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LED market ready for accelerated growth in lighting, display backlights and automotive applications

The LED market reached \$4.2 billion in 2006 and is set to emerge from its current state of low growth, according to Strategies Unlimited. Emerging applications including illumination will drive the market towards \$9 billion by 2011, as Tim Whitaker reports.

COMPANY PROFILE **10**

OSRAM Opto Semiconductors: Specialist in semiconductor technology

OSRAM Opto Semiconductors stimulates the semiconductor market with innovative products such as OSTAR Lighting. Along with its engagement in R&D, the company has launched an Internet platform – “LED Light for you” – to provide an international competence network for LED solutions.

COMPANY PROFILE **22**

EBV Elektronik: Let there be light

An EBV team of lighting specialists supports LED technology in general lighting applications.

COMPANY PROFILE **WEBSITE**

Flomerics Inc.: Thermal simulation software and services

Flomerics has a system that provides combined thermal and radiometric/photometric characterization of high-power LEDs.

COMPANY PROFILE **WEBSITE**

Khatod Optoelectronic: We manufacture solutions

Khatod has developed No Joint Construction technology for manufacturing secondary optics for all major LED brands.

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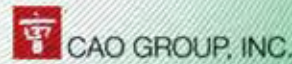
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LED market ready for accelerated growth in lighting, display backlights and automotive applications

The LED market reached \$4.2 billion in 2006 and is set to emerge from its current state of low growth, according to Strategies Unlimited. Emerging applications including illumination will drive the market towards \$9 billion by 2011, as **Tim Whitaker** reports.

Growth in the high-brightness LED market in the next 3–5 years will be driven by lighting, display backlighting and automotive applications, and the overall market will reach \$9 billion by 2011, according to the market research firm Strategies Unlimited.

Presenting his annual market review and forecast at the Strategies in Light conference in early February, Strategies Unlimited’s Bob Steele said that the market will begin to move away from its current low-growth phase in the next 1–3 years, as new markets begin to emerge.

Steele said that the overall LED market grew by 6% year-on-year in 2006 to reach \$4.2 billion. A similar rate of growth was seen between 2004 and 2005. Total LED shipments exceeded 30 billion units in 2006, having been less than 20 billion units in 2004.

However, between 2001 and 2004, the market grew by an average of 44% annually (see figure 1). The key influence on these growth patterns is the mobile appliance segment, which continues to be the largest single application, constituting 48% of the market in 2006. This figure is down from the 57% share seen in 2004, when LED sales for mobile phones reached a peak.

Specifically, the decline in average selling prices (ASPs) for LEDs used in mobile phones is the major cause for the current slow growth rate in the overall LED market. If sales of LEDs for mobile phones are removed (but other mobile appliances such as PDAs and MP3 players are still included), the overall market shows steady and healthy growth of 22% annually between 2001 and 2006.

Figure 2 shows the 2006 market by application, and reveals that automotive (15%) and signs & displays (14%) were the largest market segments after mobile appliances. Illumination still only accounts for 5% of the overall LED market, or just over \$200 million, but this segment is expected to grow to \$1 billion by 2011.

Strategies Unlimited analyzes the market in terms of packaged

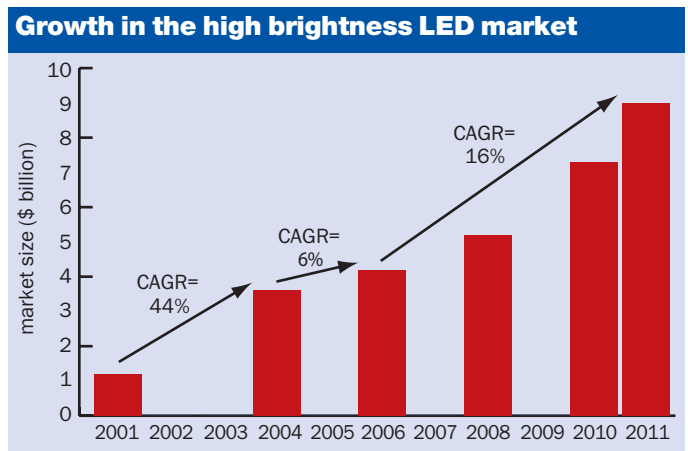


Fig. 1. The LED market grew by 6% in 2006, but accelerated growth is expected as new applications start to have a stronger influence.

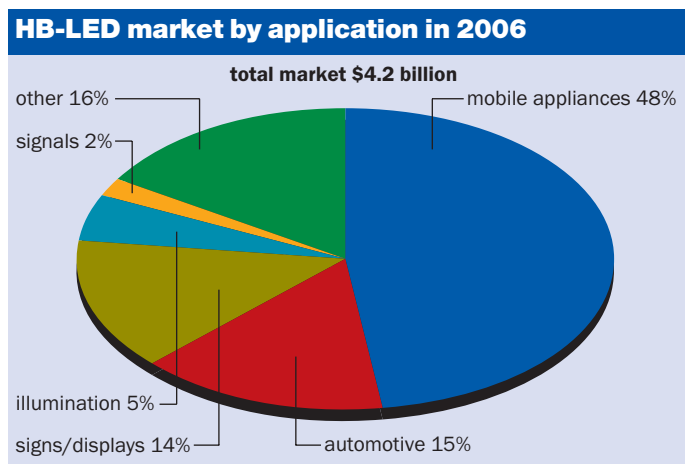


Fig. 2. Mobile appliances remains the dominant segment of the LED market, but illumination is the fastest growing application.

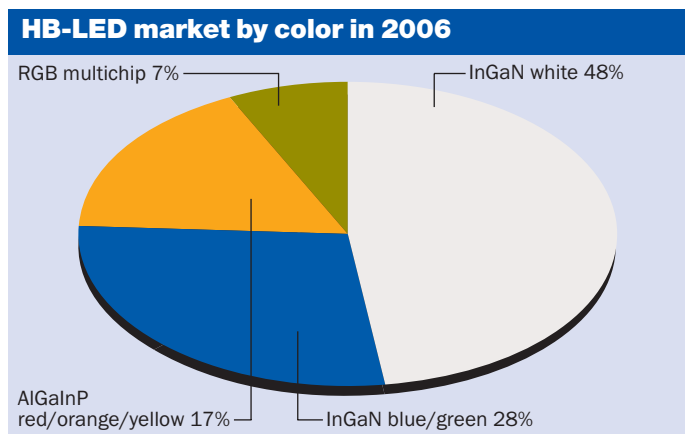


Fig. 3. InGaN-based devices accounted for more than 75% of the overall HB LED market in 2006, with white having the largest share.

devices, including standard, high-current, multichip and high-power packages, and focuses exclusively on high-brightness LEDs. The market remains dominated by “standard” HB LEDs with a typical drive current of 20 mA. However, the power LED segment, with drive currents of 150 mA to 1000 mA and higher (broadly corresponding to 0.5 W and above), has exhibited extremely strong growth of 48% per year between 2004 and 2006.

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LEDs in mobile appliances

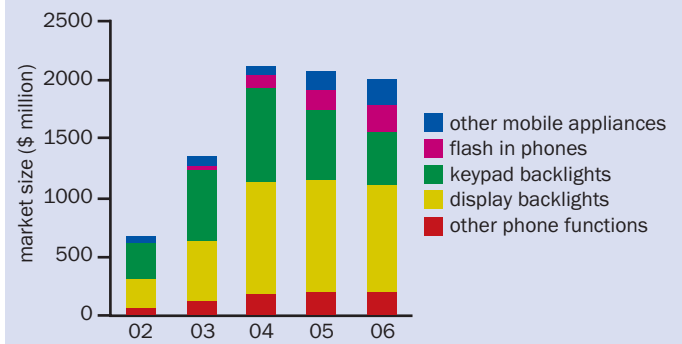


Fig. 4. The decline in the mobile-phone market has been offset by demand for LED flash and growth in other mobile appliances.

In terms of color, InGaN-based white LEDs dominate the market with a 48% share, and InGaN-based blue and green accounts for a further 28%. AlGaInP red, orange and yellow came in at 17% and RGB multichip packages reached 7% of the total (see figure 3).

While overall LED shipments grew by 29% per year from 2004 to 2006, the overall ASP for all types of LEDs fell by 18% per year to around 13 cents (of course, power LEDs and many other types have considerably higher prices).

Mobile appliances

While mobile phone shipments grew by 22% to exceed 1 billion units in 2006, declining ASPs for LEDs saw a fall in the value of the mobile-phone LED segment. This has been offset to some extent by increasing adoption of LED flash in phones, as well as the growing use of LEDs in other portable appliances (see figure 4). Even so, Steele estimated that the average LED content per phone peaked at about \$3.00 in 2004, and will probably be close to \$1.50 in 2007.

Steele identified trends in the phone market such as continuing pricing pressure from Taiwan-based suppliers of keypad LEDs. Also Nichia, the dominant supplier of white LEDs for LCD display backlights in phones, cut its prices in 2006 to maintain market share and, said Steele, has been “using its IP clout to discourage competition”.

LEDs also face competition; OLEDs have already made significant inroads into secondary displays in phones, replacing LCDs backlit using LEDs. A low-end Motorola handset, the Motophone, has a monochrome text-only display using electrophoretic or “electronic paper” technology. Motorola has also been at the forefront of using electroluminescent (EL) materials in keypads, and has sold more than 75 million RAZR and KRZR units since 2004 (for more information, see “LEDs in mobile handsets face competition and shift in emphasis”, *LEDs Magazine*, February 2006, www.ledsmagazine.com/features/3/2/3).

Outside the mobile phone market, other mobile appliances such as digital cameras, MP3 players, PDAs and portable game players are now significant consumers of LEDs, in particular white LEDs for LCD backlighting. A total of 260 million mobile appliances were sold in 2006, compared with 1 billion phones, and this market will have growing importance, said Steele. His analysis treats mobile appliances, including laptops with screen sizes up to 17-inch diagonal separately from larger LCD monitors and TVs.

Smaller LCDs in the 5–10 inch range began to use white LED backlights in 2006, in equipment such as portable DVD players and in-vehicle navigation units. Cost is more of an issue than efficiency, so LEDs are used with the same packages as in mobile-phone backlights,

MARKETS

and the highest possible performance is not required.

In the 10–17 inch range, laptop displays have tremendous potential for LED penetration. Unit shipments of laptops are at 80 million and growing. Some models with LED backlights were introduced in 2005 and more are expected in 2007, including models from Apple and HP. For laptops, the highest performing white side-view LEDs (1700 mcd and above) are required; efficiency, which directly affects battery life, is the primary driver. The slim profile enabled by replacing CCFL backlights with LEDs is also highly important for consumers.

Signs & displays

There is continuing strong growth in demand for large LED screens in existing applications including outdoor stadiums, concerts and other events, and shopping malls, for example. In terms of area, the large-screen market is growing at 25–30% per year. Newer applications including advertising billboards are starting to emerge, but LED screens still have issues with color shifting and long-term degradation. Another issue is the high cost of renting shared billboard space. Also, LEDs are not the only game in town for electronic billboards and are challenged by technologies such as electronic ink, which is full-color but not emissive, and even LCDs for smaller screens.

The big potential growth area within signs & displays is backlighting of large LCD panels, and to a much lesser extent the use of LEDs as light sources in projection systems. Samsung has taken a lead with the introduction of several LED-backlit LCD panels during 2006, although all major manufacturers of LCD panels and TVs have LED backlight programs. The advantages of using LEDs are well recognized, but there remain many challenges. For example, the advantage enjoyed by LEDs with respect to better color reproduction is being narrowed by new CCFLs with a wider color gamut.

Steele said that LED costs are currently 2–3 times higher than the cost of CCFLs, and must be reduced to a 20–30% premium in order for the market to expand rapidly. Steele has moved out by one year the forecast for LED sales in this market due to slow progress last year, but this remains a key future market for LEDs.

Automotive lighting

LEDs continue to be widely adopted for instrument panel lighting in automotive interiors, with Europe reaching saturation and Japan catching up rapidly, while the US market continues to grow. Ambient and accent lighting has been introduced in many models, including lower priced vehicles such as the 2007 Saturn Aura or the 2008 Ford Focus (figure 5). Interior dome lights using white LEDs have also been seen in the last year.

Figure 6 shows the worldwide penetration of LED-based center high-mounted stop lamps (CHMSLs) which has now reached 43%. Rear stop/turn/tail lamps are expected to reach 10% penetration after a bumper year in 2006 that saw LEDs adopted in more than one million VW Passat and Honda Accord vehicles.

Audi has introduced daytime running lights (DRLs) using white LEDs but other car makers have been slow to follow. Regulations coming into force in 2009 in Europe may lead to some market acceleration. Meanwhile, both Lexus and Audi have models available this year that will feature LEDs for front lighting. The Lexus LS600h uses Nichia LEDs for low beam only, while the Audi R8 uses Lumileds LEDs for high and low beam, and Osram devices for the DRL.

Illumination

The market for solid-state lighting (SSL) was valued at \$205 million in 2006, and is the fastest growing segment of the HB LED market.

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Fig. 5. (Left) Automotive interior lighting in the 2008 Ford Focus. (Right) Retail display lighting using white LEDs, courtesy of NuaLight.

With growth of 38% per year, the SSL market is expected to reach \$1 billion by 2011. Architectural lighting is the largest SSL segment, and general illumination applications are now starting to emerge.

According to Steele, hundreds of companies are participating at the luminaire/fixture level, ranging from specialist LED start-ups to the world's largest lighting companies. Many large companies lack significant in-house expertise and rely on external design and prototyping resources. Lighting fixture volumes are low and costs are high, due to high tooling costs, in addition to the high cost of the LEDs themselves.

While many applications use RGB today, white will become much more prevalent and will account for 60% of the market by 2011. Steele has identified 10 significant near-term markets for SSL, including architectural, residential, retail, entertainment, safety, outdoor area, consumer portable and off-grid.

In retail lighting, LEDs offer different advantages in different situations. For high-end designer stores, LEDs can offer a high-tech look, design flexibility and interesting effects, while for cosmetics or food displays the lack of radiated heat is important (see figure 5). For jewelry, LEDs can create a sparkling effect, and the color temperature of the light can be chosen to complement the materials. Steele said that the SSL "story of the year" was Wal-Mart's adoption of SSL in its refrigerated display cases, driven by energy and maintenance savings and the much higher efficiency of LEDs, compared with fluorescents, at low temperatures.

