Advanced 1.5 Mpixel, backside illuminated Global Shutter, ultra compact sensor, with high QE, high MTF, excellent PLS, and full-features

**Features**

- Global shutter technology, ST proprietary single layer
- 3D stacked sensor 40 nm/65 nm
- 2.61 µm x 2.61 µm BSI pixel with full DTI (deep trench isolation)
- High-performance with excellent
  - QE (quantum efficiency)
  - MTF (modulation transfer function) up to near IR
  - Perfect PLS (shutter efficiency)
- Smallest sensor on market with 1.5 Mpixel resolution
  - Compact die size: 3.6 mm x 4.3 mm
  - 1124 pixels x 1364 pixels
  - Very small pixel array, 2.9 mm x 3.6 mm
  - Optical format ¼ inch
- Operating junction temperature: -30 °C to 85 °C
- Dual lane transmitter MIPI CSI-2 (copyright© 2005-2010 MIPI Alliance, Inc. Standard for Camera Serial Interface 2 (CSI-2) version 1.0) version 1.3, 1.5 Gbps per lane
- Fast mode+ I2C control interface
- Integrated temperature sensor
- Up to 98 fps (frames per second) at full resolution and 240 fps with VGA resolution
- Programmable sequences of 4-frame contexts, including frame parameters
- Automatic dark calibration
- Dynamic and map-based defective correction
- Embedded auto-exposure with 336 zone statistics
- 8 multiple function IO, dynamically programmable with frame contexts (GPIO, strobe pulse, pulse-width modulation, V sync)
- Up to 8 illumination control outputs synchronized with sensor integration periods and master/slave external frame start
- Mirror/flip readout
- Fully sequenceable with frame contexts
- Crop
- Binning (x2 and x4)
- Sub sampling (x2 and x4)

**Description**

The VD56G3 is a global shutter image sensor optimized for near infrared scenes. The sensor captures up to 98 frames per second in a 1124 x 1364 resolution format. The pixel construction of this device minimises crosstalk.

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**Order code**

<table>
<thead>
<tr>
<th>Description</th>
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<tbody>
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<td>VD56G3</td>
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**Application**

Engineered for high-performance computer vision applications, including AR/VR, personal and industrial robotics, drones, barcodes, biometrics and gestures, embedded vision or scene recognition.

Typical use cases where high-performance near IR sensing is key. Also demanding computer vision on scene with movement requiring no shutter artifacts.
## Revision history

Table 1. Document revision history

<table>
<thead>
<tr>
<th>Date</th>
<th>Version</th>
<th>Changes</th>
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<tbody>
<tr>
<td>10-Jan-2020</td>
<td>1</td>
<td>Initial release</td>
</tr>
<tr>
<td>10-Feb-2020</td>
<td>2</td>
<td>Updated order code and corrected typo</td>
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<tr>
<td>11-Mar-2020</td>
<td>3</td>
<td>Updated framerate</td>
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<tr>
<td>11-Mar-2020</td>
<td>4</td>
<td>Updated description</td>
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