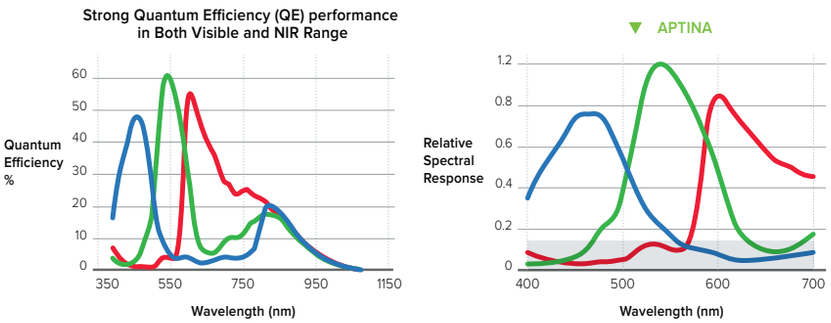
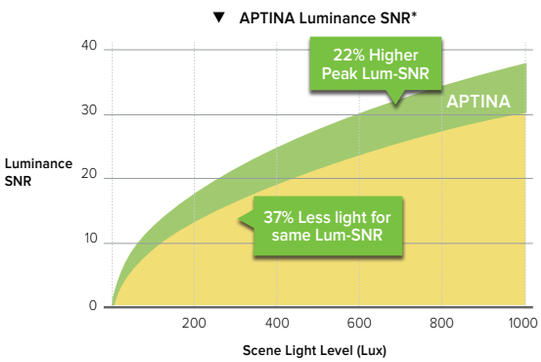
# Aptina Medical Imaging Solutions

## Aptina pixels provide a spectral response which produces higher color fidelity through lower cross talk.

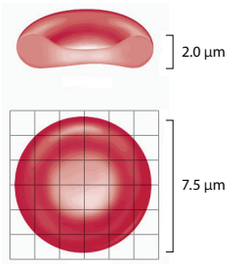



With the increased quantum efficiency, reduced average cross talk, and a large improvement to spatial noise Aptina Sensor performance has 22% higher peak luminance SNR and achieves the same luminance SNR with 37% less light




*Conditions: 18% grey target, 670 nm IRCF, 6500K, 0.9 lens trans, 15fps, f/2.8, 100 saturation

Aptina Pixel Size ranges from 1.1µm to 6.6µm allowing for extremely small size pixels in high resolution




## MEDICAL IMAGING

Aptina's portfolio of CMOS medical imaging solutions combined with unparalleled customer service enable medical device manufacturers to develop advanced tools for the market's challenging growth areas, such as Point of Care (POC) devices, DNA sequencing, endoscopy, etc.

Aptina's advantages in extreme low light sensitivity, small package size, low power consumption and high speed sensing allow our OEMs to lower costs while increasing accuracy and performance.

Advances in DNA sequencing technologies during the past two decades have driven breathtaking break throughs in our understanding of biology and biomedicine. From human disease, to microbial ecology, to evolution, Aptina is excited to contribute powerful imaging tools to scientists and researchers bringing medical diagnostics to market.

Low Light Sensitivity | Low Power Consumption | High Noise Immunity | High Speed Sensing | Image Brightness and Clarity | Small Pixel Size