The key opportunities identified by Steele for SSL include the creation of unique and aesthetically pleasing lighting environments that can be adapted to the needs of particular situations. LED-based approaches can deliver long-term value on a cost-of-ownership basis, but initial cost is often an issue. Also, while LEDs can be an energy-efficient solution,

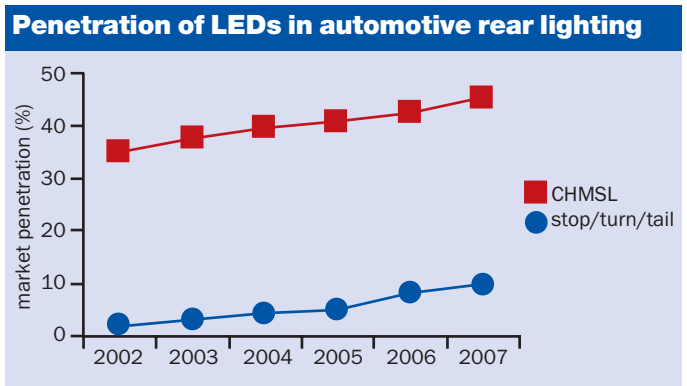


Fig. 6. On a worldwide basis, LED-based CHMSLs are heading towards 50% market penetration, while stop/turn/tail lamps should hit 10% in 2007.

competing technologies often present viable alternatives.

There are many other challenges for LEDs, including the need to provide a complete lighting solution with ease of installation, and the need to adapt to standard electrical interfaces and controls. Standards, improved color consistency and high-efficiency fixture designs are also required.

Further information

Strategies Unlimited (www.strategies-u.com) is a market research company based in Silicon Valley, California. Bob Steele will explain more about the illumination market for LEDs in an article to be published in the April issue of *LEDs Magazine*.



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OSRAM Opto Semiconductors: Specialist in semiconductor technology

OSRAM Opto Semiconductors stimulates the semiconductor market with innovative products such as OSTAR Lighting. Along with its engagement in research and development, the company has launched an Internet platform – “LED Light for you” – to provide an international competence network for LED solutions.



OSRAM's new OSTAR Lighting LED yields an output of 1000 lm.

Innovative products developed by OSRAM have proven that LEDs are now powerful enough to be used in many general lighting applications. The most recent example is OSTAR Lighting. With its new version, the semiconductor manufacturer presents its first cold-white LED to achieve more than 1000 lumen. This means this point light source is brighter than a 50 W halogen lamp, making it ideal for bright outdoor applications and for use as spotlight. The new LED light source is based on well established components, which means that progress from the development stage to the production stage will be rapid. Market launch is planned for summer 2007. The company draws its innovative strength from more than three decades of experience and extensive know-how in semiconductors, converter materials and packages.

Wide range of products

Along with high-power LEDs such as OSTAR Lighting, OSRAM Opto Semiconductors also produces other high-quality components for the dynamically growing opto semiconductor market. As the world's second largest manufacturer of optoelectronic semiconductor components, OSRAM provides a wide range of products including light sources for visible and invisible light, semiconductor laser diodes and organic light-emitting diodes (OLEDs), which are the focal point of research and development and are already used today for backlighting small displays.

LEDs from OSRAM are also used for architectural, street and automotive lighting applications. Other products available from OSRAM include small LEDs with an edge length of less than a millimeter, which are suitable for mobile device displays including PDAs, cameras and mobile radio equipment, and monochrome and multicolour LEDs for information panels and large-format displays. For projection applica-



LED Light for you provides a network of experienced partners.

tions, OSRAM will be using laser technology in addition to the LED solutions currently available. For a wide range of sensor applications, OSRAM offers infrared LEDs, laser diodes and detectors for the detection and recognition of objects and changes in the environment and to facilitate human perception of the surroundings. These are used in smoke detectors, speed control devices and other safety equipment.

A network of professional know-how

At www.ledlightforyou.com, OSRAM provides an international competence network for specialists to help them find competent advice in matters relating to optical systems, thermal protectors and electronics for their own lighting solutions using LED technology. “LED Light for you” (LLFY) also helps users find experienced partners to support them in realizing their projects by providing qualified help and advice.

All partners in the network have undergone a multistage certification process, as competence and reliability are key quality criteria for successful projects and a working relationship built on trust. Only after OSRAM has personally visited the applicant and the latter has passed the certification process, will the partner be accepted in the network and presented on the Internet platform. In addition to virtual networking, employees at the various companies involved also have the opportunity to establish personal contact at annual meetings, known as partner events. The network currently includes 29 certified partners worldwide.



LED Suppliers Guide

- Architectural Entertainment & Decorative Lighting
- Displays & Signs
- General Lighting
- Signals

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Advanced LEDs is a pioneering manufacturer and designer of LED and solar exterior lighting products. Formed in 2001, the company holds patents and works closely with its technology partners.

Advanced LEDs has concentrated on building fittings which enable the LED to operate as near to laboratory conditions as possible to achieve the maximum life expectancy. The extensive range includes high powered LED and solar lighting, covering all aspects of road lighting, floodlighting, high-power colour-change feature lighting, in ground and linear fittings.

Sustainable and renewable solutions to reduce CO₂ production have to be provided across all industries and Advanced LEDs has the definitive solution for road/amenity lighting. Our patent for solar-powered street lighting has led to the design of a sustainable solution for exterior lighting.

Advanced LEDs has worked on diverse projects such as integrating LEDs into street furniture, artworks and traffic products. A bespoke service for unique applications is available.



- Architectural Entertainment & Decorative Lighting
- Drivers & Control
- General Lighting
- LED Arrays & Light Engines

Allaeyes LED Instruments NV

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Allaeyes LED Instruments is a Belgian LED light-fitting manufacturer. We emphasize the achievement of satisfying lighting levels with a minimum quantity of high-power LEDs, this in monochrome or RGB colour changing configurations.

As well as a wide range of standard LED light fittings, Allaeyes LED Instruments offers custom-built LED lighting solutions. Allaeyes LED Instruments offers a complete LED lighting solution from hardware through to software, programming and commissioning.

Allaeyes LED Instruments develops and produces its own RGB current drives with efficiencies of up to 93%, this in 350 mA, as well as 700 mA current ratings. These drives can be operated by simple pushbuttons or by DMX512.



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- General Lighting
- LED Arrays & Light Engines
- Mobile Appliances
- Vehicle Lighting

AMA Precision Inc

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AMA Precision Inc is a thermal solution and high-power LED application provider. For market increasing demands in recent years, AMA has launched its business in providing reliable high-power-LED related thermal products and complete systems for LED vehicle lighting, LED illumination, LED displays, and many other high-brightness LED applications.

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- Mobile projector and projection systems
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Advanced Analogic Technologies Incorporated (AnalogicTech) supplies Total Power Management™ semiconductor solutions for mobile consumer electronic devices. AnalogicTech offers over 500 power management application-specific standard products and general-purpose analog ICs in four application areas:

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- Voltage regulators and DC/DC converters
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- Chip Design & Manufacturing

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Allegro MicroSystems, Inc.'s LED driver integrated circuit portfolio supports a wide range of applications including:

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- Projectors and projection TVs
- Segmented alphanumeric displays

- Automotive lighting
- Architectural, decorative, and entertainment lighting.

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- Vehicle Lighting

American Bright Optoelectronics Corp

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American Bright Optoelectronics Corporation opened as a US division of Bright LED Electronics Corporation in 1995. Today, the company is a leader in LED development, and a supplier to leading manufacturers.

Quality is central to the company's mission. American Bright offers the advantages of North American based sales and support, combined with state-of-the-art ISO and TS certified facilities located in mainland China.

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Together, the companies employ more than 2500 people worldwide. For more information about the company, visit www.americanbrightled.com, or e-mail the company at aboc@americanbrightled.com.



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- Medical, Industrial & Other
- Signals

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AP Technologies is responsible for sales and technical support of Opto Diode Corporation products in the UK and Ireland, offering LED solutions in the UV, visible and near infrared.

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- LED Arrays & Light Engines

Apcus Technologies

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Apcus Technologies™, an Advanced Photonics Company™ with our main LED and assembly manufacturing facilities in Shanghai, China, has a focused LED-based product line with superior core technology, service, quality, and on-time delivery.

Apcus Technologies is “where light lives™” from die, to packaging, ODM and OEM LED components, LED monochrome, two-color, video display panels, and LED cabinets, including a variety of innovative LED lighting products for many new and exciting applications.

Applications range from general lighting, indoor/outdoor displays, transportation, signalling and appliances. Our broad yet focused line of components allows one-stop LED shopping with full color and intensity matching capabilities.

Apcus LEDs offer high brightness, long life-time, and efficiency, at an excellent value. With the many colors available and multiple packaging options from Through-hole (THT) to Surface Mount (SMD), APCUS products are suitable for almost any lighting application where LEDs can be used to replace conventional light sources.



- Architectural Entertainment & Decorative Lighting
- Backlighting & Projection
- Displays & Signs
- Drivers & Control
- General Lighting
- LED Arrays & Light Engines
- LED Packages
- Medical, Industrial & Other
- Signals
- Vehicle Lighting

Binay Opto Electronics (P) Ltd

44 Armenian St, Kolkata, West Bengal 700001, India
Tel: +91-33-22102039
Fax: +91-33-22421493
E-mail: binay@vsnl.com
Web: binayled.com

We have over 25 years' experience in manufacturing LED-based signalling products. In the last 7 years we have also expanded with our LED architectural and illumination products. We are now focusing on LED white light illumination products. We also manufacture LEDs, including through-hole lamps, superflux LEDs, multichip COB LEDs, white power LEDs up to 10 & 20W.

- Packaging & Optics

Breault Research Organisation

Tucson, Arizona, USA

- Backlighting & Projection
- Displays & Signs
- LED Arrays & Light Engines
- LED Packages
- Mobile Appliances
- Packaging & Optics
- Vehicle Lighting

Avago Technologies

Herrenberger Straße 130, Böblingen, D-71034, Germany
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Fax: +49 (0) 6441 / 92 46 46
E-mail: info@promotionteam.de
Web: www.avagotech.com

Avago Technologies is one of the largest producers of visible LEDs and offers discrete LEDs and total solutions for illumination and lighting applications: high-brightness, high-power LEDs, PLCC surface-mount LEDs, color sensors and display backlighting module solutions. Applications include electronic signs and signals, automotive, solid-state lighting and LCD display backlighting.

- Test & Measurement

Bentham Instruments Ltd

2 Boulton Road, Reading, Berkshire RG2 0NH, UK
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E-mail: sales@bentham.co.uk
Web: www.bentham.co.uk

Bentham has manufactured precision light and colour measurement instrumentation since 1975. We offer comprehensive solutions for measuring LEDs including highest precision double-monochromator spectroradiometers, fully-automated production testing and laboratory based equipment for measuring CIE averaged intensity, luminous flux and angular response. LED clusters, UV and NIR devices can also be measured.



A Bright Future with Samsung LED Products



Mobile



Display



Automotive



Lighting

We care for nature and the future of the earth. We seek a prosperous future. LED technology is environmentally friendly and proven to be highly effective in saving energy in numerous applications. From Display to Lighting to Automotive, Samsung Electro-Mechanics creates a variety of products using LED technology.



Middle Power
-3228 R/G/B LED
-5252 R/G/B LED



Middle Power
-5252 Cool white LED
-5252 Warm white LED



High Power
-1W Warm White LED
-1W Cool White LED



High Power
-3W Warm White LED
-3W Cool White LED

www.sem.samsung.com

SAMSUNG
ELECTRO-MECHANICS



CONTACT • Martin Cho (martinch@samsung.com, 82-31-210-3537) in Korea
• Sang Bum Byun (sbbyun@samsung.com, 1-949-797-8054) in Americas

- Architectural Entertainment & Decorative Lighting
- Backlighting & Projection
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- LED Arrays & Light Engines
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- LED Packages
- Medical, Industrial & Other
- Mobile Appliances
- Packaging & Optics
- Signals
- Vehicle Lighting

Arrow Electronics, Inc.

7459 S. Lima Street, Englewood, CO 80112, USA
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E-mail: lightingsolutions@arrow.com
Web: lighting.arrow.com

Arrow's Lighting Group is dedicated to making bright ideas brilliant by providing LED alternatives to incandescent, halogen and fluorescent lighting. Our focus is on providing a wide range of solutions from individual components to total systems that deliver high reliability, lighting efficiency, shock resistance, and vivid color effects for a lower total cost of ownership.

We offer solutions containing high brightness light emitting diodes (HB-LEDs) to support all your solid-state design needs. Whether you need solutions for signage, flashlights, architectural, commercial, automotive, or backlighting, Arrow offers real-world components, solutions and value-added assemblies. Arrow's extensive line card, unsurpassed supply chain management and design services, and experienced technical team can help you develop the perfect solution for even the most challenging lighting applications.



ARROW ELECTRONICS, INC.

- Packaging & Optics

Asymtek

2762 Loker Ave. West, Carlsbad, CA 92010, USA
Tel: +1 760-431-1919
Fax: +1 760-431-2678
E-mail: info@asymtek.com
Web: asymtek.com

Dispensing equipment from Asymtek can perform a wide variety of dispensing for manufacturing LED devices. Jetting technology, pioneered by Asymtek, offers several advantages over traditional needle-based dispensing. In some cases, only jetting can perform the operation, making it an enabling technology.

Phosphor dispersions in silicone represent a particular challenge, because of the very short pot life and the tendency of the phosphor to settle. Asymtek has partnered with fluid suppliers to provide a solution to this application and several others specific to the thermal and optical requirements of advanced LED manufacturing. Asymtek's Mass Flow Calibration is particularly beneficial for dispensing fluids with short pot lives. Asymtek equipment performs these applications during LED assembly today:

- Underfill
- Thermally conductive adhesive
- Conformal Coating (using traditional materials for environmental protection as well as for anti-reflective coatings)
- Silicone and epoxy encapsulation
- Flux jetting
- Solder paste dispensing
- Die bonding and lead-free interconnection



- Architectural Entertainment & Decorative Lighting
- Backlighting & Projection
- Displays & Signs
- Drivers & Control
- General Lighting
- Signals
- Vehicle Lighting

ATG Electronics Inc

Huafeng Industrial Park, Bldg. C2, Hangcheng Avenue, Bao'an District, Shenzhen, China 518126
Tel: +86 21 5835 5963
Fax: +86 21 5835 5965
E-mail: sales@atgelectronics.com
Web: www.atgelectronics.com

ATG Electronics Inc, established in Shanghai in 1999 and formed partnerships with companies in California, designs, produces, distributes and licenses light emitting diode (LED) controllable digital decoration and illumination lighting systems.

