

Ultra-low power motion sensor for Optical Finger Navigation (OFN) and optical/laser mice

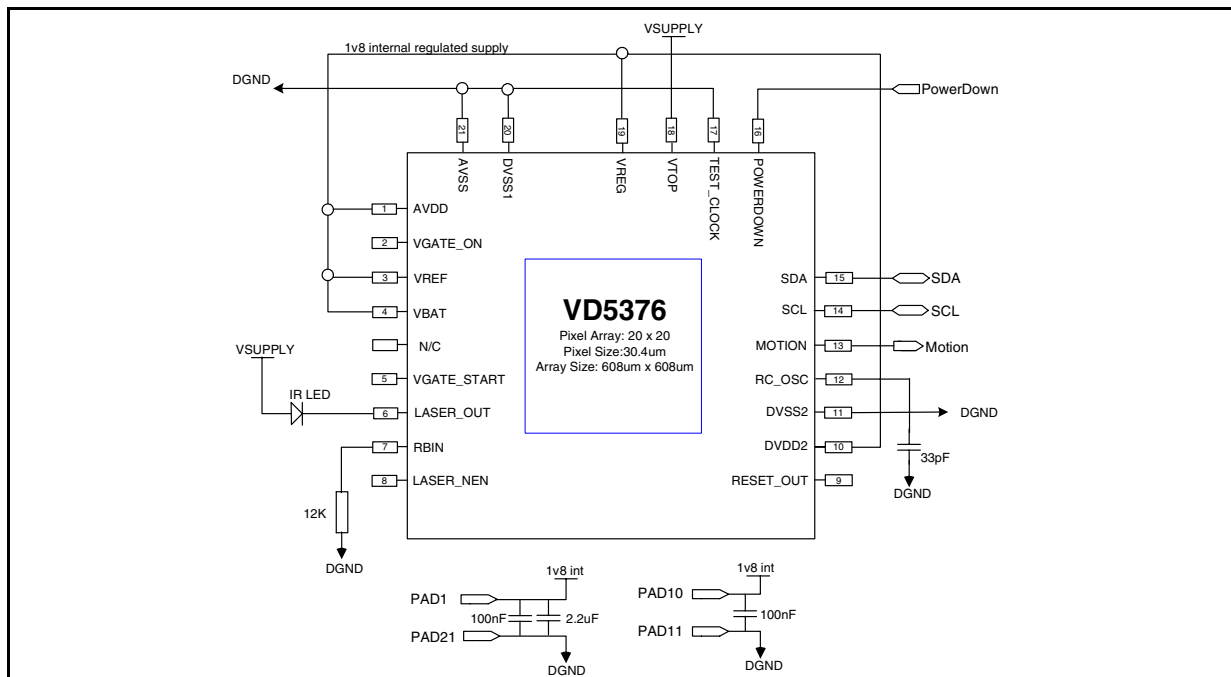
Features

- Ultra-low power performance and high speed/high accuracy motion detection (1 m/s, 20 g)
- Optional on-chip power management scheme (RUN/IDLE1/IDLE2/SLEEP)
- Very low quiescent and operating current mode for battery life saving
- CPI programmable up to 3,200 CPI
- On-chip boost-converter controller enables a complete autonomous single AA/AAA-type battery supply application
- I²C interface, with fast polling rate capability for high end applications (report rate up to 1 per millisecond)
- Internal oscillator
- On-chip ADC for battery level reporting
- Laser drive circuitry, fault detection scheme and safety features
- Versatile usage: the sensor is designed to operate with a companion microcontroller, and can be used for any laser/LED mouse system
- Minimal external component requirement
- Miniature die enabling smallest modules
- Module design support

Description

This device is intended to fit into any two-chip applications (companion MCU) and offers the best compromise between application cost, power and performance.

It is ideally suited to meet requirements of the growing number of devices using finger navigation as an easy and intuitive human interface method.



Applications

- OFN applications for mobile phones, remote controls and portable electronic equipment
- Ultra-low power wireless laser mouse: 27 MHz, 2.4 GHz and Bluetooth
- Suitable for laser USB mouse applications

Technical specifications

Table 1. Technical specifications

Resolution	Programmable up to 3200 cpi
Pixel size	30.4 μm
Array size	20 x 20 pixels
Frame rate	up to 4000 fps
Tracking performance	Laser or LED: 1m/s Very low drift
Supply voltage	1V to 1.6V ⁽¹⁾ , 1.8V direct drive or 2.2V to 3.0V
Operating temperature	-20°C to 60°C

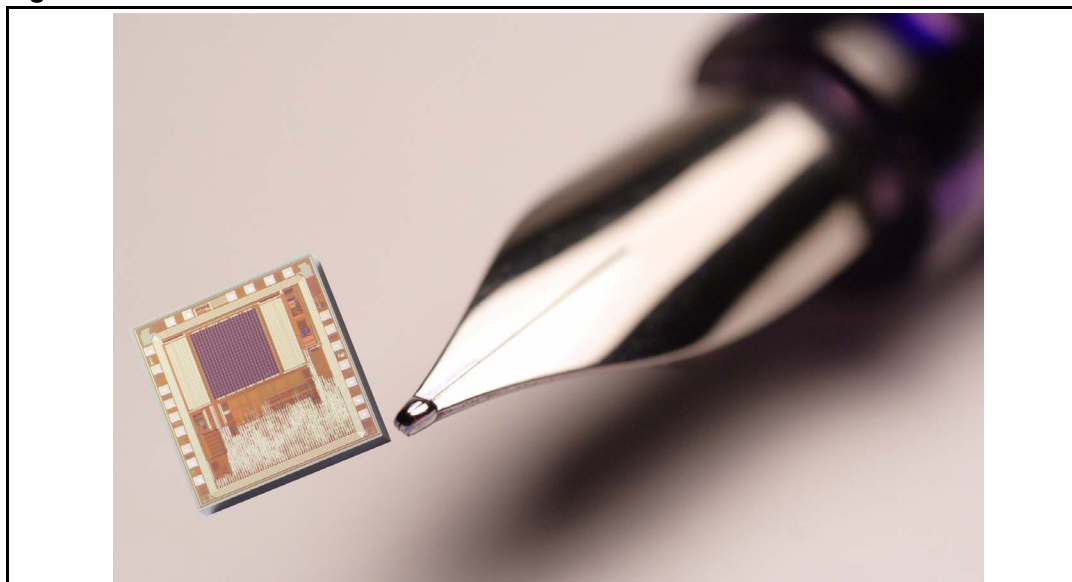
1. Using internal boost converter controller.

Silicon specifications

Table 2. Silicon specifications

Wafer thickness	775 μm , 375 μm or 180 μm (all +/- 20 μm)
Bond pad size	81 x 81 μm
Minimum bond pitch	140 μm

Figure 1. VD5376 die



Ordering information

Table 3. Ordering information

Order code	Description
VD5376/UW	Unsawn wafer - 775 μm
VD5376CA/SW	Sawn Wafer - 375 μm
VD5376CB/UW	Unsawn wafer - 180 μm
STV-376-E04	Generic testboard

Revision history

Date	Revision	Changes
2-Mar-2010	1	Initial release.
14-Jun-2010	2	Amendments made to data in Table 1: Technical specifications , Table 2: Silicon specifications to correct errors. New order codes added to Table 3: Ordering information .

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