

Diagonal 4.5 mm (Type 1/4) 380K-/440K-Pixel
EXview HAD CCD Image Sensors

EXview HAD CCD

ICX278AL(EIA) ICX278AK(NTSC) ICX279AL(CCIR) ICX279AK(PAL)

By applying Sony's unique EXview HAD CCD technology to the Type 1/4 CCD, Sony has achieved significant improvements in basic CCD characteristics, including near-infrared sensitivity, visible-region sensitivity, smear, and dynamic range.

End products that use the ICX208/209AL/AK can achieve improved sensitivity and picture quality simply by switching to one of these new CCDs.

- Diagonal 4.5 mm (Type 1/4)
- High sensitivity (As compared to the conventional Sony product: +5 dB)
- Low smear (As compared to the conventional Sony product: -20 dB)
- High saturation signal level (As compared to the conventional Sony product: +2 dB)

The ICX278/ICX279AL and ICX278/ICX279AK products are diagonal 4.5 mm (Type 1/4) 380K-/440K-pixel black-and-white and color interline CCD image sensors. These devices are high-end versions of the conventional Sony products, the ICX208/ICX209AL and ICX208/ICX209AK, and feature improvements in the basic CCD characteristics, including sensitivity, smear, and dynamic range. (See table 1.) The ICX278/ICX279AL and AK are appropriate for application, such as miniature surveillance cameras, that require high performance. Since these devices can be used for photography "in the dark" by illuminating the objects being photographed with near-infrared light, they can also be used in night surveillance cameras, FA cameras, door cameras, and similar applications. (See figure 1.)

■ High Sensitivity

Sony reanalyzed the conventional CCD sensor structure from its very basics and developed the EXview HAD CCD, which has a sensor structure that allows it to acquire, as electrical signals, images containing light from the near infrared to the visible area. Sony has now deployed this technology in these new Type 1/4 CCDs. This technology not only achieves high sensitivity in the near-infrared region, it also increases the sensitivity in the visible light region by +5 dB over conventional Sony products. (See photograph 1.)

■ Low Smear

Sony succeeded in significantly reducing smear by applying the EXview HAD CCD technology and by adopting the latest collimation technology. As compared to conventional Sony products, these devices reduce smear by -20 dB, and achieve a smear level of -108 dB. (See photograph 2.)

■ High Saturation Signal

In addition to high sensitivity, these devices also achieve a saturation signal +2 dB higher than conventional Sony products. This also contributes to improved picture quality.

■ Improved Light Resistance

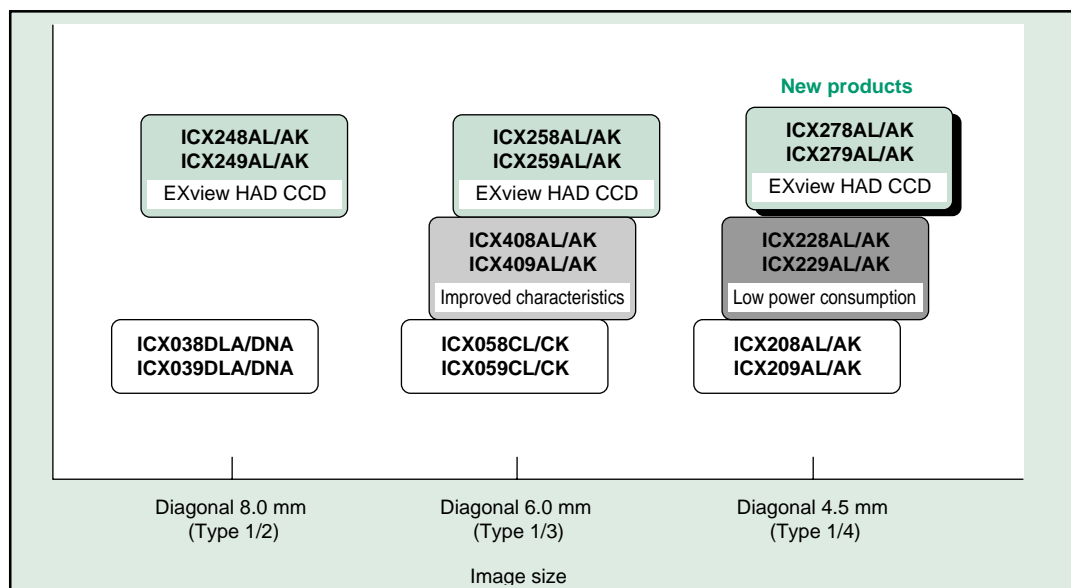
These CCDs achieve major improvements in light resistance by completely new color filters, resulting in a light resistance at least 100 times greater than conventional Sony products.

