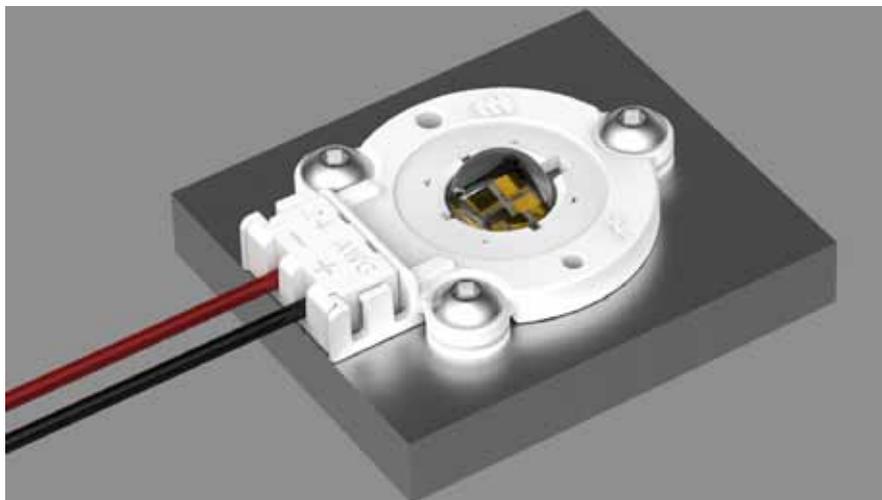


# Design & Applications

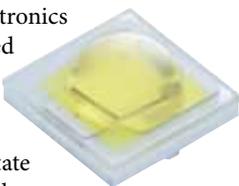


## Solderless LED socket is easily positioned

TE Connectivity's RoHS-compliant Type BR socket for quick termination of Bridgelux RS LEDs eliminates the need to design, manufacture and integrate a complex metal-clad printed circuit board assembly into a lighting fixture. It also provides lighting designers with a broad range of LED mounting options, as it can be easily positioned and assembled anywhere in a fixture using simple hand tools. This one-piece connector assembly features TE's poke-in wire termination method for 18 through 22 AWG solid wires, 18 through 20 AWG pre-bonded wires and 18 AWG stranded wires. Included standoff posts position the solderless LED socket assembly onto the heat sink. [www.teconnectivity.com](http://www.teconnectivity.com)

## Everlight introduces high voltage LED series for retrofit lighting applications

Everlight Electronics Co., Ltd., launched a range of high voltage LEDs especially suited for use in solid state lighting integral lamps, aka retrofit lamps. Everlight's new HiVo series comprises a 1W, 2W and 4W solution. The single chip LED provides a luminous flux of 80 / 100 lm at 48-55VDC in a color temperature of 3000 / 5700 K. The 2W product with two LED chips connected in series achieves 140 lm for 2700 K at 95-111VDC. The 4-chip LED with 275 / 375 lm for 3000 / 5700 K is available for voltages of 95-111V in North America and Asia and 190-220VDC in Europe. All HiVo components are supplied in a ceramic package with dimensions of 3.5x3.5mm for the 1W and 6.0x6.0mm for the 2W and 4W. [www.everlight.com](http://www.everlight.com)



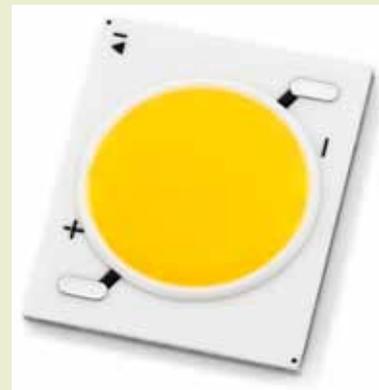
## Digi-Key stocks Cree's LMR4 LED lighting modules

Digi-Key Corporation now stocks Cree's LMR4 LED light modules in Europe and around the world. The LMR4 modules are designed to simplify the creative process, giving lighting manufacturers more options as they develop LED lighting products. The Cree LED Module LMR4 uniquely integrates driver electronics, optics and primary thermal management, making the compact module drop-in ready. Designed to last 35,000 hours while consuming just 12 watts of power, it delivers 700 lumens at a variety of color temperatures from 2700K to 4000K. [www.digikkey.com](http://www.digikkey.com)

## Cree banishes last century's lighting with revolutionary LED light bulb

In an industry first, Cree, Inc., has demonstrated the brightest, most efficient, LED-based A-lamp that can meet ENERGY STAR® performance requirements for a 60 watt standard LED replacement bulb. This unprecedented level of performance is the result of Cree innovation, Cree barrier-breaking LED performance, Cree TrueWhite® technology and patented Cree