With a strong R&D team and patented technologies, ATG Electronics provides customers with energy saving, highly efficient, long lifespan and environment-friendly benefits.

ATG Electronics produces a range of technology advanced products, including: LED flex strips and modules for signage lighting; LED message displays and moving signs for advertising lighting; LED rope lights, neon ropes, border lights, fluorescent lights and wall washers for architectural lighting; LED high-power lamps for illumination lighting; and power/control systems and software.

ATG Electronics also offers a comprehensive OEM service package including consulting, individual planning design and engineering, cost analysis, delivery terms prognostics, manufacturing, and warranty.

In addition, ATG Electronics licenses its patented technologies and provides technical support on project installation and system operation to create specific lighting effects for its customers throughout the world.



- Architectural Entertainment & Decorative Lighting
- Displays & Signs
- General Lighting
- LED Arrays & Light Engines

Brilliant Ltd

Unit 10, The Hollies, Shefford, Beds SG17 5BX, UK
Tel: +44 (0)1462 851653
Fax: +44 (0)1462 287608
E-mail: bobk@brilliant.co.uk
Web: www.Brilliant.co.uk

Brilliant develops and supplies novel lighting systems which exploit innovative optical diffusion technology, advanced low cost control electronics and the latest developments in high power LEDs to provide bright, low cost, efficient and maintenance-free signage, display and specialist lighting applications. Brilliant supplies advanced solid-state lighting solutions from component modules and drivers through to complete internal display and external highlighting systems.

- LED Arrays & Light Engines
- LED Packages

Brite-LED Optoelectronics Inc.

Plant City, FL, USA

Not listed?

Please contact
joanna@ledsmagazine.com
 to be included next time.

- Backlighting & Projection
- LED Packages
- Mobile Appliances
- Vehicle Lighting

Citizen Electronics Co. Ltd

1-23-1, Kamikurechi, Fujiyoshida-shi, Fujiyoshida-shi, 403-0001, Japan
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Fax: +81-555-22-8794
E-mail: inquiry@mail.c-e.co.jp
Web: www.c-e.co.jp/e/

Citizen Electronics is one of the world's leading manufacturers of chip-LEDs for cellular phones, cameras, backlights for LCD panels, and as light sources for car instrument panels.

Citizen Electronics offers a wide variety of electronic devices, including the world's first one-package sub-miniature illuminated tactile switches, high-sensitivity sensors and acoustic products.

High power white LED "Orion" for general purpose lighting.

Hot and Bright.

Get 300°C With Vectra® LCP. The Future Of LED Housings Is Here.

High-brightness LED housings typically endure temperatures up to 260°C or more during lead-free reflow soldering. But **Vectra® LCP** from Ticona takes the heat, providing a distortion temperature under load (DTUL) well above 300°C.

Vectra LCP shines in high-brightness LED housing applications with superior properties that include:

- High temperature resistance (short-term up to 340°C)
- High-flow characteristics to fill long, thin and complicated flow paths
- Extremely fast cycle times over long production runs
- Very high HDT and low CTE
- Low outgassing

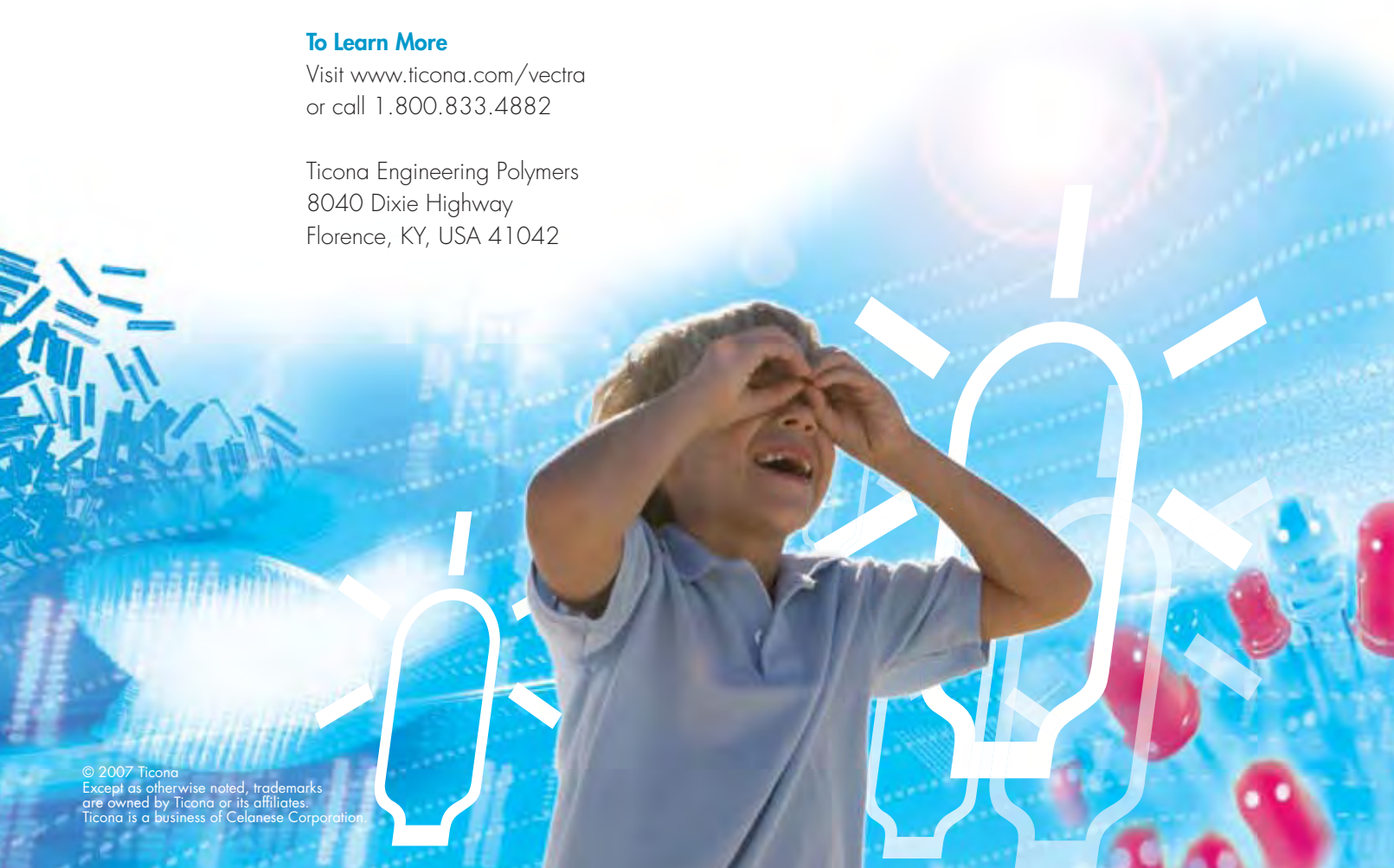
Ticona supports LED manufacturers with product development, superior technical services, molding expertise and beyond. Envision the future of your LED housings with **Vectra LCP** from Ticona.

Now that's hot and bright.

To Learn More

Visit www.ticona.com/vectra
or call 1.800.833.4882

Ticona Engineering Polymers
8040 Dixie Highway
Florence, KY, USA 41042



- Chip Design & Manufacturing
- LED Chips

Bandwidth Semiconductor

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E-mail: sales@bandwidthsemi.com

Web: www.Bandwidthsemi.com

Bandwidth Semiconductor provides III-V, II-VI and GaAs on Silicon epitaxial growth services and device foundry services. Bandwidth operates out of a state of the art semiconductor facility located in Hudson, NH. The facility is equipped with the most advanced MOCVD and process fabrication tools. Bandwidth employs a team of highly skilled professionals each with a specialized background in a variety of semiconductor processes and device technology. Bandwidth Semiconductor has been designing and manufacturing custom LEDs for many years, for a variety of applications including medical, automotive and commercial. Bandwidth continues to make investments in state-of-the-art equipment and has recently added two Veeco multi-wafer reactors model E450 LDM. We have also just announced the availability of Zinc and Boron diffusion and have scaled up our production of GaAs on Silicon.



- Packaging & Optics

The Bergquist Company

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Web: www.bergquistcompany.com

Bergquist supplies the world with some of the best-known brands in the business: Sil-Pad[®] thermally-conductive interface materials, Gap Pad[®] electrically insulating and non-insulating gap fillers, Hi-Flow[®] phase change grease replacement materials, Bond-Ply[™] thermally-conductive adhesive tapes, and Thermal Clad[®] insulated metal substrates.

In high-brightness LED applications, light output and long life are directly attributable to how well the LEDs are managed thermally.

Thermal Clad is an excellent solution for designers. Because T-Clad is a metal based material, it can be configured for special shapes, bends, and thicknesses thus allowing the designer to put high-brightness LED lamps in virtually any application.

Mounting high-brightness LEDs on T-Clad assures the lowest possible operating temperatures and maximum brightness, color and life.



- Architectural Entertainment & Decorative Lighting
- Displays & Signs
- General Lighting
- LED Arrays & Light Engines
- LED Packages
- Medical, Industrial & Other
- Signals
- Vehicle Lighting

CAO Group Inc

4628 West Skyhawk Drive, West Jordan, Utah 84084, USA

Tel: 801 256 9282

Fax: 801 256 9287

E-mail: info@caogroup.com

Web: www.caogroup.com

CAO Group Inc, under the direction of owner, president and CEO Dr Densen Cao, offers design, integration and manufacturing of medical, dental, and forensic devices, optoelectronic components, signage, and lighting products. Corporate headquarters, R&D and medical/dental manufacturing facilities, which are ISO 13485 certified, are in West Jordan (Salt Lake City) UT.

Detailed information about CAO Group and its products is at www.caogroup.com.



- Architectural Entertainment & Decorative Lighting
- Displays & Signs
- Drivers & Control
- LED Arrays & Light Engines

Clarity Lighting Ltd

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Tel: +44 (0)870 116 1033

Fax: +44 (0)870 116 1044

E-mail: mail@claritylighting.com

Web: www.claritylighting.com

Specialists in LED Technology, contemporary lighting solutions and lighting specification and design. Leading innovation with range of standard solutions, encompassing drivers, light engines and optics. Bespoke LED lighting design, manufacturing and installation specialists.

- Architectural Entertainment & Decorative Lighting
- Displays & Signs
- Drivers & Control
- General Lighting
- LED Arrays & Light Engines

Color Kinetics

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E-mail: info@colorkinetics.com

Web: www.colorkinetics.com

Color Kinetics is a leading innovator of LED lighting systems and technologies that create effects from subtle to spectacular in thousands of installations worldwide. The company offers complete systems for both color and white light, including versatile fixtures, controllers, power/data supplies and accessories that accommodate wide-ranging applications.

- Vehicle Lighting

Concept Design Lighting

PO Box 873183, Canton, MI 48188, USA

Tel: +1 734 495 0095

Fax: +1 734 495 3586

E-mail: lighting@conceptdesignlighting.com

Web: www.conceptdesignlighting.com

Robert Miller, former owner of BrightLights Technologies, LLC. and now Concept Design Lighting has successfully designed and delivered over 125 advanced lighting programs and completed more than 24 complete automotive concept vehicles over the last 10 years. Along with his automotive lighting design experience, he has successfully created many other innovative lighting products from flashlights to track lighting utilizing advanced LED technologies. Currently working as a consultant, he is actively involved in many new programs that push his lighting experience to the next level for his customers.

- Architectural Entertainment & Decorative Lighting
- Displays & Signs
- Drivers & Control
- General Lighting

Cooper Lighting & Security

Wheatley Hall Road, Doncaster, South Yorkshire DN2 4NB, UK

Tel: +44 (0)1302 303303

Fax: +44 (0)1302 367155

E-mail: sales@cooper-ls.com

Web: www.cooper-ls.com

The Crompton Lighting brand is well known in the commercial lighting sector, while Menvier and JSB are market leaders in emergency lighting as well as having a strong position in the market for fire-detection equipment. A fourth brand, Axent, was launched in 2007 to focus on the market for architectural and display LED lighting.

- Test & Measurement

Crangem EMC & Safety

Shropshire, UK

- Backlighting & Projection ● Mobile Appliances
- Packaging & Optics ● Vehicle Lighting

Carclo Technical Plastics (Slough)

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Fax: +44 1753 811359
E-mail: sales@carclo-optics.com
Web: www.carclo-optics.com

Carclo Technical Plastics designs, moulds and markets optical, plastic components for a variety of industries encompassing, LED optics, automotive, medical, telecommunications and low-vision magnifiers.



CTP has always been at the leading edge of optical technology since 1936: such development has seen them placed at the forefront of its class. CTP boasts unrivalled expertise in optical design and manufacture. It has its own optical design department with full CAD facility. Also specialist tooling, optical polishing capabilities experience in processes like protective coatings, printing and in-mould foil. Currently 57% of CTP turnover is for export and it is anticipated that this percentage will continue to grow.

High Power LED technology have lead CTP to develop a range of high efficiency Collimator Lenses and holders for all the popular LED package types.

Carclo-Optics is BS EN ISO 9001 accredited. We are the oldest plastic lens manufacturer in the world.



- Architectural Entertainment & Decorative Lighting ● Drivers & Control ● General Lighting
- LED Arrays & Light Engines ● LED Packages

Color Stars, Inc.

10F, No. 566 Jung Jeng Rd., Sindian City, Taipei County 231, Taiwan
Tel: +886 2 8667 6600
Fax: +886 2 8667 1400
E-mail: sales@colorstars.com
Web: www.colorstars.com

Since the establishment of Color Stars, Inc. in 2002, the company has emerged as a leader and the most vertically integrated in the world in solid-state lighting (SSL). The company's LED lighting application development activity ranges from lighting fixture design to optical lens and heat management, from color-changing control systems to multiple-chip RGB packaging, and from white and warm-white LED packaging to special packaging methods designed for general lighting applications.

