Nominees

Cree's New XLamp XP-E and XP-C LEDs

Industry's Smallest Lighting-Class LEDs Set New Performance Benchmarks

Cree, Inc. has introduced a new standard for lighting-class LEDs with the introduction of the XLamp XP-E and XP-C LEDs. These breakthrough LEDs have the smallest footprint in the industry for lighting-class LEDs, providing the same lighting performance and reliability as Cree XR-E and XR-C LEDs in an 80 percent smaller package.

The XLamp LEDs, measuring 3.45 mm² by 2 mm high, can enable new applications, including backlighting, signage, outdoor, indoor and portable lighting, due to their size and low profile as well as a wide viewing angle and symmetrical package. Available bins for XLamp XP-E LEDs include minimums of 100 lumens at 350 mA in cool white (5,000 K to 10,000 K) and 80.6 lumens at 350 mA in warm white (2,600 K to 3,700 K).

"We recognized an unmet need for lighting-class performance in a small-footprint, low-profile LED package. These products, based on an innovative new technology platform, address this need," said Paul Thieken, Cree marketing director for LED components. "This new platform, in concert with the existing XLamp products and the recently demonstrated XLamp MC-E LED, give LED lighting designers enhanced flexibility and performance to further accelerate the LED lighting revolution."

Optek Adds 1 Watt Star Series LEDs in Cool, Daylight and Warm White for Architectural and General Illumination

TT electronics Optek Technology has developed a complete series of 1 W single-LED assemblies on metal-core PC boards. Designated the OVTLZ Optimal I Star series, the assemblies consist of Optek's Lednium series 1 W LEDs, proven for reliability, long life and low thermal resistance (<2°C/W), integrated with a thermally-conductive heat spreader substrate to achieve an overall thermal resistance of 4.9°C/W from LED junction to an additional heatsink.

"The Optimal I Star series LEDs provide tremendous design flexibility for lighting engineers," said Alan Bennett, vice president of sales & marketing for Optek Technology. "Available in a full range of colors, including three colors of white light specifically designed to meet requirements for architectural and general illumination, the assemblies feature a robust, energy-efficient design that can be mounted with thermal epoxy and/or mounting screws."

The Optimal I Star series LEDs are being specified for architectural and general illumination, interior/exterior automotive lighting, signage and specialty lighting applications.

Four soldering pads provide two pads each for anode and cathode connections, as well as locating slots for mounting screws. The assemblies are 0.78 inches (19.8 mm) in diameter on a 0.04 inch (1 mm) thick PC board.

Winner - Industry Leadership

Avago Technologies' ASMT-QxBE and ASMT QxBB Super Half-Watt Power PLCC-4 SMT LED Series

Avago Technologies' series of super half-watt (0.5 W) power PLCC-4 surface-mount (SMT) LEDs are the first smallest Half-Watt PLCC-4 in the industry that have been targeted for use in automotive and electronic sign applications. These 0.5 W LEDs from Avago feature the industry's smallest package size, a wide 120° viewing angle, and have been optimized for long operating life under severe environmental conditions. Moreover, these new high-brightness LEDs were designed to dissipate heat more efficiently to provide improved thermal management and consistent light output. Avago's 0.5 W LEDs are well suited for use by designers of automotive interior and exterior lighting, electronic sign and signal (ESS), office automation, home appliances and industrial equipment. The super 0.5 W power PLCC-4 SMT LEDs are available in cool white, warm white, blue, green, amber, red-orange and red colors.

Avago's series of 0.5 W SMT LEDs can be used for backlighting dashboards, dome and map lighting, puddle lamps, rear reverse lamp indicator lighting and license plate illumination in automotive applications. These LEDs can also be used for decorative lighting in general lighting applications, channel lettering in electronic signs and signal (ESS) applications, and for backlighting instrument panels and displays in industrial equipment, office automation and home appliance applications. The high brightness output per LED and small package footprint (3.2 mm by 2.8 mm by 1.9 mm) of Avago's 0.5 W high-brightness power LED series provide lighting designers with greater flexibility in designing the size, shape and appearance of lighting assemblies.

In addition to the combination of high-brightness, long life and compact size, Avago's 0.5 W power PLCC-4 series of LEDs provide two significant advantages in the production environment: They can be easily soldered using conventional surface mount techniques to minimize production costs, and the package is qualified to a Joint Electron Device Engineering Council (JEDEC) moisture sensitive level (MSL) rating of 2A. For manufacturers, this rating means that the 0.5 W power PLCC-4 LEDs can be kept in the open air (30°C, 60 percent relative humidity) for up to four weeks after being removed from its sealed package without the need to remove absorbed moisture.

Being the smallest and brightest among the 0.5 W PLCC products on the market, with its high reliability and high optical efficiency, Avago's ASMT-QxBE series will encourage more designers to make the conversion from incandescent light to high brightness energy efficient LEDs, and thus drive the LED adoption rate to grow in solid state lighting and automotive applications.

