ULTIMICRON Series

October 2009

LCD type: TN mode, organic alignment layer
Color display system: Color filter (RGB stripe)
Effective pixels: 800 x RGB x 600 (SVGA)
Panel size (diagonal): 0.47 inch (1.2cm)
Pixel pitch: 12 (4 x RGB) μm x 12 μm
Color space: 92% of sRGB
Contrast ratio: 280:1
Backlight: Available
Surface luminance: 460 cd/m²
Displayable colors: Approx. 16.77 million colors

Product Features

The ULTIMICRON series of high-temperature polysilicon (HTPS) TFT LCD panels is capable of displaying high-resolution, full color images on a single panel, mainly for electronic viewfinders (EVF) in mid- to high-end DSLR cameras.
Digital cameras generally use one of two kinds of viewfinder: an EVF or an optical viewfinder (OVF). An EVF offers numerous benefits, including a compact and lightweight camera body and improved usability, but until the development of the ULTIMICRON series, no EVF had the resolution needed to serve as a replacement for an OVF or the fidelity needed to focus properly. Using advanced miniaturization technology, Epson successfully developed and produced an ULTIMICRON LCD panel capable of displaying high-resolution images with 16.77 million vibrant colors and no graininess. This was achieved by arranging each pixel of the color filter in a 4 x 12 μm stripe pattern for each of the individual R-G-B sub-pixels. The ULTIMICRON panels give the camera industry a compelling new choice for electronic viewfinders.
With its analog-driven LCD panels, ULTIMICRON can provide smooth gradations not possible in its digitally-driven counterparts and a natural softness that is vital to photographic expression. Furthermore, the use of a color filter to display color prevents the color breakup seen in standard EVF that use a sequential color system, producing natural and beautiful images even when shooting fast-moving subjects and while panning.

Story Behind the Creation

The rise of the digital camera was accompanied by aggressive competition in terms of technology such as number of megapixels and an expanded color gamut, and in terms of cost-performance. Meanwhile, more users began to replace their compact cameras with single-lens reflex units and started to ask for smaller and thinner products with the same high performance and image quality.
To meet these market needs, Epson used its HTPS technology, which has been refined for more than 20 years during the manufacture of LCD panels for projectors, along with its expertise in color filter manufacturing, LCD optimization, and high-precision microfabrication to develop an LCD panel for EVF that can produce an unprecedented level of clarity and natural images.

Reception and Market Impact

The mass production of ULTIMICRON was widely-reported in the media and attracted the attention of the camera industry. The clarity of the display earned rave reviews from camera users and critics who saw demonstrations of the product at trade shows. ULTIMICRON provided better EVF performance and contributed to smaller and lighter cameras. The technology has started to make its way into imaging equipment for professionals such as broadcast and industrial camcorders. Epson is also working on developing new product categories and expanding into various other applications where the high-resolution images can provide a better viewing experience.