ColorStars® lighting systems, light sources and luminaires are now exported to over 33 countries for general consumer and professional lighting applications. These include the Galaxy System™ and TriStar® Series products, and the recently launched EZ Star™, GemStar™ and Star-Stream™ products. Color Stars manufactures color-changing controllers, such as the TriStar® IR Remote Controller and PAVO™-32 Controller and LED drivers.

Color Stars, Inc. is a part of the ColorStars Group with headquarters in Bay City, Michigan, USA and operations in Taipei, Taiwan.



- General Lighting ● LED Arrays & Light Engines
- Packaging & Optics

Cooler Master

Werner-von-Siemens-Str. 6, Geb. 10B, Augsburg, Bayern 86159, Germany
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Tel: +49 821 5886411
Fax: +49 821 5886413
E-mail: led@coolermaster.de
Web: eccd.coolermaster.com

Cooler Master is a global leader in thermal management and provides standard and custom heat sinks for various high-power LED applications. To provide the innovative heat sink products and thermal technology, Cooler Master has established



elite R&D teams composed of outstanding engineers, many with advanced degrees and with backgrounds in thermal materials and mechanical engineering, providing specialized expertise in fields of thermal solution for high-power LEDs.

In the industry lighting area, Cooler Master is well experienced in developing thermal solutions for diverse signalling devices, like strobe lights, signalling lights and obstruction lights.

For general lighting, Cooler Master supports the Standard MR16 Spot Light which is available with GU5.3, GU10 and E27 sockets. A key feature of the Cooler Master standard products is that you can customize them.



- Architectural Entertainment & Decorative Lighting ● Drivers & Control ● General Lighting
- LED Arrays & Light Engines ● Signals ● Vehicle Lighting

Dialight

South Farmingdale, NJ, USA

- Architectural Entertainment & Decorative Lighting ● Displays & Signs ● Drivers & Control
- General Lighting ● LED Arrays & Light Engines

DigitalLight AG

Gewerbepark Birkenhain 9/b, Freigericht, 63579 Germany
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E-mail: info@digitallicht.de
Web: www.digitallicht.de

DigitalLight AG is a developer and manufacturer of custom-made LED Lightsystems and LED Controlsystems for architectural and artistic projects.

- Architectural Entertainment & Decorative Lighting ● General Lighting ● Medical, Industrial & Other ● Signals ● Vehicle Lighting

Dipl.-Ing. Juergen Kanz – Beratender Ingenieur

Bad Muender, Germany

- Medical, Industrial & Other ● Packaging & Optics

DYMAX Corporation

Torrington, CT, USA

- Packaging & Optics ● Test & Measurement

ECIE Engineering srl

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Fax: +39 02 933007252
E-mail: info@ecieengineering.it
Web: www.ecieengineering.it

ECIE Engineering is a Nur Group company highly specialized in product development, offering optical,

electronic and mechanical design and test and quality certification services for LED-based products. Since 1991 it has developed more than 200 new products with 50 patents in automotive and general lighting.

- Architectural Entertainment & Decorative Lighting ● Displays & Signs

Element Labs

9421 Neils Thompson Drive, Austin, Texas 78758, USA
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E-mail: info@elementlabs.com
Web: www.elementlabs.com

Element Labs is a global designer and manufacturer of innovative LED lighting products for applications ranging from entertainment lighting to architectural lighting to signage. Element Labs has offices in America and Europe.

- Architectural Entertainment & Decorative Lighting
- Backlighting & Projection
- Displays & Signs
- LED Arrays & Light Engines
- LED Packages
- Mobile Appliances
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- Vehicle Lighting

COTCO International Ltd

6/F, Photonics Centre, No. 2, Science Park East Avenue, Hong Kong Science Park, Shatin, Hong Kong
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COTCO International Ltd is one of the leading LED manufacturers in Asia Pacific. COTCO obtained the licence to adopt Cree's InGaN Nitride LEDs and patented phosphor conversion technology to manufacture white LEDs. All production plants in China have been awarded ISO 9001, ISO 14001 and ISO/TS 16949. With exceptional R&D resources and manufacturing capabilities, COTCO is able to engineer and design products to cater for the specific needs for an array of applications including full-color video screens, information signs, LCD TV backlights, traffic signals, automotive lighting and specialty lighting.



- Chip Design & Manufacturing
- LED Chips
- LED Packages

Cree, Inc.

4600 Silicon Drive, Durham, North Carolina 27703, USA
Tel: 919-313-5300
Fax: 919-313-5451
E-mail: xlampsales@cree.com
Web: www.cree.com/xlamp

A market-leading innovator and a pioneer in the development of solid-state lighting semiconductors and lighting LED devices, Cree is leading the LED lighting revolution, delivering high-performance LEDs for multiple indoor, outdoor and portable applications. Cree XLamp® LED products include a full range of warm and cool white as well as color LEDs for brighter, more efficient light in general illumination.

Cree XLamp LEDs deliver the performance required to address new general lighting applications such as home and office lighting, streetlights and garage lighting as well as consumer applications such as flashlights. XLamp LEDs are leading the way for lighting designers to create more flexible, long-lasting and energy-efficient lighting systems.

Cree, the Cree logo and XLamp are registered trademarks of Cree Inc.



- Packaging & Optics

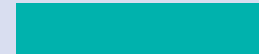
Dow Corning Corporation

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Web: www.dowcorning.com/LED

Dow Corning Corporation is a globally integrated provider of materials, application technology and services, and is focused on providing innovative technology for all segments of the electronics industry. Dow Corning Corporation was formed in 1943 in Midland, MI, USA. It is equally owned by The Dow Chemical Company and Corning Incorporated. More than half of Dow Corning Corporation's sales are outside the USA.

Dow Corning® brand LED solutions range from optical grades to potting & thermal conductive grades to serve a fully integrated LED market from packaging to assembly, providing: excellent protection from high-temperature conditions, enhanced optical properties; good UV stability; improving reliability; lead-free solder processability; optimized heat transfer capability. Typical applications include: LED chip protection materials like gel and encapsulants; LED lens; LED outdoor billboard protection material; LED back-lighting system heat-transfer materials; LED light guides.

DOW CORNING



- Architectural Entertainment & Decorative Lighting
- Displays & Signs
- Signals

Energy Bright Ltd

Flat C 17F No. 682 Shanghai Street, Kowloon, Hong Kong
Tel: +852 23802800
E-mail: judy@energy-bright.com
Web: www.energy-bright.com

Energy Bright carries LED lamps, Superflux, High power LEDs, SMD LEDs ribbon, MR-16, GU-10, PAR38, LED arrays & light bars, ball bulbs, RGB Superflux module & tubes, high power projectors, underwater projectors, flexible LED rope lights, flash lights & decoration lights.

- LED Arrays & Light Engines
- LED Packages
- Packaging & Optics

Enfis Ltd

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Fax: +44 (0)1792 485537
E-mail: info@enfis.com
Web: www.enfis.com

Enfis is a leader in the design and manufacture of smart multi watt, multi wavelength plug-and-play ultra bright LED light engines. Our products include

the UNO Array and the Quattro Array and can be integrated into applications for numerous uses, particularly in entertainment/architectural and retail lighting, and medical and industrial markets.

- Displays & Signs
- LED Arrays & Light Engines
- LED Chips
- LED Packages
- Medical, Industrial & Other
- Signals

Epiled

Wroclaw, Poland

- LED Chips

Epistar Corporation

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Fax: +886-3-5783080
E-mail: kevin_shih@epistar.com.tw
Web: www.epistar.com.tw

Epistar focuses on developing, manufacturing and marketing high brightness LED products. Applying its own proprietary MOVPE technology, Epistar has successfully commercialized the full spectrum range of high brightness LEDs, with the characteristics of compact size, low power consumption and long operation life.

- Architectural Entertainment & Decorative Lighting
- Displays & Signs
- Drivers & Control
- General Lighting

EREA

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Fax: +32 3 355 16 01
E-mail: sales@erea.be
Web: www.erea.eu

EREA Inc belongs to the Niko Group. You can find us in Wijnegem, nearby Antwerp. EREA has more than 60 years of experience in the design and production of transformers. Since 1998, we also offer LED-modules and drivers. Our strength is our approach as solution provider. EREA wants to contribute to an increase of comfort of our final customers at home and at work.

- Backlighting & Projection
- Displays & Signs
- LED Arrays & Light Engines
- LED Packages
- Mobile Appliances

Everlight Electronics

Taipei, Taiwan

efficiency experts

silicone suppliers

idea illuminators

global partners

design enablers

product developers

future inventors

team players

troubleshooters

profitability maximizers

brand enhancers

market expanders

possibility expanders

light increasers

opportunity creators

relationship builders



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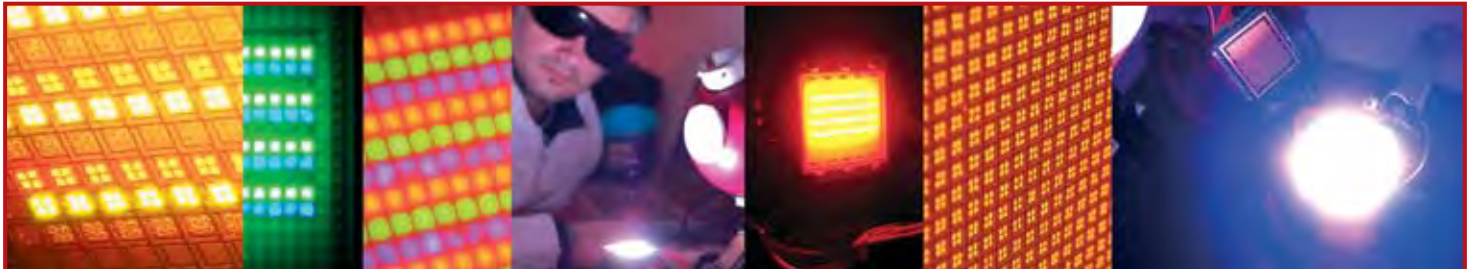
Lighting the way to advanced SILICONE materials and solutions

Dow Corning® brand LED solutions provide silicone materials, applications technology and equipment integration services around the world. Our optical, thermally conductive and encapsulant materials provide excellent benefits including increased light output, lead-free solder processability, UV and high temperature stability. *Dow Corning* LED materials provide improved light performance in LED chips, thermal transfer in LED BLU systems and environmental protection for large LED signs. Please visit www.dowcorning.com/LED for more information.

Electronics
Solutions

DOW CORNING

We help you invent the future.™



SMART MULTI-WATT PLUG-AND-PLAY LED LIGHT ENGINES

QUATTRO and UNO: two ranges of multi-wavelength light engines covering UV, visible (including white) and NIR.

Applications:

- Architectural Lighting
- LCD Backlighting
- Projectors and Displays
- Medical, Dental and Healthcare Lighting Applications
- Forensic Science and Security
- Non-Destructive Testing (NDT)
- Curing of Polymers and Resins
- Entertainment Lighting
- Task Lighting



**The QUATTRO
Light Engine**

- RGBA Colour Mix
- Smart array
- 16cm² emitting area
- Up to 200W



**The UNO
Light Engine**

- 0.5cm² emitting area
- Up to 36W

ENFIS

ENFIS LIMITED
TECHNIUM 2, KING'S ROAD
SWANSEA WATERFRONT
SWANSEA SA1 8PJ UK

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New Citizen White LEDs deliver more light with less power!

These new white LEDs are the brightest ever, with the most lumens/watt.

Whether you are designing a new fixture or updating a classic, these new high-efficiency Citizen LEDs offer high performance and design flexibility, to give you an edge. Efficiency is greater than many fluorescents, and other LEDs. Lead-free and environmentally friendly.



New CL-652S offers 85lm (70lm/watt)



The Orion offers trend-setting brightness with unheard of efficiency. Luminous Flux: cool white is 85lm (70lm/watt). Warm white model is 57lm (47lm/watt). Draws 1.2 watts. Configure as 8 junctions in series for just 44mA or in parallel for 350mA. 14x14mm.

New CL-L100 ultra-flat, 245lm LEDs (70lm/watt)



The CL-L100 packs a super luminance flux of 245lm with high efficiency. Space-saving thin package releases flat, well dispersed illumination. Power consumption is 3.5 watts. 50x7mm.

CITIZEN ELECTRONICS CO., LTD.

CITIZEN
Micro HumanTech

For Specification <http://www.c-e.co.jp/e/> **For Sample Request** inquiry@mail.c-e.co.jp

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- Displays & Signs
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- General Lighting
- LED Arrays & Light Engines
- LED Chips
- LED Packages
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- Vehicle Lighting

EBV Elektronik GmbH & Co.KG

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EBV Elektronik, an Avnet (NYSE:AVT) company, was founded in 1969 and is the leading specialist in European semiconductor distribution. EBV maintains its successful strategy of personal commitment to customers and excellent services. 240 Technical Sales Specialists provide a strong focus on a selected group of long-term manufacturing partners. 110 continuously trained Application Specialists offer extensive application know-how and design expertise. Warehouse operations, complete logistics solutions and value-added services such as programming, taping & reeling and laser marking are fulfilled by Avnet Logistics, EBV's logistical backbone and Europe's largest service centre. EBV operates from 56 offices in 27 countries throughout EMEA (Europe – Middle East – Africa). More information about EBV Elektronik under www.ebv.com.



- Architectural Entertainment & Decorative Lighting
- General Lighting

EcoLEDLighting Ltd

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UK design and manufacturing company EcoLEDLighting has reduced the heat output of its MR16 replacement luminaires by 75% to produce a Part L compliant, recyclable, unbreakable, low-maintenance unit, guaranteed for 6 years. The 12W MR16 replacement is comparable to a 55W dichroic/halogen unit and is fully dimmable. They are available in four different beam angles and in white or warm white.

EcoLEDLighting also offer 9W (35W comparative) and 16W (80W) LED lights and are available as downlighters or individual directional spotlights, together with emergency battery backup options.

Also available is an Emergency Handrail/ Stairway LED lighting solution, a self-contained mains-powered system with battery backup lighting, enclosed within the balustrade/handrail assembly. The lights are always on, enhancing ambient light, and dim to 30–50% for at least 4 hours in a power-off situation.

