

# LCX028AM

Sony LCDs lead the projector market.

Sony has now developed the LCX028AM, the optimal display device for the non-portable projectors used in halls and event sites.

Although this device has the same external dimensions as the earlier Sony LCX017CL and is a 1.8-inch device, both the resolution and brightness have been improved, making the LCX028AM a truly high-end class device.

- Real SXGA ultrahigh resolution (1.31 million dots: 1280 × 1024)
- DMS\*<sup>1</sup> structure achieves a light resistance of at least 3000 ANSI lumens.
- Optical transmittance of 28% achieved by the incorporation of microlenses\*<sup>2</sup>.
- Antidust glass structure for dust free operation
- Cross talk-free, ghost-free superb picture quality
- Up/down and/or right/left inversion functions
- Input level conversion circuits
- Aspect ratio modification function (4:3 and 16:9)

\*1 DMS: Dual Metal Shield

\*2 A version that does not include microlenses, the LCX028AL, is also being released at the same time.

## ■ Revolution in the Non-Portable Projector Market

Although CRTs and ILA devices have been the mainstream in projectors that can display SXGA high-resolution images, it has now become possible to create devices such as the LCX028AM, which uses a high-temperature polycrystalline silicon fabrication process. The LCX028AM, which achieves miniaturization, low cost, and high brightness, is about to revolutionize the non-portable projector market. By using Sony's unique polycrystalline silicon TFT technology and incorporating microlenses in the pixels themselves, the LCX028AM achieves an aperture ratio of 82%, an optical transmittance of 28%, and the high resolution of

SXGA, despite being a 1.8-inch device. Furthermore, it achieves a light resistance of 3000 ANSI lumens by adopting the DMS\*<sup>1</sup> technology. The LCX028AM can create high-brightness projectors with a miniature form factor simply impossible with conventional technology.

## ■ Microlenses for High Optical Transmittance

Despite providing 1.31-million dots in a 1.8-inch panel, the LCX028AM achieves an optical transmittance of 28% through Sony's unique semiconductor process technology, LCD orientation technology, and the inclusion of newly-developed highly efficient microlenses. In particular, the LCX028AM collimates onto the effective pixel areas light that would have been blocked and unused in earlier projection panels.

## ■ Antidust Glass Structure Adopted

Excessive heating of the LCD Panel has become a problem in LCD projectors due to the increasing intensities used. The LCX028AM reduces the heat buildup within the panel by adopting an adhesively bonded glass plate with an anti-reflection coating. This plate also makes dust on the surface of the panel less obvious in the projected image.

## ■ Improved Picture Quality

A special circuit designed to improve picture uniformity is integrated on the panel to achieve cross talk-free, and ghost-free pictures. In combination with the high light resistance device structure, this achieves high picture quality display.

## ■ System ICs

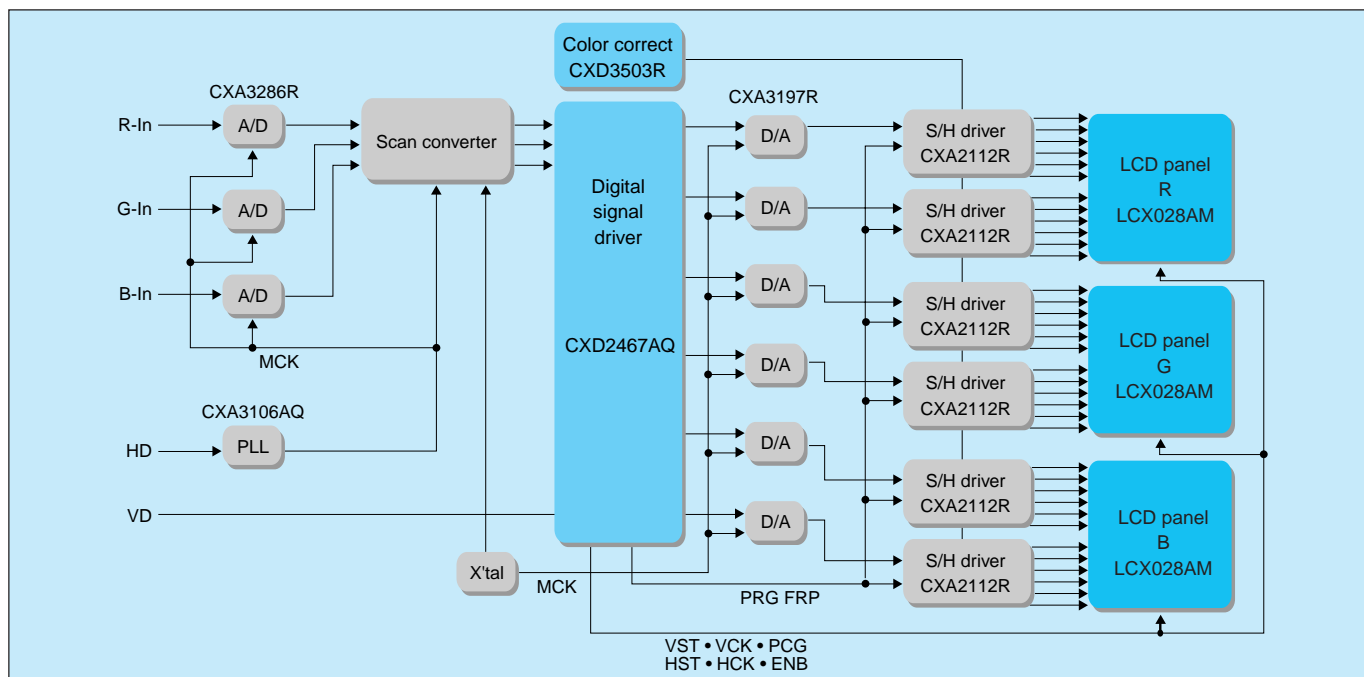
At the same time as developing the LCX028AM, Sony also developed the CXD2467AQ digital  $\gamma$ -correction IC that supports the high drive frequencies required for SXGA display, and the CXD3503R color shading correction IC. The CXD2467AQ integrates 10-bit digital  $\gamma$ -correction and a programmable TG circuit on a single chip, and is useful in improving picture quality for images that are close to black, a problem that, up to now, had been difficult for gray-scale display LCDs. The CXD3503R incorporates an internal 16 × 13 × 6-bit memory and a 3-channel D/A converter, and can significantly improve color shading and other problems that occur in the panel or light source.

