website, go to <http://www.vishay.com/ppg?80235> (VCNL36825T)

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