## New LED modules radiate with an efficiency of up to 102 lm/W



The new 15 and 25 W Mega Zeni models from Sharp are compact, light-weight, economical and extremely bright, while still providing a very high level of light quality. The new models produce a light output of up to 2550 lumen (depending on the module), a luminous flux of up to 102 lm/W and a long service life of 40,000 operating hours at a service temperature of 80°C. Sharp is thus setting new standards in light technology. Measuring 24 x 20 x 1.8 millimetres and with an aluminium ceramic plate as the carrier material, the 15 and 25 W variants offer the perfect solution to a whole range of lighting applications. [www.sharpsme.com](http://www.sharpsme.com)

remote phosphor technology. The prototype bulb is dimmable and emits a beautiful, warm incandescent-like color of 2700 K, with a CRI of at least 90. It delivers more than 800 lumens and consumes fewer than 10 watts and has been submitted for third party testing to validate the light distribution, lumen maintenance and performance. [www.truewhitelight.com](http://www.truewhitelight.com)

## LED driver enables drop-in replacements for halogen MR16 lamps

Maxim Integrated Products introduces the MAX16840, an LED driver that employs a proprietary architecture to ensure flicker-free, dimmable operation with electronic transformers and cut-angle dimmers. Maxim's patent-pending approach enables the design of retrofit LED lamps that

### Patented, isolated LED driver from Supertex provides high current accuracy with minimum parts

A new patented, isolated constant current LED driver for solid-state lighting applications from Supertex—the HV9971—boasts a current accuracy of  $\pm 13\%$  and is ideally suited to control isolated, flyback topologies to enable solid-state lighting fixtures to meet UL compliance for galvanic isolation. The IC utilizes primary side current sensing for reduced component count, circuit size and cost; and is still able to achieve highly accurate output current regulation. Supertex's patented approach maintains current accuracy while the IC is insensitive to external component tolerances and does not require an optocoupler. HV9971 accepts AC input voltages of 80-264V and is optimized for operation at a constant frequency of 100kHz. [www.supertex.com](http://www.supertex.com)



can replace halogen MR16s without any changes to the existing electrical infrastructure. This removes an important obstacle to commercial viability, allowing end users to enjoy all the benefits of LED lighting with substantially lower deployment costs. [www.maxim-ic.com](http://www.maxim-ic.com)

### ROHM Semiconductor releases infrared LEDs for proximity sensor applications

ROHM Semiconductor introduced a new range of infrared LEDs that are specifically designed for proximity sensor applications. The SIM-040/041ST and SIM-030/031ST surface-mount IR LEDs incorporate IR wavelength technology to deliver 850/870 nm peak output in comparison to other devices that produce 950 nm. The IR LEDs deliver a maximum energy savings of 66% and increased efficiency of proximity sensing. [www.rohm.com](http://www.rohm.com)

### iWatt's high power-factor-corrected digital LED driver IC delivers flicker-free dimming

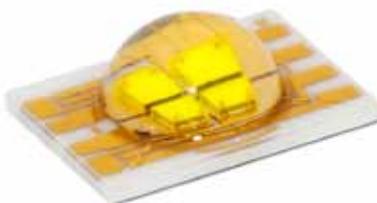
iWatt, Inc., expanded its family of digital LED driver ICs with a two-stage, power-factor-corrected (PFC), primary-side-regulated, leading- and trailing-edge-dimmable, AC/DC digital PWM controller targeting 120V/230VAC offline commercial and industrial LED lighting applications. Designed for isolated or non-isolated LED drivers used in incandescent replacement lamps including both space-constrained (GU10, MR16) and larger (A, PAR) types, the iW3614 (3W to 15W) incorporates features to assure power efficiency, durability, reduced size and component costs, and flicker-free compatibility with existing wall dimmers worldwide. The chip comes in a low-cost, thermally-

enhanced SO-8 package with an exposed pad which allows lower die junction-to-PCB thermal resistance for increased reliability. [www.iwatt.com](http://www.iwatt.com)

### Opto Diode introduces high power, 30-die, infrared LED array

Opto Diode Corporation has developed the first in a series of high power LED arrays, the OD-850-30-030. The new 30-die near-infrared (NIR) LED array delivers more efficient operation and higher power with a narrow beam angle of 30 degrees. The device has a peak wavelength of 850 nm (min. 840 nm and max. 865 nm) and a total optical power output of 16 watts. Ideal for night vision systems and skin therapy applications, Opto Diode's NIR light-emitting-diode array is available for shipping in OEM quantities by June 28, 2010. [www.optodiode.com](http://www.optodiode.com)

