

## World's smallest multispectral sensor with UV and light flicker detection



### Features

- Miniature optical module
  - 1.83 x 1.0 x 0.55 mm
  - Optical BGA, 6-balls, reflowable package
  - Operates with phone coverglass on top
- ALS operation with 6 color channels
  - Advanced interferometric filters (UVA, red, green, blue, near IR, and clear) with 6 individual readouts
  - 24-bit ADC
  - Excellent sensitivity down to 0.01 Lux
  - UV-A channel for indoor/outdoor and artificial/natural light discrimination
- Light flicker extraction
  - Innovative readout architecture to extract light characteristic (AC flicker) on top of the ALS value (under patent)
  - From 100 Hz to 2 kHz frequency detection
- Software driver provided by ST
- I2C interface up to 1 Mbit/s (Fast mode plus) with GPIO1 interrupt ball
- Perfectly suited for mobile applications
  - 1.8 V power supply
  - 450  $\mu$ A consumption active (5 channels)
  - Operating temperature -30 to 85 °C

### Applications

- True tone color-sensing for phone screen or camera white balance assistance
- Lux information
- UV-A information
- Indoor/outdoor information
- Light frequency extraction for flicker correction assistance

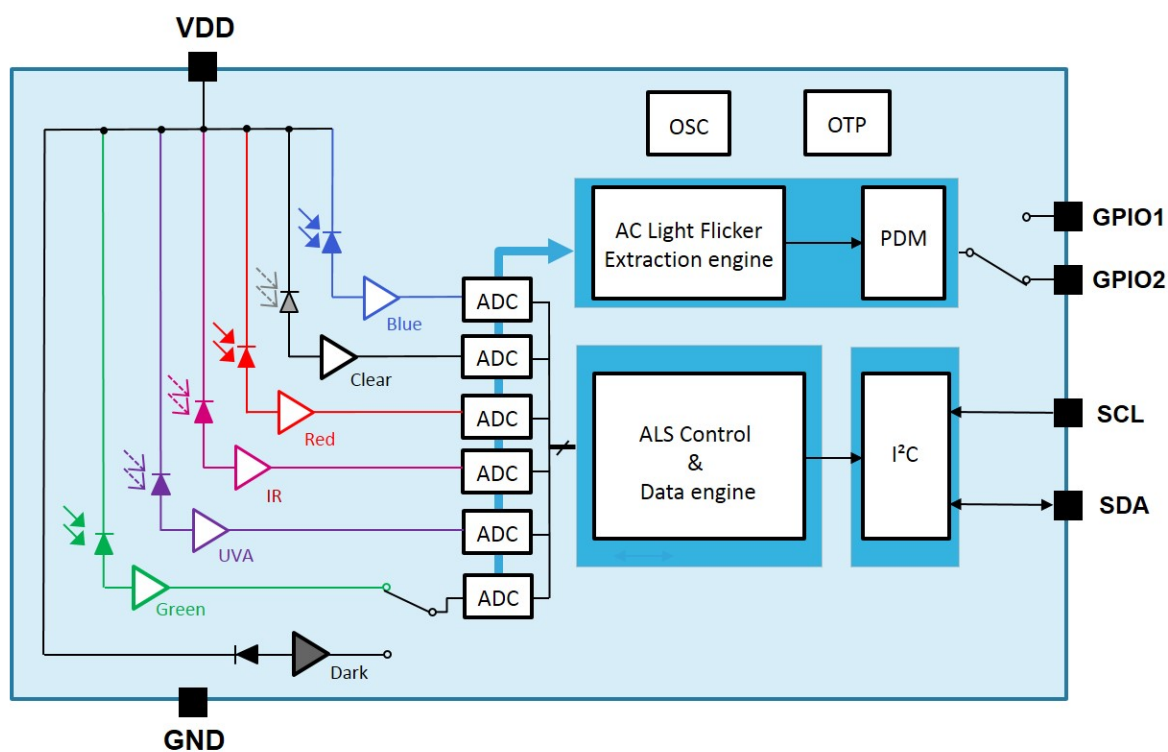
### Description

The VD6281 (1.83 x 1.0 x 0.55 mm) is the smallest 6-channel, ambient light sensor (ALS) on the market. Light measurement is fast and accurate thanks to an individual ADC and readout circuitry for each color channel. The VD6281 uses high-end interferometric filters with precise responses to assist camera white-balance in less than 8 ms. The device also employs a UV channel for natural or artificial light detection.

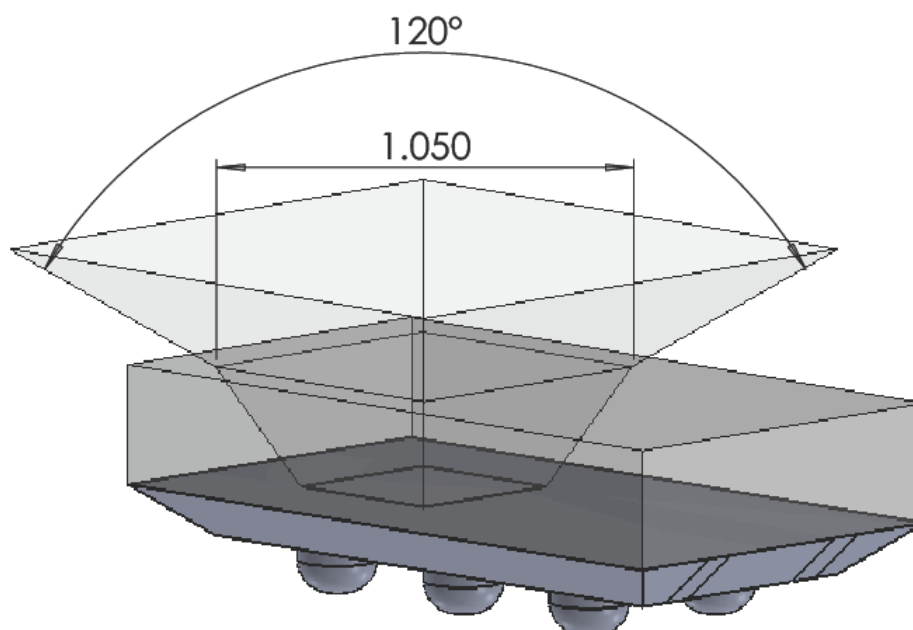
With a patented architecture and a high-performance photodiode design, the VD6281 can extract light flickering frequencies to enhance camera experience and remove banding effects. The VD6281 is the only sensor able to extract different light flicker waveforms including combined lights or contemporary LED sources with square signals.

# 1 Technical specifications

**Figure 1. System block diagram**



**Figure 2. Outline 3D drawing and maximum field of view**



## 2 Package information

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In order to meet environmental requirements, ST offers these devices in different grades of **ECOPACK®** packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK® is an ST trademark.

### 3 Ordering information

The VD6281 is currently available in the format below. More detailed information is available on request from your STMicroelectronic sales channel.

**Table 1. Order codes**

Order code	Package	Description
VD6281TF46/1	Optical WLCSP BGA 6-ball	Tape and reel (5000 units in a reel)

## Revision history

**Table 2. Document revision history**

Date	Version	Changes
07-Feb-2019	1	Initial release

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