

CMOS image sensor for cellular phones

The UIC1601 cell phone sensor is a VGAX3 (equivalent 1.3M for Bayer pattern) resolution, progressive-scanned CMOS image sensor designed for Photo/Video cellular phone, videoconferencing camera and digital still camera applications.

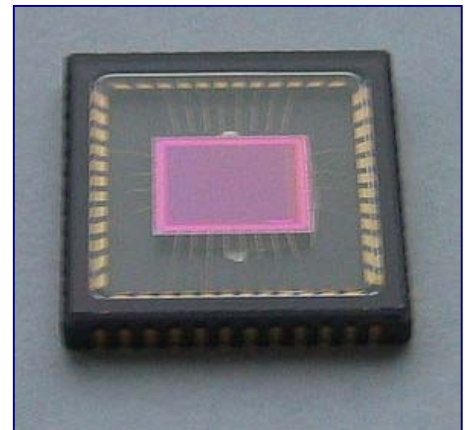
UIC1601 offers high sensitivity, high dynamic range and low fixed-pattern noise (FPN). This device achieves high color fidelity through the use of internal color filters by own technology.

Highly advanced design provides single chip integration of Correlated Double Sampling (CDS), 10-bit Analog-to-Digital conversion, programmable gain, windowing and exposure control through a serial interface, integrated timing and scanning.

UIC1601 supports frame rate up to 60 frames per second and various exposure times. It is suitable for videoconference, digital still cameras and car vision applications.

Features

- 640x480 pixels, VGAX3 format
- Three pixel sensor provides internal color separation to achieve superior color fidelity and high sensitivity
- Images have improved sharpness and stability to compression artifacts
- High sensitive B&W mode in wide spectral range 0.4 ÷ 1.0 μm up to IR light
- Correlated double sampling
- On-chip 10-bit ADC
- On-chip digital signal processing:
 - Programmable/Automatic exposure control
 - Programmable/Automatic white balancing and color correction
 - Programmable gamma correction
 - Programmable brightness correction
 - Programmable contrast correction
- Progressive readout
- Video mode and still image capturing
- Output data format: YCbCr, 24-bit RGB
- Output modes: VGAX3 and Sub-sampling QVGAX3/QQVGAX3, programmable
- Input/output interface: I²C compatible
- Power down mode
- Left-Right/Up-down image flip
- Single power supply, 3.3V +/- 0.15V



Application

Video cellular phone
 Digital camcorder
 Digital still camera
 Videophone
 Video conferencing

PC camera
 Security system
 Visual toy
 Industrial image capture/analysis
 Environment monitor system

Key Parameters

Array size		640 x 480 x 3 layers
Pixel Size		8 μm x 8 μm
Image Area		5.12 mm x 3.84 mm
Fill factor		52%
Color filter type		UIC 3-in-1 color separation design
Power Supply		3.3 V +/- 0.15 V
Power Requirements	Active	<100 mW
	Standby	< 50 μW
Output Formats		YUV/YCbCr 24-bit RGB
On-chip ADC		10-bit
Lens Size		1/3"
Maximum Frame Rate	VGAX3	30 fps
	QVGAX3 and lower	60 fps
Sensitivity		> 1.0 V/Lux*sec
Signal/Noise Ratio		45 dB
Dynamic Range		55 dB
Clock Frequency		up to 48 MHz