TCM3232PB 1/3 inch 1080p 2.7µm CMOS Image Sensor

Highlights

- Major worldwide producer of image sensor technology with more than 25 years of experience.
- Many of the Toshiba image sensors utilize advanced technologies such as Backside Illumination (BSI), High Dynamic Range (HDR) and Color Noise Reduction (CNR) for better image quality and truer colors.
- Utilizes a proprietary square-pixel design that enables exceptionally high-quality images with low-power consumption.
- Offers a wide range of sensors from VGA to 20 megapixels.
- Makes ongoing investments in capacity and its robust supply chain is a result of tight procurement relationships and experience in designing, developing and manufacturing image sensors.

Description

The TCM3232PB CMOS Image Sensor offers an industry-leading >100 dB High Dynamic Range (HDR) and fast frame rates of 60 fps enabling high-resolution imagery for security/surveillance applications. Toshiba’s single-frame, alternate-row, dual-exposure HDR implementation in the TCM3232PB is well suited for capturing fast-moving objects compared to conventional multi-frame systems. The sensor is a CIS-type CMOS image sensor with a 1/3 inch optical format and a full-HD (1080p) resolution, which is equivalent to that of digital terrestrial Full-HD monitors. This resolution makes it possible to deliver clear and smooth video in real time even in high contrast light conditions. The 2.7 µm pixel size of the TCM3232PB enables high sensitivity and when coupled with CNR offers better visibility and color-rich images even in low-luminescent environments. The sensor is designed for long-term use, operating 24 hours a day.

Applications

- Security and Surveillance Applications

Features

- 1/3" 1080p resolution (2.7 µm)
- HDR (High Dynamic Range) >100 dB
- High Frame Rate: 60 fps @1080p full resolution
- CNR (Color Noise Reduction)
- Progressive scan
- I²C interface
- CSI-2, Sub-LVDS: 2 lanes
- 10-bits parallel output (12-bit for HDR)
- Binning: Vertical 1/2

TCM3232PB Block Diagram
TCM3232PB 1/3 inch 1080p 2.7 µm CMOS Image Sensor

Specifications

- Sub-sampling
  - Horizontal 1/2
  - Vertical 1/2
- Built-in Phase Lock Loop (PLL)
- Defect pixel correction
- Picture flip (horizontal and vertical)
- Lens shading correction
- Down scaling
- Cropping
- Hardware Standby, Software Standby
- OTP (2K bits one-time memory)
- Built-in regulator (3.3 V to 1.5 V)
- Data formats: RAW-10, 12 bits
- Frame rate (CSI-2 or Sub-LVDS)
  - 60 fps @ full resolution
  - 60 fps @ 720p
  - 120 fps @ VGA
- Power supply:
  - Analog = 3.3 V ± 0.3 V
  - Digital = 3.3 V ± 0.3 V or 1.5 V ± 0.1 V
  - I/O = 3.3 V ± 0.3 V or 1.8 V ± 0.1 V
- Operating temperature: -40 to +105°C
- Storage temperature: -40 to +125°C
- Package:
  - Type: PBGA (Plastic Ball Grid Array)
  - Size: 10 × 10 mm

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