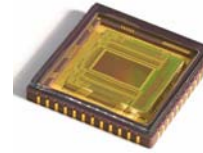




AltaChrome A3372E3-4T



Next-Generation Full HD CMOS Sensor with BitsDReam Wide-Dynamic-Range Technology

Diagonal 6mm (Type 1/3), 2.1 Mpixel (1920 x 1080) at 60p in RGB

BitsDReam™ is next-generation wide dynamic range (WDR) technology for full HD imaging. BitsDReam acts together with AltaSens' patented low-noise technology to enrich the sensor's dynamic range to its full potential. As a result, exposure latitude is boosted by several f-stops while the sensor maintains an industry-leading frame rate of up to 60fps. Typical implementations for full HD imaging enhance dynamic range to over 100dB with uncompromised low-light performance.

Key Applications

- Full HD cameras for videoconference
- Full HD cameras with on-demand WDR for surveillance applications and IP network solutions
- SMPTE-compliant HDcctv cameras
- Portable USB cameras
- Medical full HD high-speed cameras

Key Features

- New, breakthrough AltaChrome and BitsDReam technology for superior WDR image quality in any lighting condition, at any frame rate
- Programmable WDR capability with uncompromised low-light performance
- Progressive scan providing flexible frame rates up to a true 60fps

BitsDReam: WDR Technology from AltaSens

Introduced on the AltaChrome A3372E3-4T, AltaSens' patent-pending BitsDReam WDR technology delivers a unique and highly efficient architecture for WDR imaging. The result is the highest-quality resolution and the best signal-to-noise ratio (SNR), for the most lifelike WDR full HD images regardless of ambient conditions.

Optimum Video Resolution in Low Light

Uncompromised image quality at 1080p is supplied by the combination of the 1/3-inch optical size of the A3372E3-4T image sensor, its 2.7- μ m pixel pitch, and the AltaChrome and BitsDReam technologies. At low light, BitsDReam's flexibility and tunability further enriches image quality, creating the optimal balance of HD resolution and sensor dynamic range.

Full 1080 Resolution at Up to 60fps

The AltaChrome A3372E3-4T scans progressively up to a true 60fps, to produce video that is devoid of artifacts. Programmable windowing enables multiple formats and proportionally higher frame rates. Sensor operations are compliant with the SMPTE 274 standard. WDR operations can be deployed at any frame rate with consistent quality and superior performance.

Simple Output Interface Eases Camera Design and Use

The AltaChrome A3372E3-4T provides raw RGB output in full HD raster format using one of two configurations: single-port (up to 30fps) or double-port (up to 60fps). Each port is a 12-bit wide parallel CMOS output interface. With BitsDReam enabled, the sensor seamlessly supplies unprocessed double-exposure data that is programmed to match the desired sensor dynamic range. The sensor's full HD resolution facilitates the use of camera-level back-end processing algorithms to boost low-lit area details and avoid white clipping.

BitsDReam



AltaSens' BitsDReam provides dual exposure within the same frame.

Pixel Array Characteristics	
Pixel Size	2.7 μm x 2.7 μm
Resolution (pixels)	1920 (H) x 1080 (V)
16:9 Array Format	6 mm diagonal (Type 1/3)
Dark Current (60°C)	50 e/pixel/s
Sensitivity	11,500 e/lux/s ^a
SNR	59 dB (2000 lux, f4, 200%, 60p) ^a
Dynamic Range	<ul style="list-style-type: none"> 70 dB (Typical) 106 dB with BitsDReam enabled^b
Color Filter	RGB Bayer Pattern

a. Green channel, 3200K and CM500S IR cut filter.
 b. Actual dynamic range on processed images varies depending on the computational algorithm.

Sensor Characteristics	
Shutter Mode	Electronic Rolling Shutter (ERS)
ADC Resolution	12-bit
Frame Rate	Maximum 60 fps at full resolution
Power Consumption	<ul style="list-style-type: none"> 660 mW at 1080p60 395 mW at 1080p30
Power Supply	<ul style="list-style-type: none"> Analog: 3.1 to 3.6 V, typical 3.3 V Digital: 1.8 V ± 10%
Digital Input/Output Interface	<ul style="list-style-type: none"> 24-bit dual-port or 12-bit single-port parallel CMOS output 1.8 V CMOS level Raw RGB stream
Packaging	Thermally enhanced 48-pin CLCC
Operating Temperature Range	-20°C to 60°C (Measured at junction)

All AltaSens image sensors are lead-free and comply with the Restriction of Hazardous Substances (RoHS) directive.

To order the AltaChrome A3372E3-4T, use the part number **A3372E3**.

AltaChrome iSoC sensor features and specifications are subject to change without notice.

AltaChrome iSoCs, like other integrated circuits, are susceptible to damage by electrostatic discharge (ESD), which may damage or degrade a sensor's overall performance.

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