V O I C E

We have completed a Type 1/4 CCD that incorporates all of Sony's leading-edge technologies. It features significantly increased sensitivity and low smear, and we feel strongly that our customers will be fully satisfied with this device.



*New
Products*



■ **Figure 1 Sony's 380K-Pixel CCD Lineup**

■ **Table 1 Imaging Characteristics Comparisons: EXview HAD CCDs vs. Conventional CCDs**

● **Black-and-white products:**

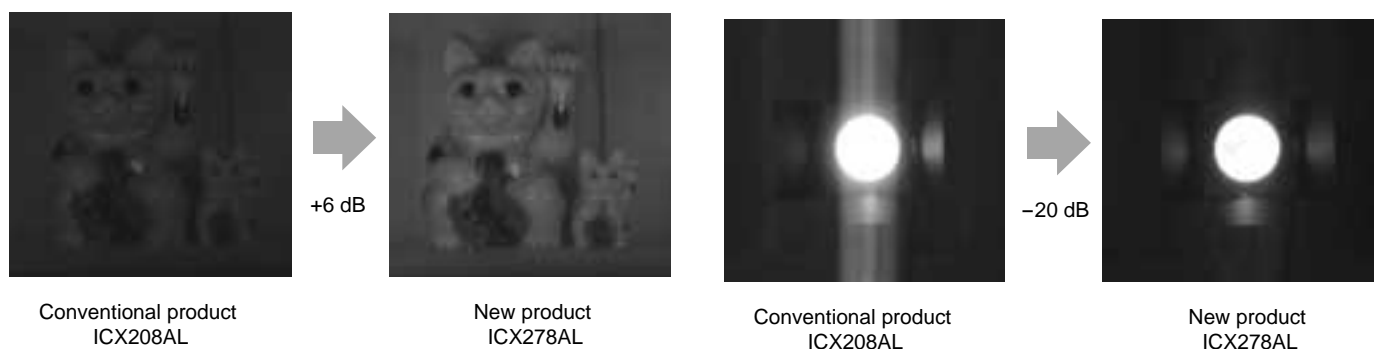
Type 1/4 380K-pixel black-and-white CCD characteristics comparison

Item	ICX278AL/279AL	ICX208AL/209AL	Improvement
Sensitivity (F8)			
IR cut filter used	800 mV	450 mV/440 mV	Approx. +5 dB
IR cut filter not used	3200 mV	1600 mV	Approx. +6 dB
Smear (F8)	-108 dB	-86 dB	Approx. -20 dB
Saturation signal	1000 mV/900 mV	800 mV/720 mV	Approx. +2 dB

● **Color products:**

Type 1/4 380K-pixel color CCD characteristics comparison

Item	ICX278AK/279AK	ICX208AK/209AK	Improvement
Sensitivity (F5.6)	800 mV	450 mV/440 mV	Approx. +5 dB
Smear (F5.6)	-108 dB	-86 dB	Approx. -20 dB
Saturation signal	1000 mV/900 mV	800 mV/720 mV	Approx. +2 dB



■ **Photograph 1 Near-Infrared Sensitivity Comparison**

■ **Photograph 2 Smear Characteristics Comparison**