Nominees

AZARA Low Voltage LED Track Luminaire

The AZARA, from Journée Lighting, boasts a unique and stylish design, but it also functions superbly in its mechanical and thermal capacities. The design achieves all of the technical requirements for optimum light output and efficacy by integrating the heat sink into the fixture design in an aesthetically pleasing manner. Additionally, the AZARA's function is enhanced by utilizing the modularity of Journée's monorail track system and the Sprocket LED Light Engine.

The AZARA LED luminaire features bold aesthetic design and innovative features, providing an attractive and efficient alternative to traditional light sources. It also offers a new solution for the ever-changing nature of LED technology, which increases in light output and efficacy on a quarterly basis.

As a result of collaborative efforts between Journée's industrial designers, mechanical engineers and thermal engineers, the AZARA's housing is sculpted to not only appeal to the eye aesthetically, but also perform as an active heat sink. Although the AZARA is relatively small in overall size, with a 3-inch diameter and 5-inch length, there is a very substantial amount of heat dissipating surface area, which allows for a longer lasting lamp life than most other luminaires in its class. The total heat sink surface area of the AZARA exceeds 100 square inches, which promotes extremely low LED junction temperatures.

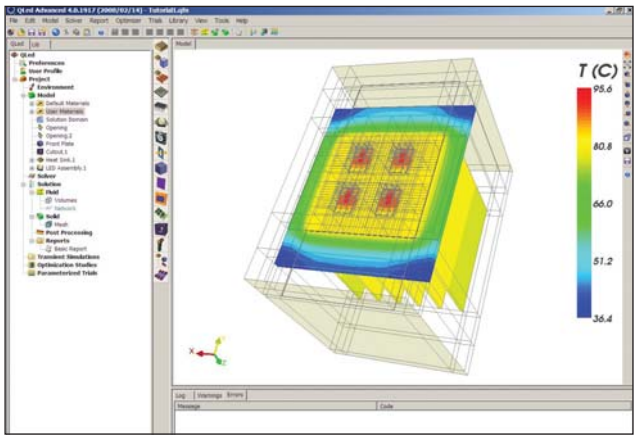
Due to the built-in flexibility of the Sprocket LED Light Engine, the AZARA offers features that no other LED luminaire can compete with, including WattageAdjust, an on-board dip switch that provides a choice of three brightness settings of 6 W, 8 W and 10 W. The AZARA is available in three Energy Star recognized color temperatures (3,000 K, 4,000 K and 6,500 K) and two beam angle options (12° and 27°). Potential applications will be in retail stores, museums, galleries, visitor centers and restaurants. In addition, the AZARA complies with California's Title 24 standards and the US Green Building Council LEED standards being adopted across the country.

HF2 Narrow Stick

Osram Sylvania's HF2 Narrow Stick modules are a new and innovative module design utilizing an array of small discreet LEDs in a 0.5 inch wide, long and short board pattern. This module is designed to provide a visually diverse field of view of the LEDs, where it provides a highly desirable closely packed led pattern to provide an illumination output that rivals other traditional linear lamp sources. The products are available in four easy to use designs as full light output and 50 percent light output long boards and short boards.

The product family will be initially introduced supporting three color temperatures: 3,000 K, 3,500 K and 4,000 K. The system can be connected board to board with the integrated three pin connectors. The system can be controlled utilizing the Osram Sylvania Optotronic 24 VDC power supplies and can be enhanced by utilizing a OT DIM control interface to allow dimming via 0 to 10 V controller.

Winner - Product Development Excellence



Future Lighting Solutions Offers the Industry's First Thermal Simulation Software for High-Power LEDs that Accelerates Development and Decreases Costs

Future Lighting Solutions and Qfinsoft developed QLED, the first thermal design software developed for the solid state lighting industry. QLED minimizes the number of design cycles, reduces development costs and decreases time to market by eliminating the traditional trial-and-error approach to thermal design. The software guides users through step-by-step design wizards to select, place and simulate power LEDs mounted on FR-4 boards or MCPCBs. Additionally, users can seamlessly integrate thermal vias, heat sinks and fans to generate the most accurate transient or steady state thermal simulations. An evaluation version of QLED can be downloaded for free at www.futurelightingsolutions.com/qled.

"In addition to generating extremely precise thermal simulation results, QLED also calculates the expected luminous flux produced by the LED," said Jan Visser, president of Qfinsoft Technology, Inc. "QLED can also be used to simulate slow and fast transients as well as automatically improve designs by using a highly efficient mathematical optimization algorithm."

