

Multistring backlight drivers aid power management



US analog semiconductor manufacturer Advanced Analogic Technologies has developed a range of multistring LED backlight drivers for 10- to 22-inch LCD panels. The AAT1409/7/5 products offer integrated boost converters and precision current sinks that can support up to 88 LEDs at a total current of 360 mA. The drivers also reduce the number of backlight printed circuit boards required while still driving high-brightness LEDs and controlling the backlight intensity, thus ensuring uniformity across the display. "As LCDs continue to gain traction in the computing, consumer and industrial markets, the power, efficiency, accuracy and flexibility of the backlight drivers are becoming critical differentiators," says Ray Chan, technical marketing manager at Advanced Analogic Technologies. "These products offer an effective approach for LCD power management." The drivers can operate from d.c. inputs, cigarette lighter adapters or multicell lithium-ion batteries in the range of 4.5–26 V, and are available in four, six or eight channels. The drivers also support a pulsewidth modulation dimming frequency of up to 100 kHz, which ensures silent operation. Furthermore, these drivers are particularly suited for use in portable LCD devices operating under low ambient light conditions or in power-saving modes, as their high efficiency allows the battery life to be maximized.

www.analogictech.com

Glass bonding boosts display performance in bright light

Hitachi Display Products — the arm of Hitachi Europe responsible for LCD development — has developed a glass bonding technique that enhances the optical performance of LCDs in bright ambient light. An optical adhesive and

lamination process is used to bond an anti-glare and anti-brightness glass substrate to the front of a thin-film transistor (TFT) LCD module. When used in bright light, the amount of ambient light reflected by most displays is close to or exceeds the light emitted by the display, leaving the image 'washed out'. But according to Mark Stephenson, product marketing manager at Hitachi Display Products, a TFT LCD featuring surface treatment techniques and an optically bonded glass substrate can reduce reflections to less than 0.2% by scattering and absorbing ambient light. As Stephenson also points out, the bonding process doesn't leave an air gap between the glass substrate and the display, which prevents parallax effects and internal reflections. "The display module is more rugged than traditional TFT LCDs, thus providing enhanced shock and vibration performance," he adds. "Display durability is also improved with increased impact and scratch resistance, and reduced fluid and foreign particle ingress."

www.hitachi-displays-eu.com

White LED targets outdoor displays

US components manufacturer Vishay Intertechnology has developed a non-diffused 3 mm white LED that uses InGaN technology to achieve a luminous intensity of 4,500–11,250 mcd at 20 mA. Featuring a clear, untinted plastic case with a lens viewing angle of $\pm 22.5^\circ$ and high light output, the VLHW4100 provides an alternative to incandescent lamps in outdoor LED panels, light guides and other applications. The LED also provides thermal resistance down to 400 K W^{-1} and power dissipation up to 95 mW. Withstanding electrostatic discharges up to 2 kV, in accordance with JEDEC standard JESD22-A114-B, the device is compliant to the restriction of hazardous substances directive 2002/95/EC.

www.vishay.com

Fully despeckled laser system targets digital cinema

Laser Light Engines, a US manufacturer of laser-driven light sources, has developed a fully despeckled laser illumination system for digital cinema and large-venue projectors. Producing red, green and blue from the same laser, the system completely eliminates laser speckle in images, reaching the level of performance required for digital 2D and 3D films. "Our lasers will also reduce power consumption and cooling

costs, thus providing a cost-effective and environmentally friendly alternative to xenon arc lamps," says Bill Beck, executive vice president of business development at Laser Light Engines. "And unlike these lamps, the system will provide full brightness over the lifetime of the projector."

www.laserlightengines.com

PHOLED system boosts display performance

US firm Universal Display has developed a light-blue phosphorescent organic light-emitting diode (PHOLED) emitter system that could significantly reduce the power consumption and extend the lifetime of OLED displays, thus benefiting the battery life of portable electronics. Under accelerated test conditions, the system operated for 9,000 hours to 50% of its initial luminance of $1,000 \text{ cd m}^{-2}$ — an increase in operating lifetime of almost 100% over the company's previous light-blue PHOLED emitter system. The system offers CIE chromaticity coordinates of (0.17, 0.37) and a peak wavelength of 472 nm. It also provides a luminous efficiency of more than 45 cd A^{-1} , which corresponds to an external quantum efficiency of more than 20% at $1,000 \text{ cd m}^{-2}$. The company developed the all-phosphorescent active-matrix OLED architecture by adding a light-blue subpixel to the conventional red–green–blue configuration. The company has already demonstrated the architecture in a 2.5-inch, all-phosphorescent active-matrix OLED display.

www.universaldisplay.com

Transparent OLED makes its debut

Japanese manufacturer TDK has announced two types of passive-matrix organic light-emitting diode (PM-OLED) displays — one flexible and the other highly transparent. The 3.5-inch flexible type is based on a resin substrate, has a thickness of only 0.3 mm, weighs 1.11 g and has a resolution of 256×64 pixels. It is available in either colour or monochrome models. The transparent PM-OLED, which is primarily targeted towards the mobile phone market, has a light transmission of 50% and comes with a 2-inch screen at QVGA resolution (320×240 pixels). Mass-production of the flexible PM-OLED is expected to start before the end of 2011, with the transparent type available for sampling immediately.

www.tdk.co.jp