

Sample-and-Hold LCD Driver with Built-in D/A Converter for Simple Digital LCD Panel Connection

CXA3562AR, CXA7000R

These devices achieve excellent picture quality with a 10-bit digital signal connection.

These devices integrate, on a single chip, both a conventional analog processing LCD driver and a D/A converter.

The CXA3562AR provides 12 outputs and the CXA7000R provides 6 outputs, and both support all Sony data projectors LCD panel systems.

These devices allow the display of high bandwidth video signals that could not be displayed fully on analog systems simply by connecting a digital video signal to the panel.

- 10-bit digital signal input
- Analog demultiplexing function
- Low output deviation by offset cancel function
- Built-in timing generator implemented in ECL
- LCD common voltage generation circuit
- Precharge pulse waveform generation circuit
- Supports right/left inversion functions

The CXA3562AR and CXA7000R are digital input sample-and-hold drivers for Sony high-temperature polycrystalline silicon TFT data projector LCD panels. These devices can accept post-gamma correction 10-bit digital signal inputs, and the CXA3562AR provides 12 demultiplexed outputs while the CXA7000R provides 6 demultiplexed outputs.

Easy System Design

Since these devices include built-in D/A converters, they do not require the analog and digital signal adjustments that were seen as required in conventional approaches. There is no need for concern about the analog noise which caused picture quality degradation in conventional approaches, and it is therefore easy to design LCD data projector drive systems. Since the CXA3562AR supports two parallel 10-bit signal-processed inputs, it can easily handle high-resolution signal such as SXGA and above.

Low Output Deviation of under 10 mV

Since these devices include built-in offset cancel functions, they achieve interchannel offsets of under 10 mV between the 6 or 12 output channels. Since these devices allow common offset cancel pins to be used, even the deviation between ICs can be held to extremely low levels.

Using a Common PWB for SVGA and XGA Displays

A single CXA3562AR can drive either an XGA or an SXGA LCD panel, whereas one CXA7000R can drive an SVGA panel, and two can drive either an XGA or an SXGA LCD panel. Since the required pulses and adjustment pin characteristics are the same for these two ICs, it is easy to design a common PWB for SVGA and XGA products. This can reduce the cost and time required for design.

Adjustment Functions

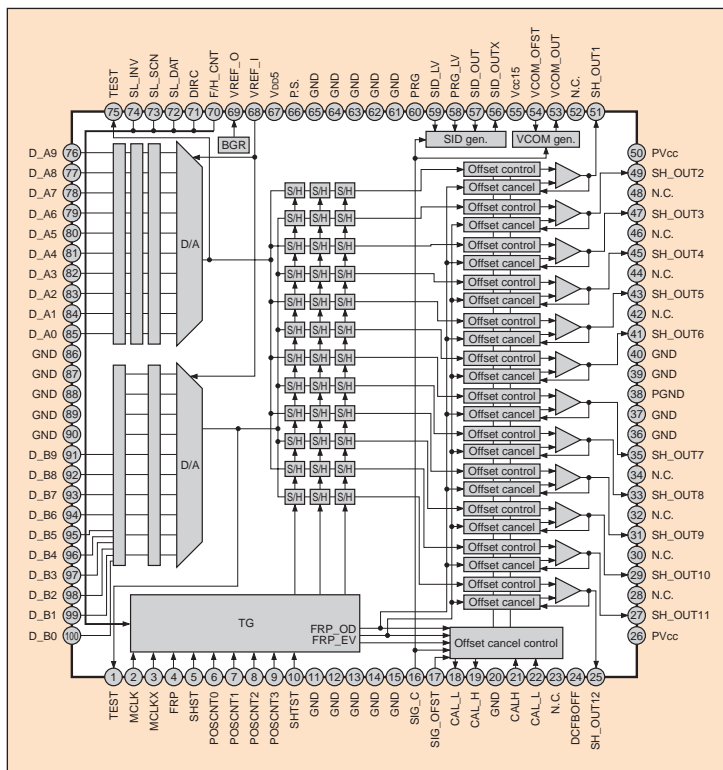
Both the CXA3562AR and CXA7000R provide built-in common voltage (VCOM) generation circuits as required by Sony LCD panels. They also provide built-in precharge signal waveform generation circuits. This allows designs with minimal numbers of external components. Furthermore, since all the adjustment pins are controlled with voltages in the range 1 to 5 V, they can be controlled by 5 V system D/A converters.