"Customers using QLED can literally develop, simulate and optimize thermal designs in minutes instead of working with a thermal design engineer and costly software alternatives," said Patrick Durand, Worldwide Applications manager for Future Lighting Solutions. "QLED will revolutionize how the solid state lighting industry develops new products."

Nominees

Journée Lighting's Sprocket LED Light Engine

The Sprocket is the first time that a removable LED "light bulb" has been produced with the specific intent of making a thermal connection to the fixture housing. The thermal connection allows the Sprocket to achieve output and efficacy that no other screw base "bulb replacements" can compete with. In addition, it has been developed with OEM manufacturers and consumers in mind. Lighting manufacturers, especially those that are not currently in the LED sector, can benefit by using Journée's technology to reduce the learning curve of LEDs and gain faster entry into the industry. This will help facilitate the adoption of LED technology into more homes and businesses across the country.

The Sprocket is composed of two primary parts: the LED light engine and the LED socket. The LED light engine uses Journée's Thermal Conduction Technology to transfer heat directly into the light fixture housing through the use of a compression-loaded thermal pad. The LED socket contains integrated compression ramps and an electrical contact assembly to provide the interface between the light engine and the fixture housing. Through a clockwise twisting motion, the compression ramps move the LED light engine down into the fixture and mate its compression-loaded thermal pad to the fixture housing. This compressed interface is what allows for proper thermal conduction from the light engine into the fixture housing. As the LED light engine twists into position, it connects with the LED socket's electrical contacts for electricity transmission.

SynJet Active Cooling Technology by Nuventix

Innovation in lighting design is being greatly impacted by innovation in thermal management. Prior to the use of synthetic jet technology, product designers were limited in the size and lifespan of their LED designs due to the heat constraints unaddressed by traditional thermal management solutions (fans). Today, patented SynJet technology by Nuventix provides high reliability, low audible noise, flexible form factors and low power consumption cooling, all attributes that greatly benefit the LED product designer.

The LED market, stand-alone lighting as well as for use in LCDs, is proliferating at the rate of 15 to 20 percent per year and is expected to reach $7 billion in just three years. This growth will be attained through new uses of LEDs, many of which will require active cooling. SynJet technology is well suited for active LED cooling because of its high reliability, low power consumption, quiet operation and almost undetectable airflow. It allows two to three times the light output compared to passive LED thermal management designs. The SynJet module creates pulsated air-jets that can be directed precisely to locations where thermal management is needed for industrial spot or chip cooling requiring high reliability and flexible form-factor implementations.

The vortex-dominated SynJet flow enhances small-scale mixing near the heated surfaces to yield higher effective heat transfer at low-volume flow rates compared to conventional air movers. High flexibility, reliability and effective active cooling are all necessary to create LED lighting solutions for retail, business and consumer audiences.

Winner - Best Technology

Nexxus Lighting Introduces New Array Lighting LED Lamp Line of Products

Array lamps utilize Selective Heat Sink technology (SHS). SHS is a new and innovative approach to thermal management that uses proprietary design and materials to lower thermal resistance to record levels, which allows an array of low power, high efficacy LEDs to achieve unmatched performance. Array lamps deliver more than 37 percent more lumens per watt over the best in class competitive offerings, with a LED package that delivers 95 lumens per watt in bright cool white and 80 lumens per watt in color rich warm white. SHS allows all Array lamps to utilize recycled injection molded housings that fit standard incandescent and halogen fixtures. This means the days of large aluminum heat sinks are gone. Unlike compact fluorescent lamps, Array lamps contain no mercury or lead and are compliant with RoHS standards. All lamps can be dimmed on any commercial dimmer and can also be equipped with Dynamic Dimming, which allows lamps to dim to preset levels (75 percent, 50 percent, 25 percent and off) with the flip of an existing light switch; there is no need to add a dimmer.

The production of the Array product line is fully robotic / automated and provides required demand capacity and allows Nexxus Lighting to provide unmatched quality and lamp to lamp consistency at a lower cost than competitive offerings.

Nexxus Lighting will initially offer four new LED lamps in the Array Lighting line: Array LED MR16, Array LED PAR16, Array LED PAR30 and Array LED G4/G6. Each lamp is fully dimmable, available in cool white and warm white color options and fits standard incandescent and halogen fixtures. The MR16 and the PAR16 provide a solid-state alternative to 35-watt halogen and incandescent bulbs, respectively, while the PAR30 marks the first LED lamp lumen equivalent to a 75-watt incandescent bulb utilizing less than 8 watts of power. The G4/G6 fits into standard under cabinet fixtures and includes red, blue, green and amber color options. Additional lamp types will be added in the near future.

"We are proud to introduce the world's first 95 lumens per watt LED lamp line with unmatched performance, low environmental impact and competitive pricing," said Mike Bauer, president and CEO, Nexxus Lighting. "With our innovative Selective Heat Sink technology and ground-breaking Array Lighting brand, Nexxus Lighting has solidified its position as an industry leader in advanced LED lighting technology."

