

1/3-Inch 250K-/380K-Pixel **EXview HAD CCD™**

**250K/290K-pixel systems**

**ICX254AK (NTSC), ICX254AL (EIA),**

**ICX255AK (PAL), ICX255AL (CCIR)**

**380K/440K-pixel systems**

**ICX258AK (NTSC), ICX258AL (EIA),**

**ICX259AK (PAL), ICX259AL (CCIR)**

Sony has achieved major improvements in basic CCD characteristics, including near infrared sensitivity, visible light sensitivity, smear, and dynamic range, in a series of 1/3-inch CCD products by adopting Sony's unique EXview HAD CCD™ technology.

These CCDs can provide high picture quality equivalent to that of commercial CCD cameras.

- For use in 1/3-inch optical system cameras
- High sensitivity from the visible light to the near infrared light region
- Low smear (improved by -20 to -25 dB)
- High saturation signal level (improved by +5 dB)

The ICX254/255/258/259AK and the ICX254/255/258/259AL are 250K-, 290K-, 380K-, and 440K-pixel color and black-and-white interline CCD image sensors. These EXview HAD CCD™ image sensors are appropriate for applications such as surveillance monitors and commercial cameras that require high performance. Furthermore, they allow imaging in the dark by illuminating the subject in near infrared light, and thus can be used in nocturnal surveillance cameras, FA cameras, door cameras, and similar applications.

#### ■ High Sensitivity

Sony developed the EXview HAD CCD™, which corresponds to a complete redesign of the sensor structure, and which has a sensor structure that converts light from the visible to the near infrared to image signals, and has now deployed this technology in a series of new 1/3-inch CCDs. These image sensors not only provide high sensitivity in the near infrared light region, but also achieve a visible light sensitivity increased by +5 to +7 dB over earlier Sony CCDs. (See table 1 and figure 1.)

#### ■ Low Smear

By adopting the EXview HAD CCD™ technology and the latest collimation technology, these CCDs achieve excellent smear characteristics (-120 dB) that approach those of frame interline CCDs, despite being interline CCDs. (See table 1.)

#### ■ High Saturation Signal Level

In addition to high sensitivity, the saturation signal level has been improved by +5 dB. This allows these CCDs to contribute to improved picture quality. (See table 1.)

#### ■ Improved Light Resistance

To allow end products to be used in severe imaging conditions, the light resistance of the color filters has been greatly improved, by up to 100 times. (Color products only.)