### YEG Opto introduces new Seoul Semiconductor Z7 4 W high brightness LED



LED manufacturer Seoul Semiconductor has launched the new Z7 LED, the latest addition to the Z-Power Series. The Z7 is a 4-chip, 4-watt LED that delivers up to 440 lm at 5500 k. A high brightness LED, the Z7 is available in pure or warm white and is packaged on a ceramic PCB offering excellent thermal transfer properties and has a footprint of just 9 x 7 x 3.2 mm. The Z7 is ideal for diverse indoor and outdoor

lighting applications that require long life and stability such as street lamps, tunnel lighting, down lighting, architectural, decorative, remote/solar powered lighting and commercial lights. [www.yegopto.co.uk](http://www.yegopto.co.uk)

### Isolated active PFC off-line LED controller is TRIAC dimmable & needs no OPTO isolator

Linear Technology's LT3799 is an isolated LED controller with active power factor correction (PFC) specifically designed for driving LEDs from a universal input range of 90VAC to 265VAC. The LT3799 is optimized for LED applications requiring 4W to over 100W of LED power and also compatible with standard TRIAC in-wall dimmers. The LT3799's unique current sensing scheme delivers a well regulated current to the secondary side without using an optocoupler. This not only reduces cost but also improves reliability. [www.linear.com](http://www.linear.com)

### Harvard expands dimmable LED driver range

Harvard has extended its range of dimmable CoolLED DALI drivers to include 1.2A and 1.4A versions. Harvard's dimmable LED drivers deliver dimming capabilities across a wide range of output currents, which means users can maximize their energy savings and create different levels of lighting by smoothly dimming LEDs at specific times. The DALI drivers allow customers to use digital programming to set different lighting and ambient levels for displays, thereby maximizing their investment. The 1-10V analogue drivers can be simply programmed with a fixed or variable resistor and deliver high efficiency as well as high power factor. [www.harvardeng.com](http://www.harvardeng.com)

### TI introduces low-noise 16-channel constant-current sink LED driver

Texas Instruments introduced a serial-controlled, 16-channel constant-current sink LED driver with four-channel grouped delay. This device simplifies design in LED display applications, including video displays, message boards, amusement illumination and LED indicators. The TLC59282 minimizes simultaneous switching noise by staggering the switching of the LED outputs, lowering the peak switching current transients facilitating low-cost, two-layer printed circuit board (PCB) routing in LED modules. [www.ti.com](http://www.ti.com)

### Bridgelux LED arrays double light output of today's commercially available LED products

Bridgelux Inc. expanded its award-winning RS LED Array portfolio to include the industry's highest performance LED products designed for very high lumen applications. The new RS Arrays deliver 3500

to 8000 operational lumens, an extended range of color temperatures including warm, neutral and cool white (2700K to 5600K), and multiple color rendering indices (CRI) options, further increasing choices for high quality lighting. These LED arrays both simplify and enable rapid development of new high-lumen LED products accelerating the ability for solid state lighting to replace high wattage HID luminaires, providing safer operation and reducing payback periods to as little as two years. [www.bridgelux.com](http://www.bridgelux.com)

### Xicato's new spot module range features up to 50% increased efficiency

The Xicato Spot Module range has arrived into general lighting territory with range improvements encompassing up to 50% efficacy increases and range extensions that include a doubling of flux to 2000 lm. All modules have the same form factor with the same interfaces. Whether a module has

400 lm or 2000 lm, the 22 mm diameter aperture remains the optical interface and therefore no change in optics is needed. There is even backward thermal compatibility within the range. For example, the 1300 lm module (which can perform on a par with a 20W CMH lamp) can be used on a heat sink designed for a 1000 lm module, preventing the need for luminaire design changes. Future proofing is a hallmark of this design concept. [www.xicato.com](http://www.xicato.com)