| PRODUCT | MT9M114 | MT9V115 | MT9V124 | AS0260 | MT9V024/34 | AR0140CS | AR0130 |
|---|---|---|---|---|---|---|---|
| Sensor/SOC | SOC | SOC | SOC | SOC | Sensor | Sensor | Sensor |
| Resolution | 1.2 MP | VGA | VGA | 2.1 MP | VGA | 1.2 MP | 1.2 MP |
| Optical Format | 1/6" | 1/13" | 1/13" | 1/6" | 1/3" | 1/4" | 1/3" |
| Frame Rate* | 1.2 MP 30 fps, VGA 75 fps | 30 fps | 30 fps | 30 fps | 8 MP (4:3) 60 fps | 1.2 MP 45 fps, 720p60 | 1.2 MP 45 fps, 720p60 |
| Pixel Size | 1.9 µm | 1.75 µm | 1.75 µm | 1.4 µm | 1.4 µm | 3.0 µm | 3.75 µm |
| Pixel Technology | – | – | – | A-Pix™ technology | A-PixHS™ technology | DR-Pix™ technology | DR-Pix™ technology |
| Shutter Type[2] | ERS | ERS | ERS | ERS | GS | ERS | ERS |
| CFA | Color | Color | Color | Color | Color and Mono | Color | Color and Mono |
| CRA (Degree) | 27.7 | 24 | 24 | 28 | 11.4 | 0 | 0 |
| Dynamic Range | 70.8 dB | 58 dB | 58 dB | 65 dB | 100 dB iHDR | 96 dB 2 exposure | 83.5 dB Linear |
| Signal-to-Noise | 37 dB | 33.4 dB | 33.4 dB | 33 dB | 36 dB | 41 dB | 44 dB |
| Responsivity | 2.24 V/lux-sec | 1.65 V/lux-sec | 1.65 V/lux-sec | 0.64 V/lux-sec | 4.8 V/lux-sec | 6.5 V/lux-sec | 4.0 V/lux-sec |
| Input Clock | 6 - 54 MHz | 18 - 44 MHz | 18 - 44 MHz | 6-54 MHz | 6 - 27 MHz | 6-50 MHz | 6-50 MHz |
| Output Clock | 96 MHz | 22 MHz | N/A | 96 MHz | 336 MP/s | 74.25 MHz (parallel), 148.5 MP/s (HiSPi™) | 74.25 MHz (parallel), 148.5 MP/s (HiSPi™) |
| Interface | 1-lane MIPI, 8-bit parallel | 8-bit parallel | 12-bit LVDS | 2-lane MIPI, 12-bit parallel | 10-bit LVDS | 4-lane HiSPI, 12-bit parallel | 4-lane HiSPI, 12-bit parallel |
| Operating Temp. | –30°C to +70°C | –30°C to +70°C | –30°C to +70°C | –30°C to +70°C | –30°C to +70°C | –30°C to +85°C | –30°C to +85°C |
| Package(s) | 4.65x3.85 $mm^2$ 55-ball CSP | 2.69x2.69 $mm^2$ 25-ball CSP | 2.69x2.69 $mm^2$ 25-ball CSP | 6.005 $mm^2$ 4.158 $mm^2$ CSP | 10x10 $mm^2$ 48-pin CLCC | 9x9 $mm^2$ 63-ball iBGA, 10x10 $mm^2$ 48-pin iLCC | 9x9 $mm^2$ 63-ball iBGA, 10x10 $mm^2$ 48-pin iLCC |

[2] **ERS:** Rolling Shutter **GS:** Global Shutter **GRR:** Global Reset Release