EcoLEDLighting has 22 years cutting-edge LED lighting technology, design and implementation experience in the commercial and military aerospace industry.



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Edison Opto Corporation

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Recently introduced its ultra high power 100 Watt EdiStar, an achievement of Edison Opto's true innovation in R&D with Taiwan Government sponsorship, Edison Opto Corporation is a leading power LED manufacturer.

The company is composed of innovation enthusiastic people proficient in opto-electronics. We keep challenging the limitation in all aspects to create the ideal products for all applications in Solid-State Lighting.

Edison Opto's latest Edixeon KLC8 high power LED series perfectly utilize its advanced eutectic manufacturing process with Cree Inc.'s sophisticated EZBright 1000 chip, resulting in an extremely high luminous flux of 250 lumens at a drive current of 1,000 mA.

With accomplishment in R&D, we wish to transform our expertise in LED technology to fashion applications that will not only enrich our lifestyle but also promote a better living environment for the globe community.



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- LED Chips
- LED Packages
- Vehicle Lighting

E Wave Corporation

London, UK

- LED Arrays & Light Engines
- Packaging & Optics
- Test & Measurement

Flomerics Ltd

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Flomerics Group is a market leader for test equipment (chip, package and power LED characterization) and virtual prototyping for electronics (thermal simulation of conduction, convection and radiation). With its numerical, physical and engineering expertise Flomerics represents a qualified partner for Osram's "LED Light for you" Competence Group.



- Backlighting & Projection
- LED Arrays & Light Engines
- Packaging & Optics

Foreal Spectrum

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Fax: +1 408 436 5557
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Web: www.ForealSpectrum.com

LED illumination engines & color/polarization management modules: very efficient light extraction/ collection and coupling onto the screen for cost-effective displays, rear projection TVs (RPTV), and mini-projectors.

Foreal makes all of the individual elements and seamlessly integrates them:

- Mechanics
- Modules/Subsystems
- Electronics/Drivers
- Thermal Management

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Forge Europa

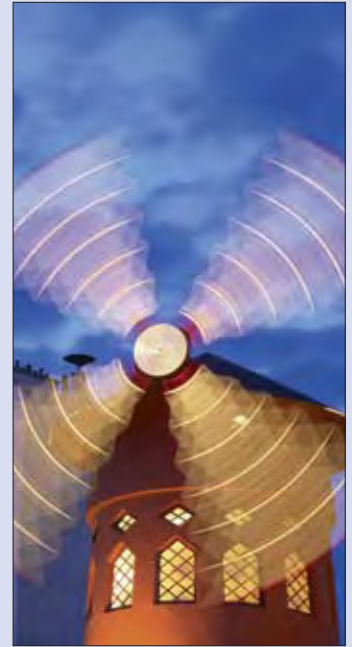
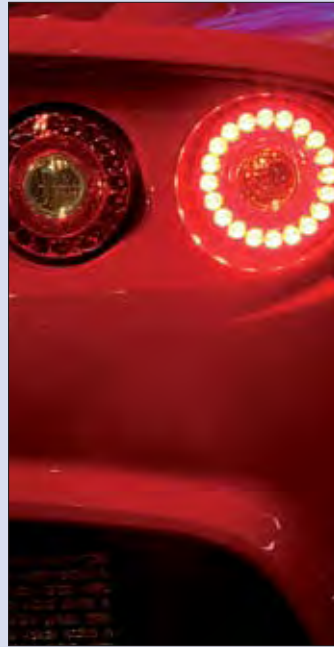
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Innovative designers and manufacturers of high power LEDs, aLED lighting assemblies, high performance LEDs, white LEDs, seven segment and dot matrix displays, backlights, through hole LEDs, SLEDs (LED bulb replacements), switch top illumination, and QuadriLED 4-pin square RGB LEDs. Forge Europa specialises in LED custom design, technical support and customer service.

- General Lighting

Gallium Lighting

Fayetteville, GA, USA



EBV Elektronik: Let there be light

An EBV team of lighting specialists supports LED technology in general lighting applications.

With LEDs, lighting designers benefit from a new-found freedom, as LEDs enable them to realize a new world of lighting that can change our daily lives and our environment as well as meet the practical requirements of a service life of up to 100 000 hours. LED lighting is simple and “in”. Having spotted the enormous potential of LED technology for applications in lighting technology, EBV Elektronik has set up a special General Lighting Competence Team exclusively for the use of LED technology in lighting applications. The EBV team knows every detail of the semiconductor market and technologies, has access to the leading LED manufacturers, and benefits from a strong external partner network.

Electronic specialists

LED solutions are usually specific to each application, as every lighting task is different. Ultimately, what lighting architects want is the design freedom provided by the highly flexible LED technology. With LEDs, light can be generated in almost every color of the spectrum and altered as desired: from light profiles that automatically change color very slowly over the day (e.g. red in the morning, blue at noon and red again in the evening) to precisely defined colors that can be (re)programmed in accordance with customer requirements.

While ready-made LED lighting systems can be assembled by every experienced electrical installer, developers and manufacturers of LED lights need the technical support of electronic specialists, and this electronics and system knowledge will now be supported by the General Lighting experts of EBV Elektronik. EBV’s General Lighting Competence Team helps lighting manufacturers and their development service providers find the optimal solution.

“Neither the neon strips nor energy-saving bulbs have managed to oust Thomas Alva Edison’s good old light bulb from the market, and LEDs won’t do it, either,” explains Cordula Carlin, the Business

Development Manager for General Lighting Applications at EBV Elektronik. “Nevertheless, LEDs have an immense future in lighting applications, and with EBV Elektronik as their partner, every lighting manufacturer can offer innovative lighting solutions.”

External partners

EBV Elektronik gives helpful advice to lighting manufacturers looking for an external partner, such as a firm of engineering consultants, to develop the control electronics for an LED lighting system. However, EBV Elektronik itself sells only “naked” LEDs and other electronic components, while the system integrators of EBV’s partner network take care of the relevant value creation. These external partners then provide the necessary engineering services – in the fields of electronic design, thermal management and, if required, visual design.

“We make sure that the lighting architects can convert their creative lighting concepts into reality on an LED basis, by supporting the developers in realizing the appropriate control electronics,” says Cordula Carlin, explaining how the new General Lighting Competence Team operates at EBV. “With 38 years of electronics experience and annual sales of over €1.3 billion, EBV knows the market inside out. EBV’s new team of lighting experts utilizes this knowledge to enable the creation of innovative lighting solutions.”

EBV is by far the largest supplier of optoelectronics technology in European semiconductor distribution, with a market share of 40%. Awards from, for example, OSRAM Opto Semiconductors as “European Distributor of the Year” in 2004, 2005 and 2006 underline EBV’s leading role in this sector.

Customers can obtain more information by e-mail, from: generallighting@ebv.com



EBV Elektronik

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www.ebv.com/generallighting

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Elumina Technology Inc

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Elumina's LED lighting systems provide high brightness, low energy, reliable lifetime, and low maintenance. Products include LED accent lights, high-power modules, RGB lighting controllers, solar ground lights, LED traffic lights, LED modules and more LED solutions for outdoor applications.

Elumina offers ISO 9001 quality-assured manufacturing from LED packaging to LED optical and heat-path patented designs. Founded in 2001, Elumina has been continuously valued by our customers as a highly competent partner in the fields of design, engineering and deployment using LED lighting systems.

Elumina is continually focused on further expansion in the advanced application solutions of transportation signals, accent lights, light bars and OEM/ODM. Elumina would be an advantage for either customized or application products.



- Test & Measurement

FEASA

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Feasa manufactures and sells through its website and worldwide distributor network a range of Color/Intensity Measurement and Test Instruments. This patented technology allows automatic testing of both the color and relative intensity (brightness) of LEDs in areas such as automotive, general lighting, signs/displays, mobile appliances/cellphones, signals, backlighting/projection and LCD/TFT displays.

The Feasa LED Analyser is an economic solution to LED testing. It is fast, low cost, easy to use, tests up to 20 LEDs simultaneously and exhibits excellent discrimination between colors.

Feasa has responded to market needs by investing significantly in the existing range and the next generation products.

Feasa has responded to the diversity of LEDs on the market today by introducing two versions of the LED Analyser. In addition to the Standard LED Analyser, the High Brightness (≤ 2000 mcd) and the Super High Brightness (≤ 10000 mcd) have been added to the range.

The Feasa team of highly qualified and skilled engineers is always at hand to provide free technical support and advice to our customers.



- General Lighting
- Packaging & Optics

Fraen Corporation

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Established in 1943 in Boston, MA, Fraen corporation is based on 4 different divisions, operating from automotive to lighting market. Fraen Srl, the fastest growing division in Fraen



Corporation, is focused in developing products that manage light in ways never before achieved in the lighting industry.

As a result of our rich knowledge and innovation of optical systems, Fraen Srl is the world's leading provider of standard optics for high powered LEDs. The same world class expertise we apply to our custom solutions is leveraged in our standard technology and supported by a global sales and distribution network.

Our high quality standard lenses and reflectors are developed in close relationship with the industry's leading manufacturers, having as a final result the best combination between LEDs and optics, to maximise light output.

Whether it's standard optic products or the most sophisticated custom solutions, Fraen is committed to providing the highest quality and innovative solutions.



- Architectural Entertainment & Decorative Lighting
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- Signals

GE Lumination

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Lumination, LLC, a subsidiary of GE Consumer & Industrial, drives innovation, energy efficiency and cost savings for customers that use LED products, systems and solutions. Fitted with robust, low-voltage, long-life LED light engines, Lumination solutions deliver world-class, GE-grade performance. Standing at the forefront of today's global LED revolution, Lumination offers a wide range of environmentally responsible LED solutions and systems for signage, architectural, transportation, display lighting and general illumination applications.

- Drivers & Control
- LED Arrays & Light Engines
- Packaging & Optics

GK Import Export

Augsburg, Germany

- Vehicle Lighting

G.L.I. Global Light Industries GmbH

Kamp-Lintfort, Germany

- Packaging & Optics

Hymite A/S

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Hymite A/S designs, develops and manufactures silicon-based wafer scale packages for high-brightness LEDs, MEMS and RF applications. Our

technology provides improved thermal performance, package size reduction. In addition Hymite supports hermetic requirements as well as glass sealing at a wafer scale level.

- Drivers & Control

International Rectifier

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International Rectifier, a world leader in power management technology, delivers an array of control ICs for fluorescent, HID, halogen, and now LED applications. Based on IR's high-voltage IC process advancements, these ICs incorporate high-voltage level shifting technology to deliver high field reliability and expanded feature sets.

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Fusion Optix

179 Sidney Street, Cambridge, MA 02139, USA

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E-mail: info@fusionoptix.com

Web: www.fusionoptix.com

Fusion Optix offers a range of light management solutions for the LED lighting and display industries, including high-performance optical films and system solutions. Light management films consist of volumetric diffusers, collimation films and multifunctional films that combine diffusion and collimation effects. Fusion Optix also offers components for lighting fixtures and LED assemblies.

Advanced system solutions incorporate reference designs for LED lighting fixtures and LED backlight units. The unique, patented optical film technology allows for a larger design space with more options, creating comprehensive solutions for OEMs.

Optical Innovation™ drives Fusion Optix's world-class, highly experienced team. In-house engineers, specialists and scientists focus on leading-edge optical design and fundamental materials science, as well as advanced manufacturing technologies to build a platform that best serves OEMs now and in the future. Fusion Optix is privately held and funded by major international investment firms, with offices in North America, Asia, and Europe.



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Future Lighting Solutions

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Asia: asia@futurelightingsolutions.com

Web: www.lumiledsfuture.com

A division of Future Electronics – the third largest electronic components distributor in the world – Future Lighting Solutions is dedicated to the LED lighting industry.

With more than seven years of power LED experience, Future Lighting Solutions is the pioneer in delivering the most comprehensive worldwide LED lighting solutions support structure in the industry. The company offers customers LED lighting knowledge, resources, programs, partners, solutions and logistics support, focused on enabling the adoption of LUXEON®-based solid state lighting technology.

Future Lighting Solutions' innovative approach is built around its team of world-class LED lighting experts, its highly specialized and experienced partners, and its exclusive worldwide relationship with Philips Lumileds Lighting.

Future Lighting Solutions: making LED lighting solutions simple™.



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- LED Arrays & Light Engines
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GVA Lighting

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Web: www.gvalighting.com

GVA Lighting: A Canadian designer and manufacturer of quality LED lighting products with white or colored LEDs.

- STR9 Indoor/outdoor wallwash fixture. Built in driver. (BID) Options: Colour Changing, addressable, dimmable -DMX interface.
- STR8 & STR7 fixtures for undercounter, undercabinet, cove and delineation. (BID) Options: addressable and dimmable.
- CoinLight mini-downlight and marker fixture. (BID) Options: addressable and dimmable.
- Ducat downlight fixture. (BID) Options: Dimmable.
- Gulden adjustable arm fixture for reading/task lighting. Wall, ceiling or clamp mounting.
- IP-SF wet location fixture. Backlighting, signage, outdoor cove.
- Light Engines for OEM. Standard and custom.

Expert microelectronic and thermal management design for mid and high power LEDs. Professionally designed proprietary LED Drivers work in conjunction with optional GVA controls.

Smooth, eye sensitivity optimized, flicker free dimming. 0%–100% through push-dim, digital, DMX or Analog (0–10 VDC) interfaces. For OEM we offer LED Light Engines as well as power supplies.

GVA Lighting markets our products around the world.



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- Packaging & Optics

IRC Advanced Film Division

Corpus Christi, Texas, USA

- Architectural Entertainment & Decorative Lighting

James Thomas Engineering – PixelRange

Worcester, UK

- Drivers & Control

Justin Inc.

South El Monte, CA, USA

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- Vehicle Lighting

Khatod Optoelectronic

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Web: www.khatod.com

Khatod's history starts in 1982: today, our products range covers more than 35,000 articles.

Our lenses are the best answer to the engineers seeking optical solutions for any kind of equipment as well as custom products depending on their specific requirements.

NJC Technology™ is a clear example and represents one of the most important steps taken to meet the needs of the industry.