V O I C E

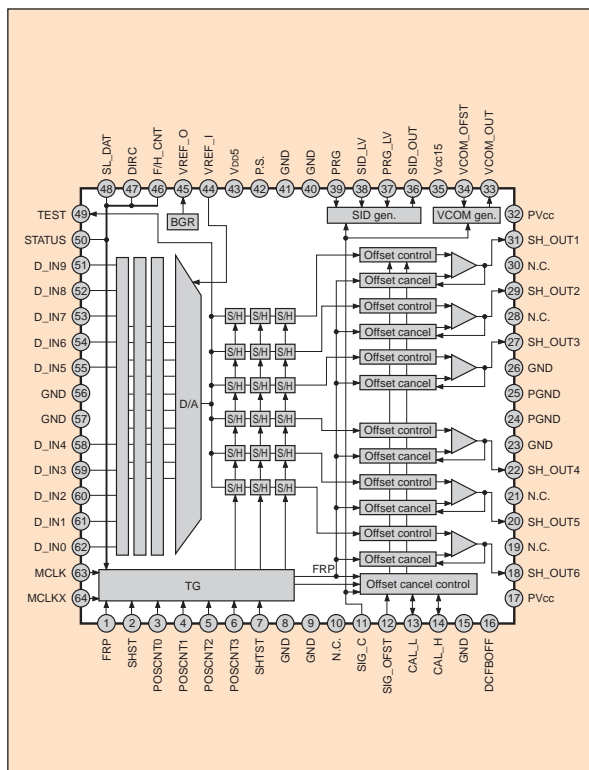
The key point in the development of the CXA3562AR and CXA7000R was discovering techniques for handling the heat generated when driving the high-capacitance load of an LCD panel. In addition to designing these devices to have the lowest possible power consumption, we also developed a new lead frame to achieve reduced thermal resistance in the package.



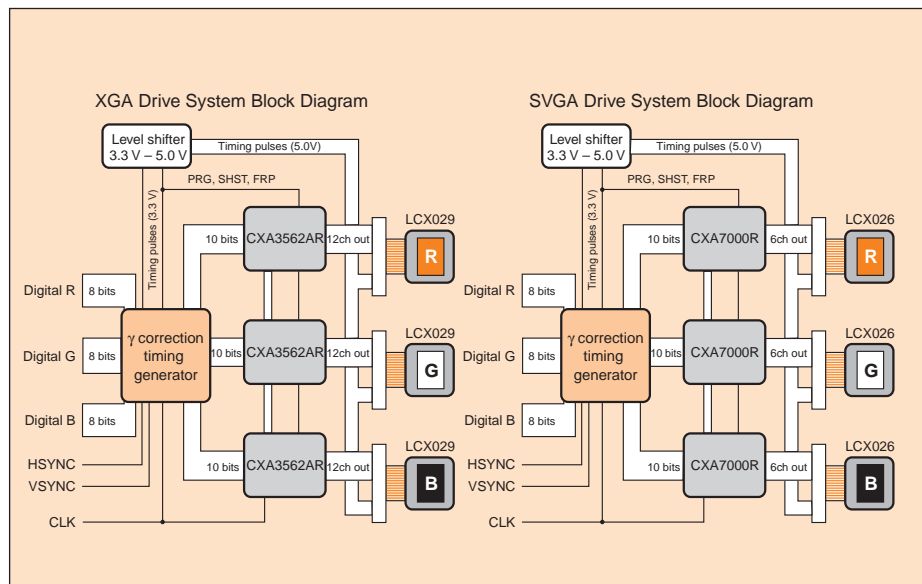
New Products



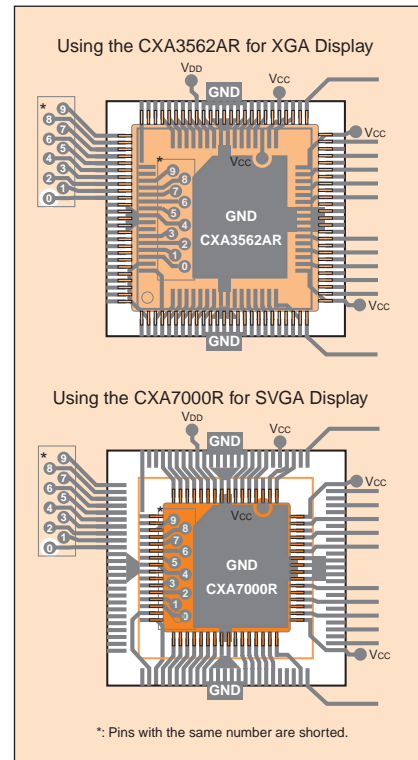
■ Figure 1 CXA3562AR Block Diagram



■ Figure 2 CXA7000R Block Diagram



■ Figure 3 XGA and SVGA Drive System Block Diagrams



■ Figure 4 Common PWB for both XGA and SVGA Displays