### Osram develops red LED based on thin-film technology

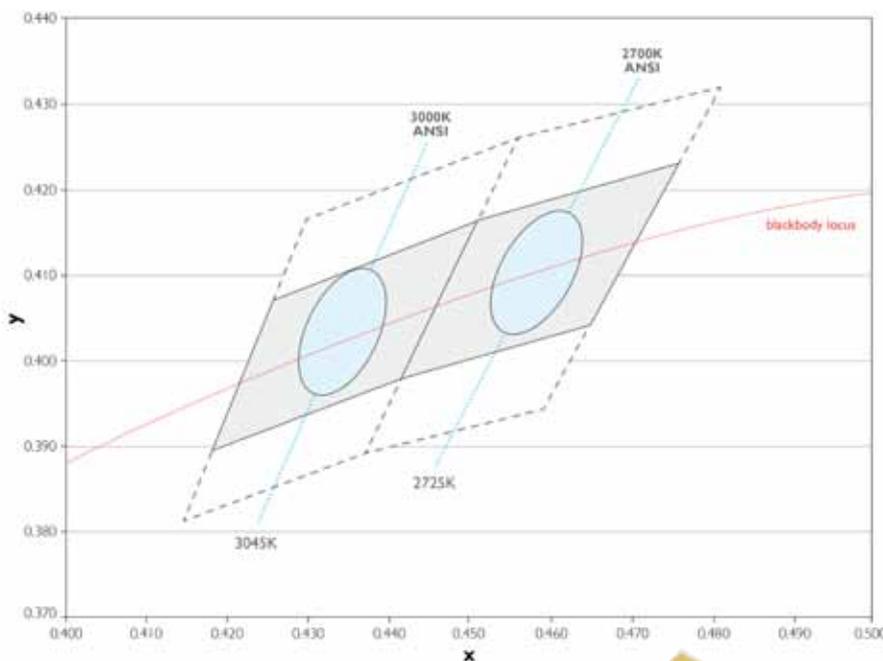
Osram Opto Semiconductors, a subsidiary of Siemens, has developed an efficient LED based on the thin-film technology that is utilized for high power semiconductor chips. The red LED features an emission curve that closely matches the spectral sensitivity of chlorophyll. The LED unit comes in two kinds of variants, each of them having a different beam angle. The Oslon SSL LED has an 80° beam angle and is ideal for multi-level applications such as lettuce cultivation. The Golden Dragon Plus LED has a 70° beam angle and is suitable for utilization in reflector lamps for lighting up large regions under cultivation. [www.osram-os.com](http://www.osram-os.com)

### Lumex unveils QuasarBrite RGB LED for high intensity lighting applications

Lumex has introduced a new LED solution that is ideal for applications requiring high intensity light in space-constrained regions. The QuasarBrite 4-Leaded RGB LED solution, featuring a 120° viewing angle, has a lead frame design that offers enhanced heat dissipation and higher life expectancy. The design offers improved convection with the air passing freely on all directions of the epoxy for more effective cooling. The RGB format of the LED, when combined with the 120° viewing angle, offers enhanced visual performance and consistent viewing angle throughout the display. [www.lumex.com](http://www.lumex.com)

### Panasonic develops four-channel LED driver LSI based on 190V voltage process

Semiconductor Company of Panasonic Corporation has developed a four-channel LED driver LSI, model number AN37010, that can drive multiple LEDs connected in series for edge-type LED backlight LCD TVs, thanks to the adoption of 190V voltage processing technology. Samples will be available in March 2011 at a cost of 200



### Philips Lumileds introduces LUXEON A, its latest illumination grade LED

LUXEON is the latest illumination grade LED from Philips Lumileds that reduces the engineering effort required for new solutions and delivers Freedom From Binning. LUXEON A shares the LUXEON Rebel ES platform and footprint and incorporates a 2 square millimeter thin film flip chip and Lumiramic phosphor technology to deliver the highest quality of light at 2700K and 3000K with very high efficacy and light output. The quality, uniformity, and consistency of the light from LED to LED relieves luminaire manufacturers and lighting designers of many of their long held concerns about the suitability of LED technology for illumination applications. [www.philipslumileds.com](http://www.philipslumileds.com)



yen each. A single chip of the AN37010 LED driver LSI can drive up to 228 LEDs (for 42-inch TV) in four light bars, each of which consisting of 57 LEDs, in a backlight of an LCD display and also incorporates four current sources with a 190V voltage, a boost converter, and various protection circuits. This technology contributes to the down-sizing and cost-reduction of LED backlight modules. [www.panasonic.net](http://www.panasonic.net)

### Bourns launches LED shunt protectors for LED lighting applications

Bourns has rolled out new open LED shunt protection systems for use in LED lighting applications. The Bourns LSP-Series ensures reliability of the LED lighting applications engineered in strings. The addition of a LED shunt protection device to an LED design enables the lights in a string to stay lighted by shunting the current over the LED. The LSP-Series open LED shunt protectors are suitable for various LED lighting applications such as backlighting systems, lighting fixtures and light bulbs. The LSP-Series include four models, namely the LSP1800BJR-S, LSP1300BJR-S, LSP0900BJR-S and LSP0600BJR-S. [www.bourns.com](http://www.bourns.com)