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Kingbright Corporation

City of Industry, CA, USA

- Packaging & Optics

Kyocera Corporation

6 Takeda Tobadono-cho, Fushimi-ku, Kyoto, 612-8501, Japan

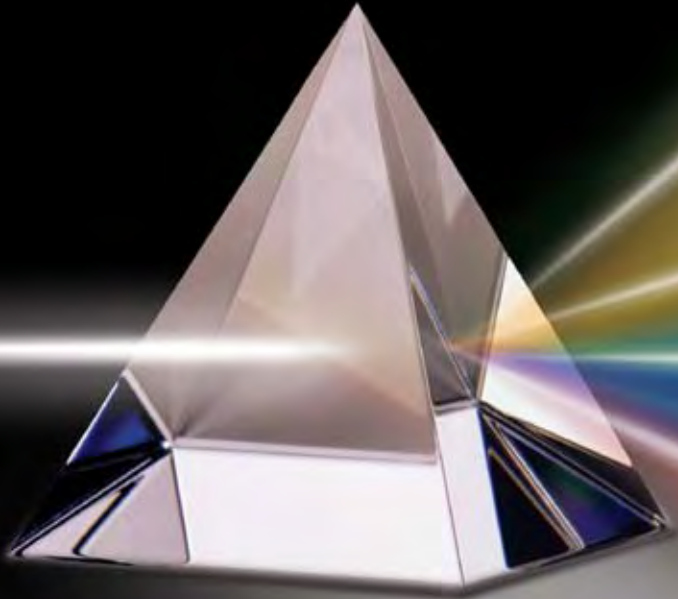
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E-mail: webmaster.sc@kyocera.jp

Web: www.kyocera.com

Kyocera is the largest ceramic package supplier in the world. For high brightness LEDs, Kyocera supplies multilayer ceramic packages with reflector structure. Aluminum oxide ceramic, aluminum oxide ceramic with copper heat sink, and aluminum nitride are available as ceramic material options. Kyocera also supplies aluminum nitride and aluminum oxide ceramic submounts with aluminum thin film metallization as reflector.

A new spectrum of possibilities from OPTEK



High flux LEDs for automotive lighting systems



High brightness LEDs in all colors for outdoor signage and displays



High output coolLED™ for general illumination and task lighting



High reliability LEDs for medical diagnostic and blood analysis systems

The latest advances in our optoelectronic product family are clearly visible

OPTEK Technology now delivers an entire spectrum of visible LED products for all your lighting applications, with the same commitment to innovation, engineering support and quality as our infrared, fiber optic and optoelectronics sensor assemblies. OPTEK's visible LED products include:

- High-brightness through-hole LEDs – available in all colors and viewing angles (AlInGaP and InGaN sources)
- coolLed™ insured by Another™ – high power LEDs with built-in thermal management to deliver long life energy-efficient illumination
- High flux 4-pin square LEDs – for automotive and neon replacement for outdoor signage
- Surface mount LEDs – reflective PLCC and chip LED packages, including tunable full color RGB assemblies for indoor and outdoor displays
- High-reliability LEDs – available in hermetic TO-18, TO-46 and pill-packs for military, medical and industrial applications
- LED bulbs – with socket bases for high-efficiency, long life replacement of standard incandescent bulbs

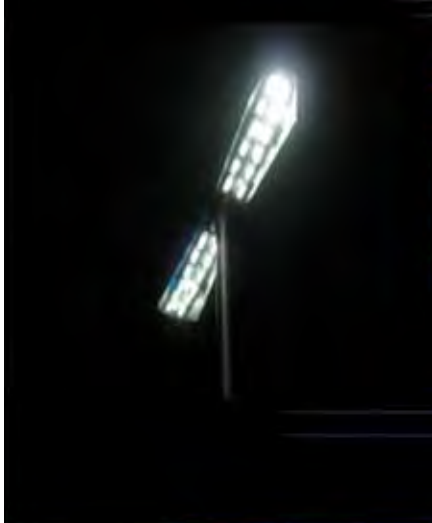
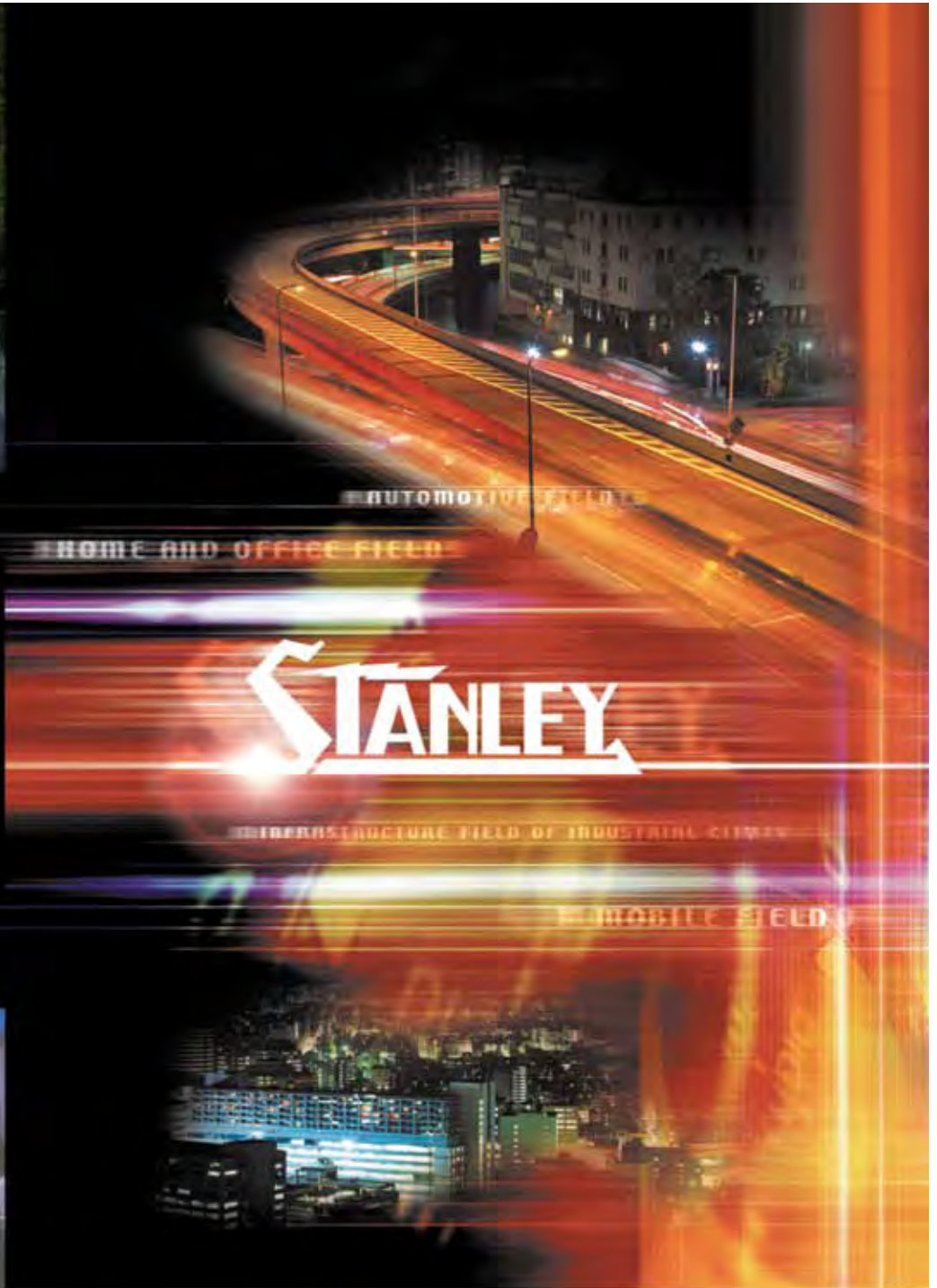
For LED enlightenment of your next application, call OPTeK at 1-800-341-4747, ext. 2217
For a product sample, visit: samples@optekinc.com
For product datasheets, visit: www.optekinc.com/products/vled.asp



OPTEK Technology
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TT electronics Components Division manufactures a comprehensive range of electronic components, hybrids, sensors and assemblies.



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Heatron, Inc.

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Heatron is accelerating the high power LED revolution. Heatron offers a wide range of design and development services, technology competencies including optics, thermal management, power sources and drivers, cost effective production and assembly capabilities and in-depth industry and technology expertise.



Using a thermal management technology, featuring their proprietary ELPOR® coating, Heatron can provide custom designed assemblies, utilizing an automated SMT line and hot bar solder capabilities. This would include placement of LEDs and other electronic components. The ELPOR® system offers the unique capability of printing and laser trimming resistors as part of the LED Light Engine. Custom shapes in steel, aluminum, and ceramic substrates are available.

Heatron's new LED Design Center offers industry-leading design facilities to accommodate the most complex of projects.

From concept drawings to finished assemblies, Heatron allows the lighting designers to sit in the drivers seat and Accelerate the High Power LED Revolution.



- Backlighting & Projection
- LED Arrays & Light Engines
- Mobile Appliances
- Vehicle Lighting

Helio Optoelectronics Corp

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Helio Optoelectronics Corp, established in Taiwan, is a professional LED manufacturer. We produce 1W, 3W, emitter type, 5W and 10W, and above for ceramic type LEDs. We not only have professional production skills, but also development skills.



- Backlighting & Projection
- Mobile Appliances
- Packaging & Optics

Heptagon

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Heptagon develops, designs and manufactures optics for a variety of LED applications, including mobile phones, LCD TVs, LED-based projectors, and general illumination systems. Heptagon's "One stop shop approach" minimizes risk for customers and accelerates time to market. Heptagon is an ISO9001 certified company.

Heptagon's components are based on novel diffractive optics and micro-optics. Free-form microstructures on top of a flat substrate enable high efficiency, flexible beam shaping and efficient light mixing for single-die, multi-die, white-light and RGB LED sources.

Thin flat LED microlenses can be formed directly on top of the LED adding less than 1 mm to the module thickness. Heptagon's LED microlenses are produced by a proprietary batch wafer-scale REEMO® UV-replication process. This enables low-cost in mass production and high robustness. Materials are available that can withstand a lead-free reflow process (temperatures up to 280 °C), long-term storage and humidity and temperature shocks (in conformance with Telcordia/JEDEC regulations).



- Packaging & Optics

Lambda Research Corporation

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Lambda Research provides optical engineering solutions by developing world-class optical software programs and providing expert optical engineering consulting. Our software programs include: OSLO®, for optical design and analysis of image-forming systems, TracePro®, for stray-light analysis and illumination design, and TracePro Bridge™ for SolidWorks®, for 3D MCAD interoperability with optical software.

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- Vehicle Lighting

LEDdynamics, Inc

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Web: www.leddynamics.com, www.luxdrive.com

LEDdynamics is a custom engineering and manufacturing company specializing in the design and integration of LED technology for end-user and OEM applications. Developers of LuxDrive, the smallest constant current LED drivers available in the industry. Single applications, complex arrays and control systems, LEDdynamics delivers solutions that exceed customer expectations.



- Architectural Entertainment & Decorative Lighting
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LED FX Ltd

Edinburgh, UK

Not listed?

Please contact
joanna@ledsmagazine.com
 to be included next time.

- Packaging & Optics

Huntsman

Huntsman Advanced Materials (Switzerland) GmbH, EAME Customer Service Center, Klybeckstrasse 200, Basel, 4057, Switzerland

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Fax: +41 61 966 3334

E-mail: electronics@huntsman.com

Web: www.huntsman.com/electronics

Huntsman is a global manufacturer and marketer of differentiated chemicals. Its operating companies manufacture products for a variety of global industries, including chemicals, plastics, automotive, aviation, textiles, footwear, paints and coatings, construction, technology, agriculture, health care, detergent, personal care, furniture, appliances and packaging.

Huntsman has 14,000 employees and more than 75 operations in 24 countries. The company had 2006 revenues of \$13 billion.

Huntsman's electronics business provides advanced protective solutions for automotive, telecom, general industry and lighting to build, structure and assemble printed circuit boards and to insulate, encapsulate and bond electrical and electronic components. Among the products are well-known product brands, such as Araldite® encapsulation systems, Probimer® solder masks and Probelec® dielectrics. The electronics product portfolio comprises formulated resins, halogen-free high Tg resins, conformal coatings, casting resins, adhesives, assembly chemicals, thermoset coatings, photosensitive coatings, dielectrics, high DK materials and materials for LED encapsulation.

HUNTSMAN

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- Signals
- Vehicle Lighting

i2Systems

355 Bantam Lake Road, Morris, CT 06763, USA

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Fax: +1 860 567 2501

E-mail: tzampini@i2systems.com

Web: www.i2systems.com

i2Systems® is a leading solid state lighting designer, manufacturer and systems developer. The company's core technology enables the next generation of illumination, continuing to change the way we light the world.

Through progressive research and innovation, i2Systems® transforms conventional lighting applications with solid state lighting and offers a myriad of industries highly versatile, controllable, energy efficient and long lasting lighting solutions.

The company is headquartered in Morris, CT.

i2Systems
INTEGRATE ILLUMINATE



CERTIFIED

- Test & Measurement

Instrument Systems GmbH

Neumarkterstr. 83, Munich 81673, Germany

Tel: +49 89454943 0

Fax: +49 8945494311

E-mail: info@instrumentsystems.de

Web: www.instrumentsystems.de

Instrument Systems is the technology and market leader for LED and display measuring systems based on spectroradiometry. Founded in 1986 in Munich, Germany Instrument Systems develops and manufactures a range of products to determine all relevant optical parameters of LEDs like luminous intensity (candela), luminous flux (lumen) or the spatial radiation pattern of single LEDs, clusters and modules.

A wide selection of fiber-based measurement adapters are used to create complete turnkey systems for research and industrial applications. These systems conform to the guidelines of the International Commission on Illumination and this means that they are able to generate very precise and reliably reproducible results.

Instrument Systems is already supplying the measuring equipment required for analyzing the high-power LEDs that are fast becoming a key technology. Instrument Systems provides support for a global customer base, with backup from a comprehensive network of representatives, plus subsidiaries in both Canada and France.