## V O I C E

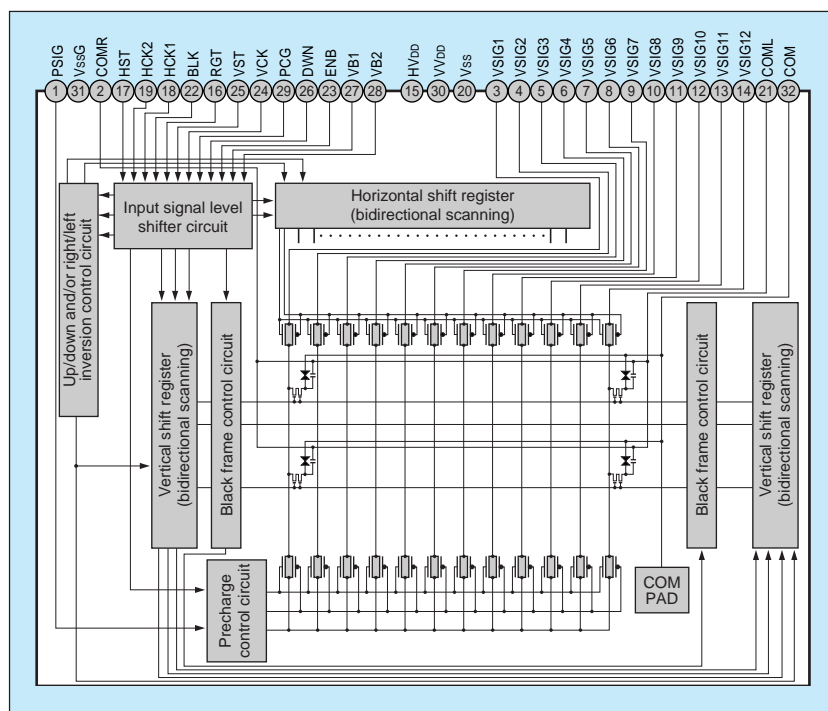
In the process of advancing from VGA to SVGA and then from SVGA to XGA in response to user needs, panel resolutions have finally reached the SXGA level with Sony's success in creating an LCD product that can display full SXGA. Although improvements in resolution are usually accompanied by reduced brightness, the point we put the most effort into in this product was improving both these aspects at the same time.



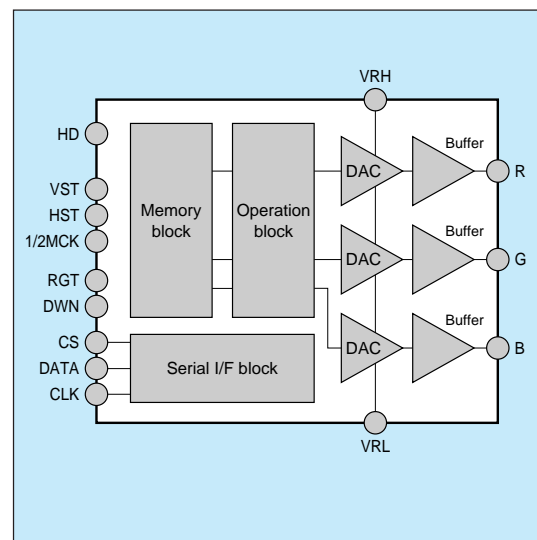
*New  
Products*



■ Figure 1 LCX028AM System Block Diagram



■ Figure 2 LCX028AM Block Diagram



■ Figure 3 CXD3503R Block Diagram

■ Table 1 Panel Specification Comparison

	LCX028AM	LCX028AL*	LCX017CL
Screen size	1.8 inch (4.6 cm)	1.8 inch (4.6 cm)	1.8 inch (4.6 cm)
Number of active dots	1.31M	1.31M	780K
Screen aspect ratio	5 : 4	5 : 4	4 : 3
Aperture ratio	82% (effective)	62%	70%
Optical transmittance	28%	21%	24%

\*The LCX028AM does not include microlenses.