



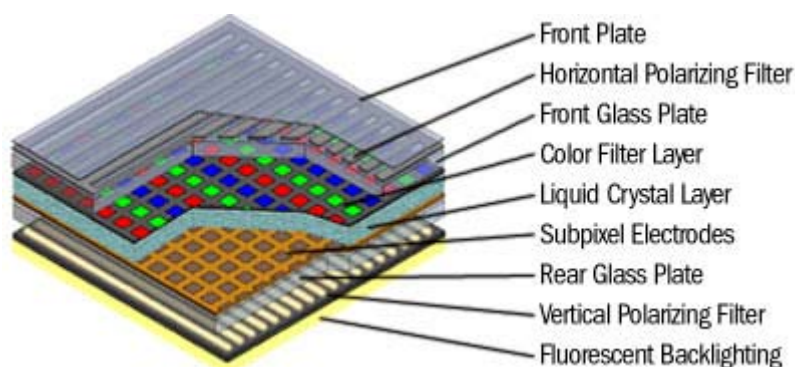
Topic	How LCD TV panels work
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An LCD TV is sometimes referred to as a "transmissive" display - light isn't created by the liquid crystals themselves; a light source (bulb) behind the panel shines light through the display. A white diffusion panel behind the LCD redirects and scatters the light evenly to ensure a uniform image.

The display consists of two polarizing transparent panels and a liquid crystal solution sandwiched in between. The screen's front layer of glass is etched on the inside surface in a grid pattern to form a template for the layer of liquid crystals. Liquid crystals are rod-shaped molecules that bend light in response to an electric current - the crystals align so that light cannot pass through them. Each crystal acts like a shutter, either allowing light to pass through or blocking the light. The pattern of transparent and dark crystals forms the image. It's the same display technology behind your digital watch but way more sophisticated.



The multi-layered structure of an active-matrix LCD panel.

Because they use red, green and blue color filters in place of phosphor dots, LCD panels are completely immune to image burn-in.

LCD TVs use the most advanced type of LCD, known as an "active-matrix" LCD. This design is based on thin film transistors (TFT) - basically, tiny switching transistors and capacitors that are arranged in a matrix on a glass substrate. Their job is to rapidly switch the LCD's pixels on and off. In a color TV's LCD, each color pixel is created by three sub-pixels with red, green and blue color filters.

One of the biggest challenges for LCD TV manufacturers has been speeding up the "pixel response" time (how fast an individual pixel's color can change without blurring) to ensure that fast-moving objects don't exhibit "motion lag" or ghosting. It's especially critical for larger-screen LCD TVs where much of the viewing will be DVD movies and/or HDTV.

An important difference between plasma and LCD technology is that an LCD screen doesn't have a coating of phosphor dots (colors are created through the use of filters). That means you'll never have to worry about image burn-in, which is great news, especially for anyone planning to connect a PC or video game system. LCD TVs are extremely energy-efficient, typically consuming 60% less power than comparably-sized tube-type direct-view TVs!

Source: www.lcdtvbuyingguide.com