#### ■ Adjustment-Free Substrate Bias and Reset Gate Bias

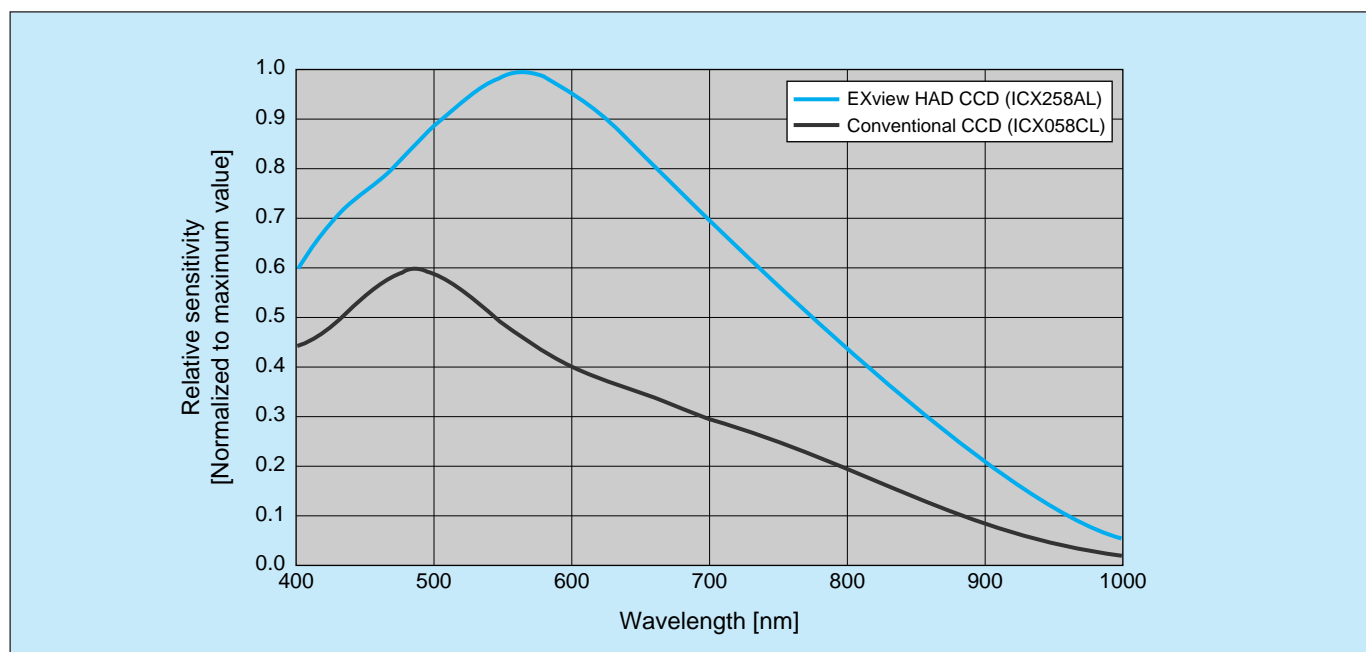
Adjustment of the substrate bias and the reset gate bias is not required, due to the adoption of CCD internal DC bias generation. Also, we have designed the pin configuration to minimize changes when converting substrate designed for the earlier Sony ICX054/055/058/059 CCDs.

**V O I C E**

We created the ultimate 1/3-inch CCD, a device that incorporates all of Sony's most advanced technology. This device achieves sensitivity and smear characteristics that are light years ahead of previous CCDs. We are sure you will be fully satisfied with this device.



*New  
Products*



■ Figure 1 Spectral Sensitivity Characteristics Comparison: EXview HAD CCD vs. Conventional CCD

■ Table 1 Imaging Characteristics Comparison: EXview HAD CCD vs. Conventional CCD

• Color devices  
ICX254/255/258/259AK characteristics comparison

Item	250K pixels			380K pixels		
	ICX054/055BK	ICX254/255AK	Characteristic improvement	ICX058/059CK	ICX258/259AK	Characteristic improvement
Sensitivity (F5.6)	970 mV/940 mV	2000 mV	Approx. +6.5 dB	460 mV	1100 mV	Approx. +7.5 dB
Smear (F5.6)	-94 dB	-120 dB	Approx. -25 dB	-94 dB	-115 dB	Approx. -20 dB
Saturation signal	800 mV/720 mV	1000 mV	+2 to +3 dB	600 mV/540 mV	1000 mV	Approx. +4 to +5 dB

• Black-and-white devices  
ICX254/255/258/259AL characteristics comparison

Item	250K pixels			380K pixels		
	ICX054/055BL	ICX254/255AL	Characteristic improvement	ICX058/059CL	ICX258/259AL	Characteristic improvement
Sensitivity (F8) IR-cut filter No IR-cut filter	900 mV/840 mV 2200 mV	1600 mV 5200 mV	Approx. +6.0 dB Approx. +7.5 dB	460 mV 1800 mV	1000 mV 4000 mV	Approx. +6.5 dB Approx. +7.0 dB
Smear (F8)	-94 dB	-120 dB	Approx. -25 dB	-94 dB	-115 dB	Approx. -20 dB
Saturation signal	800 mV/720 mV	1000 mV	+2 to +3 dB	600 mV/540 mV	1000 mV	+4 to +5 dB