INSTRUMENT SYSTEMS
OPTISCHE MESSTECHNIK

- Packaging & Optics

LEDIL Oy

Tehdaskatu 13, SALO, 24100, Finland

Tel: +358 2 733 8001

Fax: +358 2 733 8001

E-mail: ledil@ledil.com

Web: www.ledil.com

LEDIL is recognized as the innovation leader of LED optics, with proven expertise in design and manufacturing. LEDIL has a skilled optical design department, where optical, mechanical, materials and production knowledge are combined to cost-efficient solutions. Apart from standard products, LEDIL is interested in quoting custom designs.



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LED Lighting Supply

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LEDLight.com, LLC

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LEDs.com.mx

Morelos, Mexico

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Ledium Ltd

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Tel: +36 306785497

Fax: +36 62436344

E-mail: mcsaba@ledium.com

Web: www.ledium.com

Ledium Ltd is a Central-European based LED trading and development company.

We trade with the popular high-power LEDs and manufacture lamps for domestic, decorative and advertising applications. We have 3-years experience in LED shop lighting applications.

Our brand new product line is Luxeon K2 and Luxeon Rebel MCPCB modules for the advertisement industry.

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Integrated System Technologies Limited

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Tel: 01922 457712
Fax: 01922 457056
E-mail: matt@istl.com
Web: www.radiant-research.com

IST Ltd are a professional lighting group company that specialises in developing innovative lighting solutions for the general, wide area, architectural and entertainment lighting industry. We offer over 20 years of experience in traditional and solid state lighting including award winning electronic and optical system design for a variety of lighting products from controllers to luminaries.

Radiant Research Ltd is the solid state lighting division of IST which designs and manufactures advanced solid state lighting products from LED light engines through to driver solutions. All LED driver technology designed and produced by Radiant Research incorporates our unique patented technology Colour Cool™ (GRANTED in UK & USA) to ensure optimum LED efficiency of RGB systems. This unique and patented driving technology uses Pulse Amplitude Modulation (PAM). This technique provides optimum colour mixing (RGB) and full additive luminosity which, integrated into our closed loop temperature monitoring system, ensures optimum LED output regardless of environmental conditions.



- LED Packages

Intematix Corporation

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Fax: 510.668.0793
E-mail: mikeko@intematix.com
Web: www.intematix.com

Intematix Corporation, headquartered in Silicon Valley, is the world's leading electronic materials discovery and manufacturing company. One of Intematix's commercialized products is a family of high-performance luminescent materials that provide solutions to white and color-specific LEDs for a variety of applications: display backlighting, camera flash, decorating signage, automotive lighting, signaling and general lighting.

Intematix is continually improving its phosphor performance and developing new phosphors to meet the emerging markets of new display and solid-state lighting. Intematix offers a range of quality products: blue, green, yellow, orange and red phosphors with extremely high light-output efficiency and excellent thermal stability. Combinations of phosphors of various colors are uniquely applied to create customer-specified colors: cold white, warm white, pink, sky-blue.

Our mission is to provide ultimate solutions to the customers through Intematix's unique integration of materials discovery, product development, process engineering and in-system design support.

Intematix Innovating Materials on Demand

- Backlighting & Projection
- Drivers & Control
- General Lighting
- LED Packages
- Test & Measurement

International Light Technologies

10 Technology Drive, Peabody, MA 01960, USA
Tel: 978-818-6180
Fax: 978-818-6181
E-mail: ilsales@intl-lighttech.com
Web: www.intl-lighttech.com

International Light and Gilway Technical Lamp have merged their operations in Peabody, MA. Since 1965 International Light has been solving the inherent difficulties in light measurement through the design and manufacture of a wide range of light measuring instruments, and by providing the most reliable commercial calibration services available. Founded in 1969 Gilway has provided customers with off the shelf and customized solutions across a full spectrum of light sources including UV-Visible-IR lamps, high power LEDs, modules, and power supplies. Together they will share their technical expertise and ensure that their customers enjoy an even higher standard of light measurement capabilities, engineered light solutions, product innovations, and unsurpassed customer support.



InternationalLight
 TECHNOLOGIES

- LED Arrays & Light Engines
- LED Chips
- LED Packages

LEXEDIS Lighting GmbH

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Web: www.lexedis.com

LEXEDIS Lighting, a joint venture company of TridonicAtco, Austria and Toyoda Gosei, Japan, develops and produces High Efficiency Digital Light sources promoted worldwide under the XED brand. nanoXED is the world's first High Efficiency Digital Light source, revolutionizing the lighting industry with new Chip-in-Silicon package technology and unique Zero Colour Binning.

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- Mobile Appliances
- Vehicle Lighting

Linear Technology

Milpitas, CA, USA

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- General Lighting
- LED Arrays & Light Engines

Lumiere Technologies

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Luminit

20600 Gramercy Place #203, Torrance, CA 90501, USA
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E-mail: sturgut@luminitco.com
Web: www.luminitco.com

Luminit offers a wide variety of standard and customized Light Shaping Diffusers® that homogenize and precisely control the angular distribution of LED based lighting, display and high technology systems. Luminit is committed to offering its customers value added lighting design solutions that incorporate innovative secondary optics and engineered holographic diffusers.

- Backlighting & Projection
- LED Arrays & Light Engines

Luminus Devices

175 New Boston Street, Suite A, Woburn, MA 01801, USA
Tel: +1 781-932-7831
E-mail: sales@luminus.com
Web: www.luminus.com

Luminus Devices develops and manufactures high performance solid-state light-emitting devices. Its PhlatLight (Photonic Lattice) technology, based on research done at MIT, is the only solid-state light source that provides enough brightness to illuminate large screen projection televisions.

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ISP Co, Ltd

401-202 PoongLim, 1007-2 Daechi, Gangnam, Seoul 135-851, Korea, South
Tel: +82-16-225-4762
Fax: +82-2-555-0863
E-mail: ispkorea@chol.com
Web: www.powerLEDs.com

Our company can supply 1W and 3W power LED, as well as many other kinds of power LED. Please visit www.powerLEDs.com. We will give you the best price and quality.

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- LED Packages

JK Components Ltd

Unit B Mouseden Farm, Halls Hole Road, Tunbridge Wells, Kent, TN2 4RF, UK
Tel: 01892 826050
Fax: 01892 826090
E-mail: sales@jkcomponents.co.uk
Web: www.jkcomponents.co.uk

JK Components Ltd is a service-orientated company working exclusively in the electronics industry. We locate electronic components from a global network of suppliers to satisfy customer demand. The range of products that we are able to find and deliver grows daily, however we predominantly concentrate our efforts on optoelectronics, electro-mechanical and passive components.

JK Components Ltd has been trading for more than 20 years and this experience has given us the tools to deliver our exacting service levels to a wide range of quality customers. The personal approach still remains core to our beliefs and keeping response times to a minimum is guaranteed by our dedicated team.

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KLA-Tencor

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Web: www.kla-tencor.com

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The Candela™ Series of Optical Surface Analyzers (OSA) from KLA-Tencor are advanced surface inspection and metrology systems for optoelectronic materials and semiconductor wafers. OSA systems combine proprietary technologies to simultaneously measure surface reflectivity and topography for automatic detection and classification of defects including particles, stains, scratches, pits and bumps. OSA technology delivers process control and yield improvement for inspection of both opaque substrates, as well as transparent materials such as sapphire and glass.





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● Test & Measurement

Labsphere, Inc.

231 Shaker St., North Sutton, NH 03260, USA

Tel: +1 603 927 4266

Fax: +1 603 927 4694

E-mail: labsphere@labsphere.com

Web: www.labsphere.com

Labsphere offers a wide range of LED and lighting designs testing packages, bridging the gap between R&D and quality control testing. Labsphere's new LightX software enables users to save multiple testing profiles for individual testing parameters and data manipulation. In seconds you can have research-grade results for intensity, total spectral flux, and forward flux – whatever your design stage or user level. Tailor your ideal package for testing from prototype to production.

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Lagotronics BV

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Tel: +31 77 320 4343

Fax: +31 77 320 4340

E-mail: sales@lagotronics.com

Web: www.lagotronics.com

Lagotronics BV, based in the Netherlands, designs and produces the internationally well-known LED product lines LagoLED® and DecaLED®. Lagotronics is worldwide active in the field of Television & Theatre, Architectural lighting and Entertainment industry.

As a familiar client of European television production companies and light designers, Lagotronics introduced LED lighting to the world market of decorative and architectural lighting in 1999 under the product name LagoLED®. In January 2006 the product line was launched under the name DecaLED®. Both product lines consist of high quality LED products that can be used for nearly all lighting projects.

The other market segments in which Lagotronics is active consist of interactive controls for amusement parks, interactive rides and light decoration for big interior and exterior lighting designs. Lagotronics also offers the possibility to custom design LED products on a project base.

Lagotronics has realized projects in a wide variety of market segments. Examples, project reports and project pictures can be found on our website.



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Lamina

120 Hancock Lane, Westampton, New Jersey 08060, USA

Tel: +1 800 808 5822

Fax: +1 609 265 9905

E-mail: info@laminaceramics.com

Web: www.laminaceramics.com

As the market leader in the development and manufacture of super-bright LED arrays, Lamina brings solid state lighting to applications which until now were only possible with traditional lighting sources.

Lamina's LED arrays are the brightest, most compact LED light sources available. Lamina's proprietary packaging technology keeps LEDs cool, a key factor in determining LED performance, life and reliability.

Lamina's LED light sources are available up to 100 W in white, monochrome, and RGB. Custom solutions are also available up to 1000 W.



● Displays & Signs ● Drivers & Control

Macroblock Inc.

6F-4 No.18 Pu-Ting Rd, Hsinchu 300, Taiwan

Tel: +886-3-579-0068

Fax: +886-3-579-0125

E-mail: marketing@mblock.com.tw

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Macroblock was founded in 1999 in Taiwan, a leading mixed-signal IC company focusing on LED drivers with PrecisionDrive™, Share-I-O™, All-Ways-On™ and S-PWM technology. Applications include LED display, LED lighting and LED backlighting. With the efforts and development for years, Macroblock has successfully marketed products worldwide.

● Chip Design & Manufacturing

Molecular Imprints

Austin, TX, USA

● Drivers & Control

Maxim Integrated Products, Inc.

120 San Gabriel Drive, Sunnyvale, CA 94086, USA

Contact: Brian Hedayati, Executive Director, System & Power Management

Tel: +1 408 737 7600

E-mail: brian_hedayati@maximhq.com

Web: www.maxim-ic.com/led

Maxim offers LED driver ICs for applications including portable products, signage, general lighting, automotive interior/exterior lighting and RGB LED applications, such as LCD TV backlight and RPTV.

Maxim's years of experience developing power management ICs and advance silicon processing capability allows cost-effective LED drivers with accurate current-mode control and digital tunability.

● Architectural Entertainment & Decorative Lighting ● Backlighting & Projection ● Displays & Signs ● Drivers & Control ● General Lighting

Mundocolor Iluminacion Tecnica, S.L.

Pol. El Regàs, C/ Oficis 25, Gava, Barcelona 08850, Spain

Tel: +34 936302800

Fax: +34 936302966

E-mail: export@grupo-mci.com

Web: www.grupo-mci.com

Mundocolor Iluminacion Tecnica's product range developed by its R&D department is based principally on LED technology. There are 4 main product groups: Marker lighting, Stair lighting, Fiber Optics and Sign Supply. Also the company deals with projects such as the illumination of airports terminals or many other customized lighting solutions based on LED technology.

- Architectural Entertainment & Decorative Lighting
- General Lighting
- LED Arrays & Light Engines
- Medical, Industrial & Other
- Signals
- Vehicle Lighting

LED Linear GmbH

Am Alten Graben 10, Rheinberg 47495, Germany
Tel: +49 2843 9095 62
Fax: +49 2843 9095 67
E-mail: info@led-linear.com
Web: www.led-linear.com

LED Linear is a German manufacturer of high-quality linear and scalable lamp modules and systems on LED- basis. The company has just commenced production of its newest product, VarioLED Flex SOL.

This enables, for the first time, new luminaire and lighting concepts in the area of general illumination. VarioLED Flex SOL obtains a luminous flux up to 2,500 lm depending on colour temperature.

The LED-Module is only 3 mm thick and 4 meters long, and can be split into shorter units. Its self-adhesive and thermally leading rearside saves installation time and costs. A voltage supply of 24V DC considerably simplifies the integration into illumination concepts.

VarioLED Flex SOL is part of the VarioLED Flex product family, which consists of 20 different types for various kinds of applications. It includes versions with monochrome- and multicolor/ RGB-LED, side-emitting LED and also humidity-protected versions for outdoor installations like VarioLED Flex Outdoor (IP67).



- Architectural Entertainment & Decorative Lighting
- Drivers & Control
- General Lighting
- LED Arrays & Light Engines
- Vehicle Lighting

LED Specialists Inc

7A Main Street, Kings Park, New York 11754, USA
Tel: (631) 269-0841
Fax: (631) 269-1213
E-mail: info@ledspecialists.com
Web: www.ledspecialists.com

LED Specialists is an engineering services company specializing in the design and development of innovative and high-performance LED-based lighting solutions. We support our customers with engineering and manufacturing resources to pursue LED product leadership and revenue growth.

We're unique: what makes us unique is the depth of our engineering experience, our robust product realization process and seasoned programme management skills to ensure project success.

Our experience: our team has more than 20 years of combined experience in applying LED technology to lighting applications. We excel in meeting the demands of rugged environmental applications.

Our capabilities: we offer complete product design and development: custom LED drivers – optimized for the application; optical design – to maximize lighting effectiveness; mechanical design – including housings and thermal management; rapid prototyping; project/programme management.



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Lynk Labs

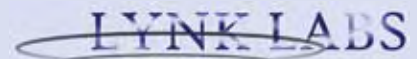
2511 Technology Drive, Suite 108, Elgin, Illinois 60124, USA
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E-mail: lynk@lynklabs.com
Web: www.lynklabs.com

Lynk Labs SnapBrite™ series of AC LED modules and BriteDriver™ power supplies provide AC infrastructure solutions for LEDs with bulb 'n' ballast simplicity for lighting OEMs. Lynk Labs' latest development, ThermoLynk™ technology,



is improving LED packaging costs and thermal efficiency from die level to luminaire by integrating LED die directly into moldable

thermal conductive polymers from Cool Polymers. Lynk Labs provides total solutions for LEDs to lighting OEMs including modular LED modules, drivers and power supplies, thermal carriers and optics. Contact us to see how our system solutions can accelerate, advance and simplify your LED lighting product strategy.



