GSPRINT4510 Product Flyer

10MP HIGH SPEED CMOS IMAGE SENSOR

GSPRINT4510 is a 10 Megapixel (4600 x 2160) 4/3 sized high speed, global shutter image sensor designed with the latest 4.5 μm charge domain global shutter pixel. It achieves more than 30ke− FWC, less than 3e− rms read noise and 67.8dB dynamic range. Using an advanced 65nm CIS process and light pipe technology, the sensor achieves >65% QE and more than 1/40,000 shutter efficiency. With on-chip charge binning, FWC can be further increased to > 120 ke− and frame rate is quadrupled. GSPRINT4510 will be offered in different speed variants. The full speed variant consists of 144 pairs sub-LVDS channels running at 1.2Gbps which delivers a stunning 1920 fps in single gain operation at 8 bit per pixel and full resolution and 3800 fps with a ROI of 1024 rows in a dedicated 3D laser profiling mode. These unique features make it an ideal solution for demanding imaging in high-end applications such as high speed 4K video, industrial inspection, motion analysis and life science imaging.

Key Features

• 4.5 μm Square Pixels
• Ultra-low read noise less than 4 e−
• Vertical ROIs with speed boosting
• Max. frame rate up to 1920fps @8bit

Applications

• Machine vision
• High resolution industrial inspection
• 3D laser profiling

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Sensor Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>4608 x 2176</td>
</tr>
<tr>
<td>Optical format</td>
<td>4/3”</td>
</tr>
<tr>
<td>Pixel size</td>
<td>4.5μm x 4.5μm</td>
</tr>
<tr>
<td>Photo-sensitive area</td>
<td>20.7mm x 9.79mm</td>
</tr>
<tr>
<td>Shutter type</td>
<td>Global shutter</td>
</tr>
<tr>
<td>Quantum efficiency</td>
<td>&gt; 67%</td>
</tr>
<tr>
<td>Full well capacity</td>
<td>30 ke-</td>
</tr>
<tr>
<td>Output interface</td>
<td>144 pairs of sub-LVDS</td>
</tr>
<tr>
<td>Dark noise</td>
<td>&lt; 4e-</td>
</tr>
<tr>
<td>Dark current</td>
<td>11.43e-p/s @ 50°C</td>
</tr>
<tr>
<td>Dynamic range</td>
<td>68dB</td>
</tr>
<tr>
<td>Frame rate</td>
<td>1920 fps @ 8 bit</td>
</tr>
<tr>
<td>Chroma</td>
<td>Color &amp; Mono</td>
</tr>
<tr>
<td>Power consumption</td>
<td>811mW</td>
</tr>
<tr>
<td>I/O voltage</td>
<td>1.8V</td>
</tr>
<tr>
<td>Package</td>
<td>454 pins µPGA</td>
</tr>
<tr>
<td></td>
<td>42mm x 34mm</td>
</tr>
</tbody>
</table>

Ordering Information

Sensor Part No.

- **GSPRINT4510-AVM-HUN-AR1**
  Mono, without lens, taped glass without ARC, High speed, 1920fps @ 8-bit, Grade 1

- **GSPRINT4510-AVM-HUN-AR2**
  Mono, without lens, taped glass without ARC, High speed, 1920fps @ 8-bit, Grade 2

- **GSPRINT4510-AVM-HUT-BU1**
  Mono, with lens, sealed glass with ARC, High speed, 1920fps @ 8-bit, Grade 1

- **GSPRINT4510-AVM-HUT-BU2**
  Mono, with lens, sealed glass with ARC, High speed, 1920fps @ 8-bit, Grade 2

- **GSPRINT4510-AVM-FUT-BU1**
  Mono, with lens, sealed glass with ARC, Full speed, 1920fps @ 8-bit, 1000fps @10-bit, 480fps@12bit, Grade 1

- **GSPRINT4510-AVM-FUT-BU2**
  Mono, with lens, sealed glass with ARC, Full speed, 1920fps @ 8-bit, 1000fps @10-bit, 480fps@12bit, Grade 2

- **GSPRINT4510-AVM-NUN-AR1**
  Mono, without lens, taped glass without ARC, Normal speed, 999fps @ 8-bit, Grade 1

- **GSPRINT4510-AVM-NUN-AR2**
  Mono, without lens, taped glass without ARC, Normal speed, 999fps @ 8-bit, Grade 2

- **GSPRINT4510-AVM-NUT-BU1**
  Mono, with lens, sealed glass with ARC, Normal speed, 809fps @10-bit 72channels, 480fps@12bit, Grade 1

- **GSPRINT4510-AVM-NUT-BU2**
  Mono, with lens, sealed glass with ARC, Normal speed, 809fps @10-bit 72channels, 480fps@12bit, Grade 2

- **GSPRINT4510-AVC-FUT-BU1**
  Color, with lens, sealed glass with ARC, Full speed, 1920fps@ 8-bit, 1000fps @10-bit, 480fps@12bit, Grade 1

- **GSPRINT4510-AVC-FUT-BU2**
  Color, with lens, sealed glass with ARC, Full speed, 1920fps@ 8-bit, 1000fps @10-bit, 480fps@12bit, Grade 2

EVK Part No.

EVA-4510-HT01, USB interface, 3 stacked PCB boards

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