Nominees

Albeo LED High Bay Industrial Luminaire

Albeo Technologies' Constellation series LED High Bay is a luminaire that brings the many benefits of LED technology to industrial and commercial customers across a broad range of segments including retail, warehouse, data centers and manufacturing. To date, large-scale industrial and commercial market segments have not had access to industrial LED lighting solutions, as no company has been able to optimize LED technology enough to product high-illumination, maintenance-free, energy-efficient solutions to meet their unique industrial demands.

Albeo has applied their patent-pending TEMPR technology, which involves thermal optimization techniques at the component, assembly and fixture level to maximize brightness, lifetime and efficacy. Albeo delivers the Constellation High Bay with the same five-year warranty that is applied to the entire Albeo offering.

Albeo's High Bay advancement will undoubtedly benefit all large-scale commercial and industrial facilities who are currently struggling with the poor quality, high-maintenance cost and inefficiency of their current lighting.

Both the industrial and commercial segments have suffered greatly due to the inefficiency and high-maintenance expense of lighting their facilities through traditional lighting products. The benefits of LED will allow industrial users to take the cost of lighting maintenance off of their P&L, and redeploy maintenance resources to other pursuits that drive revenue, rather than merely create costs.

Albeo is effectively servicing a market segment that has never before had access to LED lighting solutions. Albeo's industrial LED lighting, based on their patent-pending TEMPR technology, enables LED to address this large, new market segment and further drive the inevitable replacement of all traditional lighting technologies.

AUREA Ambilight

Philips has developed Aurea, the latest in Ambilight FlatTV, creating an ambient experience beyond normal viewing that integrates effortlessly into any interior environment offering a minimalist profile while turned off and an absorbing experience while in use. The result is a combination of style and sophistication that is the future of FlatTV.

The Active Frame AUREA Ambilight system is executed with LED technology. With LEDs it is possible to achieve very exciting saturated colors. However, in initial Consumer Tests it was found that these saturated colors can also be disturbing to the Consumer. A good balance was found between saturated and non-saturated colors produced by the Ambilight systems. Algorithms in the TV set are used to control the colors and to create an immersive and relaxing viewing experience.

On one hand, the Active Frame AUREA Ambilight has to meet the optical performance for color, color uniformity and luminance. On the other hand, the Active Frame Ambilight system is a design feature that has to look well in on and off state. This puts additional requirements to the materials and optical system. By using LED technology the dimensions of the optical system of the Active Frame can be kept to a minimum allowing the integration in the AUREA.

By replacing one lamp by multiple LEDs it is possible to drastically enlarge the number of independently addressable light zones in the total light system. With lamps it was possible to have only one addressable light zone. With the LEDs in AUREA there are three individual zones on the top and bottom side of the TV and four on the side. Ambilight needs new requirements on how to drive the individual LEDs. Conventional LED IC drivers reduce flexibility in use due to restrictions on supply voltage, efficiency and complexity for driving individual LEDs in a multi pixel Ambilight environment where individual pixels have to be addressed.

Winner - Outstanding Application

Sol Introduces New, Energy-Efficient LED Sign Lighting Solution

Sol (Solar Outdoor Lighting) has developed an energy-efficient, LED signage product. Sol's solar-powered LED IllumiSign sets a new standard in sustainable, energy efficient sign lighting.

"The IllumiSign LED lighting technology provides superior visibility, performance and reliability," said Michael Sonnenfeldt, chairman of Sol, Inc. "Additionally Sol offers the only solar-power option on the market, which reduces energy and installation costs and enables companies to install their signage anywhere."

IllumiSign has additional advantages:

- Uniform LED brilliance. Compared with fluorescent tubes, IllumiSign engineers out hot spots and improves visibility dramatically. IllumiSign is available in two power options: conventional 120 VAC or stand-alone solar power. This flexibility allows for installation on or off the grid for all applications.
- Easy to install. IllumiSign is strictly plug-and-play with no additional wiring, which means companies save on labor and assembly costs.
- Built to endure. Designed for OEM and retrofit projects, Sol offers a five-year warranty for the IllumiSign. Plus, IllumiSign is vandal-resistant, since its solid-state LEDs are not exposed even if the sign panel is broken.
- Energy efficient. IllumiSign uses as little as 10 percent of the electricity of conventional lighting, reducing energy costs.
- Maintenance free. IllumiSign is ETL listed to the UL 48 standard, made with a rugged aluminum housing. It provides a service life of 100,000 hours, which is 15 years of brilliant performance.
- Exclusive solar option. Only Sol offers the flexibility of solar power, allowing IllumiSign systems to be installed off the grid, wherever desired or required, with no trenching or hardwiring. Brilliant illumination and reliable performance. No electricity? No problem.