



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