Sony IMX214 CMOS Image Sensor

Partial Circuit Analysis Report
Image Sensor Process Review Report
Device Essentials Project

March 2015
Sony IMX214 CMOS Image Sensor

- Chipworks has authored 3 reports on the Sony IMX214 CMOS Image Sensor:
  - Circuit Analysis
  - Process Analysis
  - Benchmarking
- The IMX214 is a second generation 13 MP Exmor RS™ “stacked” CIS with spatially multiplexed exposure-high dynamic range (SME-HDR)
- SME-HDR technology involves imaging at two different exposure conditions and performing image processing to generate images with wide dynamic range
  * Analysis underway

Changes from the first generation Exmor RS process:
- Modified optical stack
  - Changes to embedded color filter array
  - Eight-shared pixel architecture updated to facilitate SME-HDR functionality
- Updated TSV process flow
- CIS and ISP chip division of functionality has also been modified
Partial Circuit Analysis Report
(CAR-1504-901)

Circuit analysis is being performed on the following blocks:

- Comparators
- Columns Circuits
- Counters
- Ramp Generator
- References
- Voltage Generators

Learn more about ICWorks Browser »

* Chipworks ICWorks Browser

Multi-Layer Image Set

Schematics

Cross Probe Images and Schematics

*not from image sensor – for descriptive purposes only

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Image Sensor Process Review
(IPR-1503-901)

• Provides a thorough cross-sectional analysis of the general logic and pixel to help understand how the sensor is fabricated
  ▪ Focuses on key image sensor elements:
    • Microlenses
    • Color filters
    • Pixel architecture
    • Photocathode
    • TSV’s
    • Chip Stacking

View Table of Contents
Device Essentials Project  
(DEF-1405-803)

Downstream product teardown, package photographs

Die photographs, X-Ray, Optical

SEM bevel

SEM cross-section

Device Essentials Summary

A one page summary of observed device metrics and salient features. Competitive benchmarking information that enables cost-effective tracking.
**Sony IMX214 CMOS Image Sensor List of reports**

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