### LED driver by dilitronics makes light usable as a design medium over large areas

dilitronics GmbH presents an innovative driver for controlling LEDs. The MCC16 with ground-breaking characteristics has been specially developed for interior applications. The compact design in combination with DMX, TCP/IP or DALI interfaces and a capability of separately controlling up to 16 LED modules is revolutionary, and opens up completely new concepts for the use of LEDs in interior lighting. Whether workplace lighting, accent lighting for hotels and bars, or flexible area lighting for conference and seminar rooms, demanding individual lighting concepts based on LEDs are now feasible. [www.dilitronics.com](http://www.dilitronics.com)

### LedEngin launches UV power LED products with record power from single LED package

LedEngin, Inc., announced immediate availability of its 365 nm and 400 nm UVA wavelengths in LZC-series 12-die platform. The latest emitters in the UVA family provide record flux densities up to 1700 mW and 3.2 W/cm<sup>2</sup> at 365 nm and 6000 mW and 10 W/cm<sup>2</sup> at 400 nm. These record high flux densities expand the use

of UV LEDs in wide-ranging applications for high speed ink printing and adhesive curing, non-destructive testing analysis, sterilization, forensics detection, and currency verification. The emitters are available with standard half sphere glass dome or with flattop optic for designs that require package heights not to exceed 1.3 mm. [www.ledengin.com](http://www.ledengin.com)

### Switch Lighting™ introduces brightest warm light LED replacement bulb



Switch Lighting announced a brand new technology that produces the brightest warm light LED replacement bulb available. Using their "City of Light"™ technology, the bulb creates a self-cooling environment inside, allowing maximum brightness with fewer LEDs. With this technology, Switch Lighting is bringing to market the first true 75 watt equivalent warm white LED replacement bulb at an affordable price. Because of the unique cooling system, Switch light bulbs can be used in any orientation with no compromise to their 20,000 hour life (10-15 years). Based on a 75 watt-equivalent bulb used in a home for 5 hours a day, Switch has calculated energy savings of up to \$140.00 per bulb over its lifetime. The Switch LED bulbs use 85% less energy than incandescent bulbs and unlike compact fluorescents, they do not contain mercury. The purchase price payback in energy cost savings is realized in about one year. [www.switchlightbulbs.com](http://www.switchlightbulbs.com)

### High intensity SPNovaLED features RGB technology

DOMINANT Opto Technologies has expanded its SPNovaLED portfolio with

the launch of a high intensity SPNovaLED (NMRTB-WSG), a substitute for the currently available NMRTB-USD equipment. The LED's RGB technology enables individual use of chips in the housing to match and mix any specific color including white to offer uniform distribution of light. The LED has a standard luminous intensity of 4000 mcd for blue, 12,000 mcd for true green and 9000 mcd for red at an operating current of 250 mA. Low thermal resistance of the package and silicone encapsulation enhance the operating life of the RGB SPNovaLED. [www.dominant-semi.com](http://www.dominant-semi.com)

### Elemental LED introduces new LED dimmer technology

Elemental LED released two new 12V LED dimmer products. The new Reign Touch LED dimmer houses a touch-sensitive aluminum pad that provides the user with a flexible, dynamic interface to dim LED lights. This touch dimmer also features a discreet on/off toggle switch and a smooth dimming range, from 100% down to 0%, with no flickering, humming or jumping.

The new PWM (Pulse Width Modulation) Injector, also engineered by and manufactured exclusively for Elemental LED, doubles LED dimmer capacity. The PWM Injector makes it possible to draw an additional 60 watts out of an LED dimmer switch, allowing users to attach twice as many dimmable LED lights to the same switch. The PWM Injector works with all of the Reign LED Dimmer Switches, including the Touch Dimmer. [www.elementaled.com](http://www.elementaled.com)

### AnalogicTech's new LED backlight drivers

The new AAT14XX family of 31 mA step-up single-channel LED drivers are capable of driving up to 10 LEDs in a single string while their small size and quiet operation make them ideal LED backlight solutions for single-cell lithium-ion-battery-based equipment, such as mobile and smart phones, MP3 players, portable media players and portable GPS devices. The AAT14XX family enables larger displays, allows higher efficiencies and offers filtered pulse-width modulation (PWM) dimming to eliminate interference with the radios in cell phones and other handheld devices. With a 1.15 x 1.55 mm wafer-level chip scale package (WLCSP) size, the devices require only 0.7 cm<sup>2</sup> of space on a printed circuit board, making them one of the smallest solutions available. [www.analogictech.com](http://www.analogictech.com)