OV9660 1.3 MPixel product brief

ultimate, high-performance camera-on-a-chip

The OV9660 is a low voltage SXGA (1.3 Megapixel) CMOS CameraChip™ sensor that incorporates the full functionality of a camera and image processor on a single chip, making it ideal for mobile applications. The OV9660 is a 1/5.5" format sensor that fits 1.3 Megapixels into a VGA footprint.

Built on our highly advanced OmniPixel2™ architecture, the OV9660 enables the highest image quality, color fidelity and camera performance, while reducing common sources of image contamination, such as fixed pattern noise, and eliminating smearing.

The OV9660 provides full-frame, sub-sampled, scaled or windowed 8-bit/10-bit images in a wide range of formats, controlled through the Serial Camera Control Bus (SCCB) interface. With an image array capable of operating at up to 15 frames per second (fps) in full SXGA (1280 x 1024) resolution, it offers complete user control over image quality, formatting and output data transfer.

All required image processing functions, including exposure control, gamma, white balance, color saturation, hue control, white pixel canceling, noise canceling, and others, are also programmable through the SCCB interface.

OmniVision®

applications

- cellular and picture phones
- PC multimedia
- toys
- digital still cameras

OV9660

ordering information

- OV09660-VL9A
  (color, lead-free, CSP2-26)

product features

- high sensitivity for low-light operation
- low operating voltage for embedded portable applications
- standard SCCB interface
- VarioPixel® method for sub-sampling
- supports image sizes: SXGA, VGA, CIF, and any size scaling down from CIF to 40x30, and windowed outputs with raw RGB, RGB565/555/444, YUV (4:2:2) and YCbCr (4:2:2) formats

- automatic image control functions including
  – automatic Exposure control (AEC)
  – automatic gain control (AGC)
  – automatic white balance (AWB)
  – automatic black-level calibration (ABLC)
- image quality controls including: color saturation, hue, gamma, sharpness (edge enhancement), lens correction, white pixel canceling, noise canceling, and 50/60 Hz luminance detection

product specifications

- array size: 1304 x 1036
- power supply
  analog: 2.45 to 3.0 VDC
  core: 1.2 VDC ± 5%
  I/O: 1.71 V to 3.0 V
- power requirements:
  active: 80 mW typical
  (15 fps, no I/O power)
  standby: <15 µA
- image area:
  2608 µm x 2072 µm
- maximum exposure interval:
  $1052 \times t_{ROW}$

- lens size: 1/5.5"
- pixel size: 2.0 µm x 2.0 µm
- package dimensions:
  4485 µm x 4985 µm
- temperature range:
  -30°C to +70°C
- maximum image transfer rate:
  SXGA: 15 fps
  VGA, CIF and downscaling: 30 fps

functional block diagram
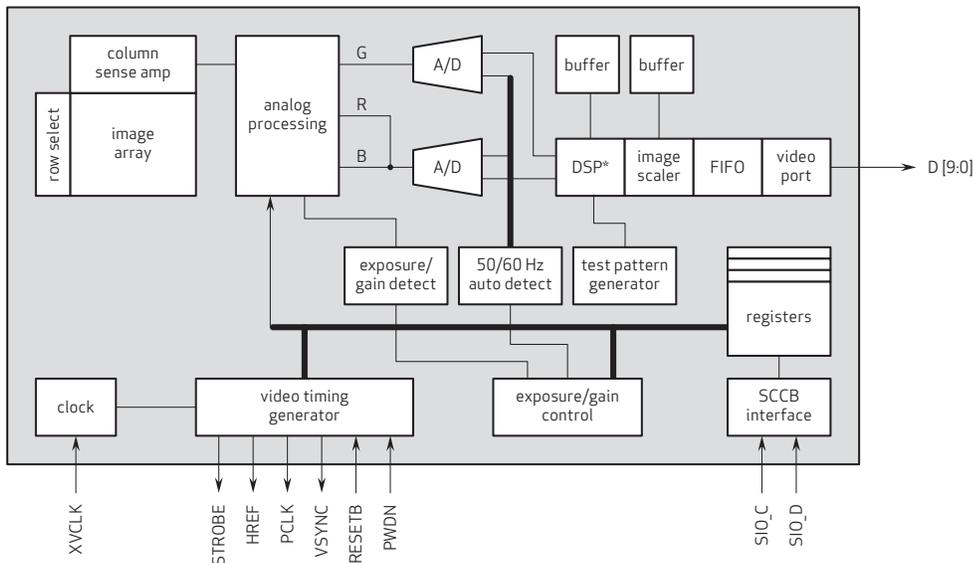
note 1 DSP* (lens shading correction, de-noise, white/black pixel correction, auto white balance, etc.)

OmniVision.