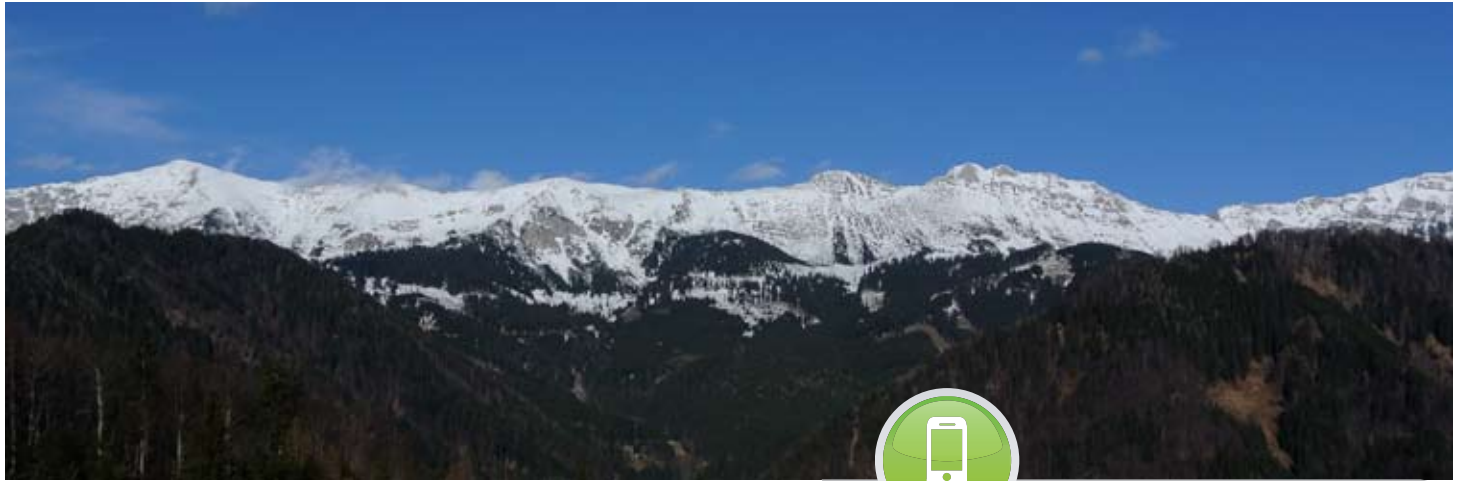# AR1331CP

13 Megapixel
1/3.2-Inch CMOS
Image Sensor

An advanced, high resolution image sensor for video-focused mobile handsets

1 Innovative Aptina Clarity+™ Technology

Delivers 1.4µm pixel performance on 1.1µm pixels

2 World-class low-light performance

Built on Aptina's and TSMC's pixel technology for industry leading 1.1µm pixel

3 Advanced Aptina MobileHDR™ Capability

Enables a high dynamic range scene to be captured with photos or video in the way the eye sees it

4 13MP Resolution

Produces still camera quality snapshots at up to 30fps giving a full range of usage models

5 Broadcast and Cinema 4K Video

Captures full FOV 4K UHD and Cinema formats for amazing video from a Smartphone

Applications

- Smart phones
- Tablets

How to Buy

Production and sample quantities of Aptina products may be ordered through qualified distributors. See our Web site for details. You may also request access to NDA data sheets and other technical documentation by visiting our Web site.

Aptina™

IMAGING

AR1331CP

Features

- 13MP CMOS sensor with advanced 1.1μm pixel BSI Clarity+™ technology
- Data interfaces: two- and four-lane serial mobile industry processor interface (MIPI)
- Bit-depth compression available for MIPI Interface: 10-8 and 10-6 bit
- 3D synchronization controls to enable stereo video capture
- Aptina™ MobileHDR™ Technology : Interlaced multi-exposure readout
- 8Kb one-time programmable memory (OTPM)
- Programmable controls: gain, horizontal and vertical blanking, auto black level offset correction, frame size/rate, exposure, left-right and top-bottom image reversal, window size, and panning
- On-chip 10-bit VCM driver
- On-die phase-locked loop (PLL) oscillator
- On-chip down-size scaler
- On-chip dynamic defect correction
- Simple two-wire serial interface
- Support for external LED or Xenon Flash

Specifications

Optical Format: 1/3-inch (4:3)
Active Pixels: 4208H x 3120V
Pixel Size: 1.1μm Back Side Illuminated (BSI)
Chief Ray Angle (CRA): 32 deg.
Die Size: 6.78mm x 5.89mm (40mm^2)
Input clock Frequency: 6-48 MHz
Interface: 4-lane MIPI (2-lane supported)
Maximum Data Rate: 1Gbps/lane
Subsampling Modes: X - Skip: 2x, 4x   Y - Skip: 2x, 4x
ADC Resolution: 10-bits, on-die
Analog Gain: 1x, 2x, 3x, 4x, 6x, 8x
High-quality Bayer Scaler: Adjustable scaling up to 1/6x
Temperature Sensor: 10-bit, single instance on chip, controlled by two-wire serial I/F
Compression: DPCM: 10-8-10, 10-6-10
VCM AF Driver: 10-bit resolution
Supply Voltages:
- V_{AA}, V_{AA}_PIX: 2.6 - 2.9V (2.8V nominal)
- V_{DD}_IO: 1.7 - 1.95V (1.8V nominal)
- V_{DD}: 1.14 - 1.3V (1.2V nominal)
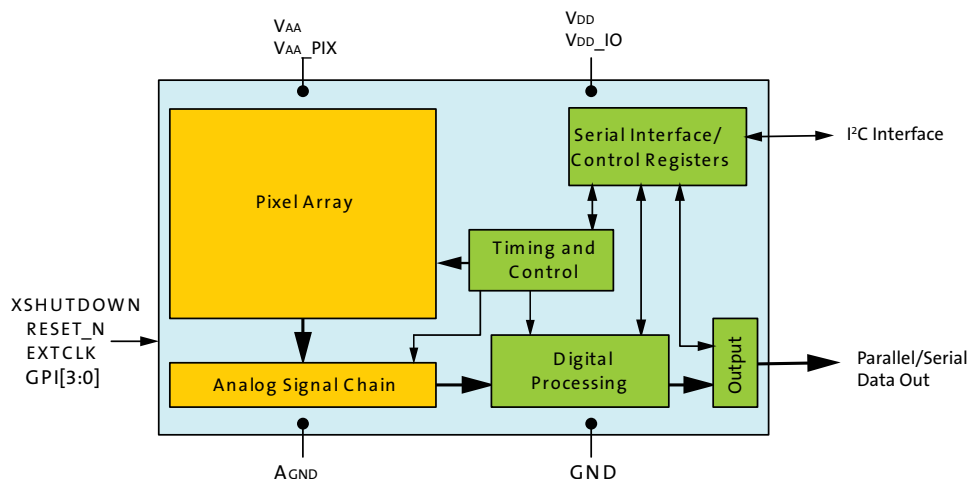- V_{DD}_PHY: 1.14 - 1.3V (1.2V nominal)
- V_{DD}_PLL: 1.14 - 1.3V (1.2V nominal)

Responsivity: 1.4 V/lux-sec
Dynamic Range: 66 dB
Operating Temperature: −30°C to +70°C

Block Diagram