



1/3-Inch Wide-VGA CMOS Digital Image Sensor

MT9V034

For the latest data sheet revision, refer to Aptina's Web site: www.aplina.com

Features

- DigitalClarity[®] CMOS imaging technology
- Array format: Wide-VGA, active 752H x 480V (360,960 pixels)
- TrueSNAP[™] global shutter photodiode pixels; simultaneous integration and readout
- Monochrome or color: NIR enhanced performance for use with non-visible NIR illumination
- Readout modes: progressive or interlaced
- Shutter efficiency: >99%
- Simple two-wire serial interface
- Real-time exposure context switching - dual register set
- Register lock capability
- Window size: User programmable to any smaller format (QVGA, CIF, QCIF). Data rate can be maintained independent of window size
- Binning: 2 x 2 and 4 x 4 of the full resolution
- ADC: On-chip, 10-bit column-parallel (option to operate in 12-bit to 10-bit companding mode)
- Automatic controls: Auto exposure control (AEC) and auto gain control (AGC); variable regional and variable weight AEC/AGC
- Support for four unique serial control register IDs to control multiple imagers on the same bus
- Data output formats:
 - Single sensor mode:
 - 10-bit parallel/stand-alone
 - 8-bit or 10-bit serial LVDS
 - Stereo sensor mode:
 - Interspersed 8-bit serial LVDS
- High dynamic range (HDR) mode

Applications

- Security
- High dynamic range imaging
- Unattended surveillance
- Stereo vision
- Video as input
- Machine vision
- Automation

Table 1: Key Performance Parameters

| Parameter | Value |
|-----------------------|--------------------------------------------------------------------------|
| Optical format | 1/3-inch |
| Active imager size | 4.51mm(H) x 2.88mm(V) 5.35mm diagonal |
| Active pixels | 752H x 480V |
| Pixel size | 6.0 x 6.0µm |
| Color filter array | Monochrome or color RGB Bayer pattern |
| Shutter type | TrueSNAP [™] Global shutter |
| Maximum data rate | 27 Mp/s |
| master clock | 27 MHz |
| Full resolution | 752 x 480 |
| Frame rate | 60 fps (at full resolution) |
| ADC resolution | 10-bit column-parallel |
| Responsivity | 4.8 V/lux-sec (550nm) |
| Dynamic range | >55dB linear; >110dB in HDR mode |
| Supply voltage | 3.3V ±0.3V (all supplies) |
| Power consumption | <160mW at maximum data rate (LVDS disabled); 120µW standby power at 3.3V |
| Operating temperature | –30°C to +70°C ambient |
| Packaging | 48-pin CLCC |

Ordering Information

Table 2: Available Part Numbers

| Part Number | Number of Pins | Description |
|--------------------|----------------|-----------------------|
| MT9V034C12STM | 48-pin | CLCC (monochrome) |
| MT9V034C12STC | 48-pin | CLCC (color) |
| MT9V034C12STM D ES | 48-pin | Monochrome demo kit |
| MT9V034C12STM H ES | 48-pin | Monochrome head board |
| MT9V034C12STCD ES | 48-pin | Color demo kit |
| MT9V034C12STCH ES | 48-pin | Color head board |