| PRODUCT | AR0134 | AR0331 | AR0330 | MT9P004 | MT9P006 | MT9J003 |
|---|---|---|---|---|---|---|
| Sensor/SOC | Sensor | Sensor | Sensor | Sensor | Sensor | Sensor |
| Resolution | 1.2 MP | 3.1 MP | 3.5 MP | 5 MP | 5 MP | 10 MP |
| Optical Format | 1/3" | 1/3" | 1/3" | 1/3.2" | 1/2.5" | 1/2.3" |
| Frame Rate* | 1.2 MP 54 fps, 720p60 | 1080p60 | 1080p60 | 5 MP 15 fps, 1080p30 | 5MP 15 fps, 720p60 | 10 MP 15 fps 1080p60, |
| Pixel Size | 3.75 µm | 2.2 µm | 2.2 µm | 1.75 µm | 2.2 µm | 1.67 µm |
| Pixel Technology | DR-Pix™ technology | A-Pix™ technology | A-Pix™ technology | A-Pix™ technology | – | – |
| Shutter Type | GS | ERS, GRR | ERS, GRR | ERS, GRR | ERS, GRR | ERS, GRR |
| CFA | Color, Mono | Color | Color | Color | Color | Color, Mono |
| CRA (Degree) | 0.25 | 0 | 0, 12, 21 | 11.4, 25 | 7, 27 | 0, 13.4 |
| Dynamic Range | 64 dB | 100 dB 2 exp. ALTM | 69.5 dB | 65.4 dB | 67.74 dB | 65.2 dB |
| Signal-to-Noise | 38 dB | 39 dB | 39.6 dB | 38 dB | 38.5 dB | 34 dB |
| Responsivity | 6.1 V/lux-sec | 1.9 V/lux-sec | 2.0 V/lux-sec | 0.85 V/lux-sec | 1.8 V/lux-sec | 0.31V/lux-sec |
| Input Clock | 6-50 MHz | 6-48 MHz | 6-27 MHz | 2-64 MHz | 6-96 MHz | 6-48 MHz |
| Output Clock | 74.25 MHz (parallel), 148.5 MP/s (HiSPi™) | 74.25 MHz (parallel), 148.5 MP/s (HiSPi™) | 96 MP/s (parallel), 196 MP/s (HiSPi™) | 96 MHz | 96 MP/s | 80 MP/s |
| Interface | 12-bit parallel | 4-lane HiSPi, 12-bit parallel | 2-lane MIPI, 12-bit parallel | 2-lane MIPI, 12-bit parallel | 12-bit parallel | 4-lane HiSPi, 12-bit parallel |
| Operating Temp. | –30°C to +70°C | –30°C to +85°C | –30°C to +70°C | –30°C to +70°C | –30°C to +70°C | –30C to +70C |
| Package(s) | 10x10 $mm^2$ 48-pin iLCC, 11.43x11.43 $mm^2$ 48-pin PLCC | 9.5x9.5 $mm^2$ iBGA, 10x10 $mm^2$ 48-pin iLCC | 11.43x11.43 $mm^2$ 48-pin CLCC, 6.3x6.6 $mm^2$ CSP | 6.63 $mm^2$ 6.22 $mm^2$ CSP | 10x10 $mm^2$ 48-pin iLCC | 10x10 $mm^2$ 48-pin iLCC, 12x12 $mm^2$ 48-pin PLCC |

*Frame rate is at full resolution, unless otherwise noted.

Please contact **medical@aptina.com** for additional product information.

## GETTING STARTED WITH APTINA

1. Register on www.aptina.com.
   a. To register, visit our site, click on the top right button that states “Register”.
   b. Submit your contact information. If you have an NDA please note this.
   c. Shortly, an Aptina representative will grant you access to Aptina website collateral.
2. If the sensor you are interested in is not on the website:
   a. Contact your local Aptina sales representative or distributor for information.
   b. Our distributors and sales representatives are listed on our main webpage under the section “How to Buy”.
3. To evaluate, purchase an Aptina “Demo Kit” or “Headboard” from your distributor.
4. Please contact **medical@aptina.com** for more information.

### Demo Kit

Demo Kit Contents Include:

1. Aptina headboard
2. Demo camera board with USB 3.0 connector
3. USB 3.0 cable
4. Tripod stand and camera tripod

### Headboard

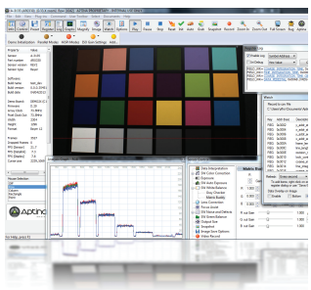
Headboard Contents Include:

1. Aptina sensor
2. Lens mount and lens

### DevSuite

DevSuite includes the tools for

1. Live image tuning
2. Real-Time register access
3. Image and video capture
4. Image analysis



**About Aptina**

Aptina is a global provider of intelligent imaging solutions. Aptina has created unique innovations with image sensor technologies such as Aptina Clarity+™ to deliver high-quality, rich images in challenging environments. Aptina patented imaging solutions are in leading consumer electronics devices like smartphones, tablets, laptops and digital cameras, as well as industry-specific solutions for automotive, surveillance, video conferencing, scanning, medical and gaming. Learn more at www.aptina.com.

Aptina™ IMAGING

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Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

**«JONHON»** (основан в 1970 г.)

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(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

**«FORSTAR»** (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

FORSTAR®

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