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Product Brief

T4K37 13-megapixel CMOS Image Sensor

Highlights

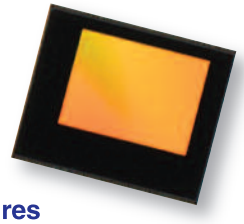
- Major worldwide producer of image sensor technology with more than 25 years of experience.
- Many of the Toshiba image sensors utilize advanced technologies such as Backside Illumination (BSI), High Dynamic Range (HDR) and Color Noise Reduction (CNR) for better image quality and truer colors.
- Utilizes 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 Toshiba T4K37 is 13-megapixel CMOS image sensor that includes all the latest advances in image sensor technology. It supports Backside Illumination (BSI), High Dynamic Range (HDR) and integrated Color Noise Reduction (CNR). BSI offers better light absorption and sensitivity; HDR delivers more detail in dark and light areas; and CNR lowers pixel noise and improves image quality. The T4K37 provides approximately 1½ times higher SNR value than a 1.12 micrometer pixel image sensor with no CNR feature allowing manufacturers to deliver products with high-quality imagery, even in low-light conditions. The sensor has an optical format of 1/3.07 inch with a sensor area of 3120 vertical x 4208 horizontal pixels. It fits into an 8.5 mm x 8.5 mm size camera module enabling high-quality pictures even in low-light conditions for cellular phones and mobile products.

Applications

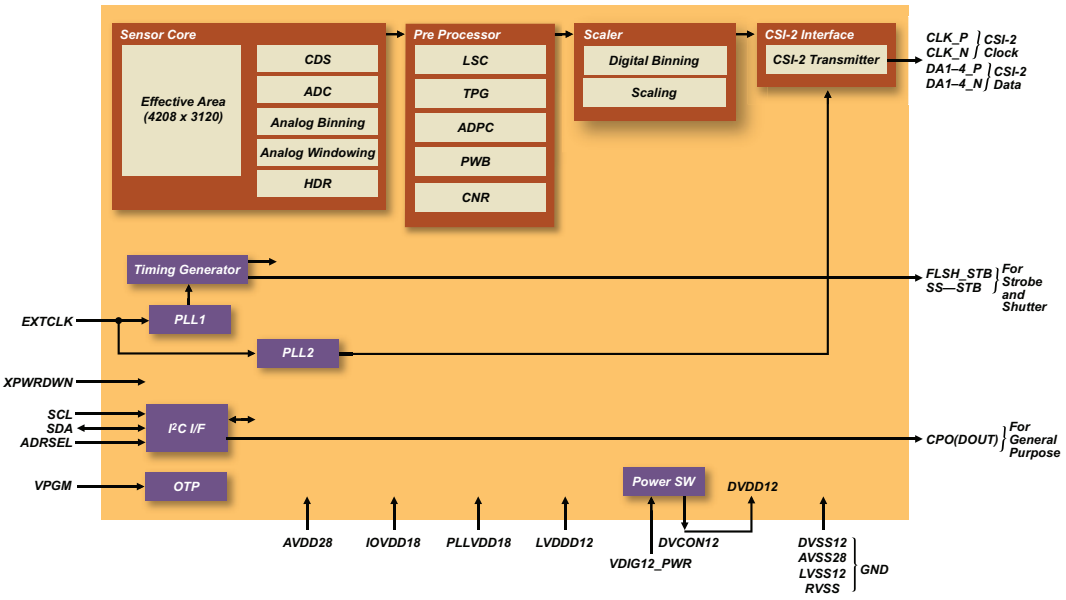
- Cellular phones and mobile products



Features

- 1/3.07" 13M resolution (1.12 µm)
- Backside Illumination (BSI)
- Progressive scan
- I²C interface
- CSI-2 4 lanes
- Binning:
  Horizontal 1/2
  Vertical 1/2, 1/4
- Built-in phase lock loop (PLL)
- Window of interest (Windowing to any arbitrary size fixed center)
- Image scaling (programmable scaling for image size)
- Picture flip (horizontal and vertical)
- Lens shading correction
- Defect pixel correction

T4K37 System Block Diagram



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- High Dynamic Range (HDR)
- Context switch
- 2nd PLL for CSI-2 output
- Global reset for mechanical shutter
- Storobe timing pulse
- Color Noise Reduction (CNR)
- Standby mode, Power down mode
- OTP (8k bits one-time memory)

Specifications

- Optical format: 1/3.07"
- Pixel size: 1.12 µm × 1.12 µm
- Effective pixels: 4208 (H) × 3120 (V)
- Data formats: RAW-8, 10 bits
- Frame rate:
  30 fps @full resolution
  60 fps @1080p
  60 fps @720p
  120 fps @VGA
- Power supply:
  Analog = 2.6 to 3.0 V
  Digital = 1.1 to 1.3 V
  I/O = 1.7 to 3.0 V
- Operating temperature: –20 to +65°C
- Storage temperature: –40 to +85°C

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