Manifold applications with VarioLED Flex

- up to 2.500 lumen (625 lm/m)
- extreme length
- flexible-bendable-divisible
- all colours available
- outdoor versions (IP67)
- Made in Germany

5,7 years
 2.083 days
 50.000 hours
 3.000.000 minutes
 180.896.000 seconds

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Marl International Ltd

Marl Business Park, Ulverston, Cumbria
LA12 9BN, UK

Tel: 01229 582430

Fax: 01229 585155

E-mail: marketing@marl.co.uk

Web: www.marl.co.uk

Marl has specialized in the design and manufacture of visible LED indication, illumination, components and systems for more than 30 years, supplying to the electronic, power generation, defence and telecommunication industries. Marl has created a complete range of resources and facilities, which are utilized by a highly trained and experienced staff. Marl prides itself on the high standard of its products and is registered to BSI 2000 standard, as well as being RoHS and WEEE compliant.

Marl Optosource is one of the leading UK distributors of LED components. Optosource have privileged access to the product portfolios of the world's leading optoelectronic manufacturers and are able to offer a complete "one-stop" solution to any visible optoelectronic requirement.

Marl CreativeArc offers a total solution to architectural, retail and commercial lighting applications with an exclusive range of high quality fixtures for interior and exterior use. Each fixture utilizes the finest, high intensity LED light engines available.



- Drivers & Control
- Vehicle Lighting

Melexis NV

Rozendaalstraat 12, 8900 Ieper, Belgium

Tel: +32 (0)13 670 495

E-mail: sales@melexis.com

Web: www.melexis.com

Melexis' Power LED driver family offers ICs optimized for performance, flexibility, robustness and cost. All ICs are designed for automotive interior and exterior applications but can generically be used in all high-volume single or power LED array applications that require temperature compensation, low noise and high efficiency at the lowest possible system cost.

Melexis (Euronext Brussels: MELE) designs, develops, tests and markets advanced integrated semiconductor devices. For over a decade our customers in the automotive electronics market have inspired us to create, manufacture and deliver advanced mixed signal semiconductors, sensor ICs and programmable sensor IC systems. The company sells its products to a wide customer base of automotive system manufacturers in Europe, North America and Asia.

Melexis' products include microcontrollers, Hall (magnetic), optical sensor ICs, interface ICs for pressure and acceleration sensors, micromachined silicon pressure, acceleration and gyroscope sensors, application-specific integrated circuits, wireless communication (RF) and RFID components, in each case principally for automotive applications.



- Architectural & Decorative Lighting
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- General Lighting
- LED Arrays & Light Engines
- LED Packages
- Mobile Appliances
- Vehicle Lighting

MSC Vertriebs GmbH

Industriestraße 16, Stutensee, 76297, Germany

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E-mail: led@msc-ge.com

Web: www.msc-ge.com

Founded in 1979, the MSC Group, consisting of MSC Vertriebs GmbH and Gleichmann & Co. Electronics GmbH, is among the largest and most rapidly expanding distributors for electronic components in Europe. Furthermore, MSC is your reliable source for LEDs, LED products and LED solutions.

We are official Distributor for Alder, Digital Light America, Everlight and Harvatek.

MSC has a wide range of optoelectronic components available from stock for all your lighting needs. For example: super-bright LEDs, power and high-power LEDs (1-5W), SMD LEDs, LED stripes and flex stripes, available in all colors, also RGB, white and warm-white plus DMX controller and power supplies.

Additionally, you can choose from a broad range of LED displays (SMD, 7-segment, dot-matrix) for message boards, white goods and industrial applications.



- Architectural Entertainment & Decorative Lighting
- General Lighting

NeoPac Optoelectronics, Inc.

Hsinchu, Taiwan

- Chip Design & Manufacturing

Obducat AB

Malmö, Sweden

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- LED Arrays & Light Engines
- LED Packages
- Mobile Appliances
- Packaging & Optics
- Vehicle Lighting

OPTEK Technology

1645 Wallace Drive, Carrollton, Texas 75006, USA

Tel: +1 800 341 4747

Fax: +1 972 323 2396

E-mail: visibleLED@optekinc.com

Web: www.optekinc.com/products/vled.asp

OPTEK established a visible LED business unit in 2005 and currently offers a comprehensive product line that includes industry standard high brightness and high power LEDs. OPTEK Technology was acquired by TT electronics in December 2003, and

is ISO/TS16949:2002 and BS EN ISO 9001:2000 certified, as well as ITAR registered.

- LED Arrays & Light Engines
- LED Chips
- LED Packages
- Vehicle Lighting

OSA Opto Light GmbH

Köpenickerstrasse 325, Haus 201, Berlin 12555, Germany

Tel: +49-30-6576-2683

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E-mail: contact@osa-opto.com

Web: www.osa-opto.com

OSA Opto Light develops, manufactures and distributes standard, special and custom designed high brightness & high power LED-Chips & SMD-LEDs in the colors white, blue, green, yellow, orange, red, infrared and UV for medical, automotive, industrial electronics, back lighting and general lighting applications.

- Chip Design & Manufacturing
- Packaging & Optics

Palomar Technologies, Inc.

Carlsbad, CA, USA

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Inspired by Nature



Invented by Nichia

Only nature produces a brighter, warmer white than Nichia, creator of the white LED. And like nature, Nichia covers the entire range of white, from cool to warm and everything in between, for every architectural lighting application. Our LEDs are also nature-friendly, using less energy than traditional lighting while running cooler and lasting longer. So, for all your lighting needs, the sky's the limit. Ask for the original white LED, only from Nichia.

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● Test & Measurement

National Physical Laboratory

Hampton Road, Teddington, Middlesex TW11 0LW, UK
Tel: +44 20 8943 6757
Fax: +44 20 8943 6283
E-mail: paul.miller@npl.co.uk
Web: www.npl.co.uk/optical_radiation/

The National Physical Laboratory (NPL) is a world-leading centre in the development and application of highly accurate measurement techniques. As the UK's national standards laboratory, NPL underpins the national measurement system, ensuring consistency and traceability of measurements throughout the UK.

The Optical Technologies (OT) team in NPL's Quality of Life Division have wide-ranging interests covering research and development from ultraviolet to infrared radiation.

OT provides optical source characterization and calibration of continuous and pulsed light sources, including LEDs and LED clusters, over a spectral range of 290 nm to 1100 nm, including the assessment of LED eye hazard. We measure luminous flux, luminous intensity, spectral radiance and many other parameters.

Additionally, consultancy can be provided for your specialized needs such as designing instrumentation, running training courses and classifying devices to customer or international standards.

NPL are UKAS-accredited for testing to IEC 60825-1 and EC 60825-2, and can test components against CIE S009.



● Drivers & Control

National Semiconductor

2900 Semiconductor Dr., P.O. Box 58090, Santa Clara, California 95052-8090, USA
Tel: 1-800-272-9959
E-mail: new.feedback@nsc.com
Web: www.national.com

National Semiconductor provides solutions for powering LEDs. Regardless of type, color, size, or power, all LEDs work best when driven with a constant current. LED manufacturers specify the characteristics (such as lumens, beam pattern, color) of their devices at a specified forward current (IF) not at a specific forward voltage (VF). Most power supply ICs are designed to provide constant voltage outputs over a range of currents, hence it can be difficult to ascertain which parts will work for a given application from the device datasheet alone. With an array of LEDs, the main challenge is to ensure that every LED in the array is driven with the same current. National's line of power-management ICs provide constant current for driving both low-power and high-brightness LEDs.



- Architectural Entertainment & Decorative Lighting
- Backlighting & Projection
- Displays & Signs
- Drivers & Control
- General Lighting
- LED Arrays & Light Engines
- LED Packages
- Medical, Industrial & Other
- Signals

Neo-Neon International Ltd

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E-mail: sales@neo-neon.com
Web: www.neo-neon.com

Neo-Neon International Ltd was established in 1981. It is a major producer of high-tech LED decorative and illuminative products worldwide. As a leading decorative lighting company, Neo-Neon was listed on the Hong Kong Exchange on 15 December 2006.

Neo-Neon offers a comprehensive range of products, including LED architectural and commercial lighting, LED Neon-Flex, LED Vision-Flex, Wall Washer, Decorative Lighting products, Fiber Optics and Entertainment Lighting, as well as Professional Audio products. Neo-Neon employs over 300 engineers and spends 5-8% of its revenue on R&D each year. We are an ISO-9001 certified company and we are very proud of our high-quality products that meet world's industrial standards such as UL, GS, CE, CSA, IMQ, CUL, ETI, CETL, BS, SAA, etc. We have achieved over 380 patents in China, Japan, Germany, America, France, UK and other countries. Our sales network is spreading in mainland China, Hong Kong, Taiwan, Korea, Japan, Europe and America.



● Industry Association

Photronics Industry & Technology Development Association (PIDA)

5F, No.9 Roosevelt Rd. Sec. 2, Taipei 100, Taiwan
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E-mail: simon@mail.pida.org.tw
Web: www.pida.org.tw

PIDA works with private enterprises and government agencies to increase the competitiveness of Taiwan's optoelectronics industry. PIDA's mission is (1) to assist government in drafting policies for optoelectronics industry, (2) to provide consultation in technology and market trend, (3) to assist technology transfer, and to help investment, (4) to promote international cooperation, and (5) to train optoelectronic field specialists.

● Industry Association

Photronics Cluster (UK)

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Tel: +44 (0)121 260 6020
Fax: +44 (0)121 260 6450
E-mail: info@photronicscluster-uk.org
Web: www.photronicscluster-uk.org

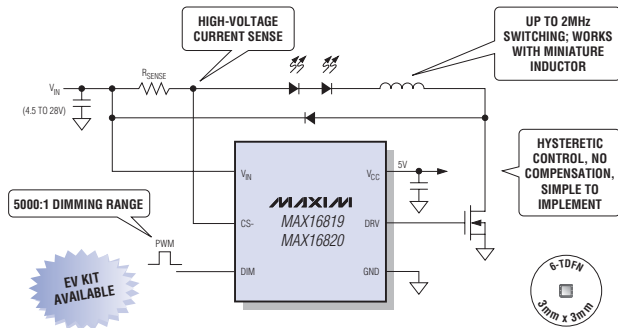
Photronics Cluster (UK) is a not-for-profit organisation dedicated to supporting the optoelectronics industry specialising in the area of Solid State Lighting. Activities include training courses such as the unique LED Safety Course and Practical Light and Colour Measurement Course, the DTI Global Watch LED Technology Missions to Japan and USA and our headquarters host the Solid State Lighting Research Centre. This suite of laboratories are the only test laboratories dedicated to SSL luminaire

and lamp testing and are furnished with the latest specialist-testing equipment. Our flagship event is the international euroLED conference and exhibition which is the largest LED and Solid State Lighting event in Europe. It will take place during 5th-7th June 2007 at the National Motorcycle Museum, Birmingham, UK. For further information please visit www.euroled.org or contact the team on +44 (0)121 260 6020.

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Ed Gagnon
General Manager

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Nichia America Corp

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Web: www.nichia.com

Nichia is the global leader in the LED market, and the innovator of the world's first white LED. Nichia manufactures LEDs for a variety of markets including signage, display, automotive, cell phone, and all types of lighting for retail, architectural, commercial, industrial and residential applications.

Nichia produces the highest efficacy white and warm-white LEDs, which are fabricated using Nichia's two key technologies – blue LEDs and phosphors. Nichia offers the full range of white color temperatures from 2500 K to 15 000 K. Nichia won the "Technical Innovation Award" at Lightfair 2003 for the introduction of warm-white LEDs.

Nichia offers high-power LEDs such as the NS6W083 1 W and the Rigel 0.5 W. These high-efficiency, high-brightness LEDs are ideal for designing LED lighting systems.

Nichia is committed to leading the LED lighting revolution and working with lighting systems providers to realize this dream.

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- General Lighting ● LED Arrays & Light Engines ● LED Packages

NOCTRON Sàrl

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Fax: +352 26 33 41 43

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Web: www.noctron.com

NOCTRON is a technical research, development, manufacturing and distribution company with an assorted line of unique high-tech lighting products. NOCTRON will be licensing "noctrel", the only free-standing High-Brightness Transparent LED-Element (HB-TLED) to LED-Foundries.

Noctrel radiates light in all directions (360°) like an incandescent filament. Noctrel allows totally flexible packaging, e.g. as household spotlights, as flashlight bulbs or incandescent light bulbs.

Specifics of noctrel:

- A fully integrated transparent LED-Element with one or more light-emitting dies without external wiring between the dies.
- Ideal as replacement for any Edison, Halogen or CFL light bulb.
- Perfect for reflector-based technologies (e.g. flashlights, spotlights, automotive lights).
- Widely varying power range to allow flexible usage of dimming technology.
- Approximately 30% more light-efficient than standard HB-LED technology.
- About 30% less heat development than standard HB-LED technology.
- Small form factor.
- Environmentally friendly.



- Architectural Entertainment & Decorative Lighting ● Displays & Signs ● General Lighting ● LED Packages ● Signals ● Vehicle Lighting

Novoled

Av. Adolfo Lopez Mateos, Cond 2 Casa 7, Col. Rancho San Lucas, Metepec, Estado de Mexico, 52176, Mexico

Tel: 52 222 4440153

Fax: 52 722 1802649

E-mail: bmelgarejo@novoled.com

Web: www.novoled.com

Those who work with light see life with different eyes. That's why Novoled, a Mexican company, brings the future in illumination, the LED, the new light on earth.

Novoled was founded in July 2006 with the mission of giving the client the perfect option for signage, illumination and design industries. Novoled distributes LED products of recognized brands with the highest quality, giving clients the best option for their needs and applications.

Novoled not only distributes the product, we help your business to reduce energy costs with the best technical support 24/7.



- Chip Design & Manufacturing ● LED Chips ● Packaging & Optics

Photonix Ltd

Block 7 Kelvin Campus, West of Scotland Science Park, Glasgow, Scotland G20 0TH, UK

Tel: +44 (0)141 579 3030

E-mail: tooley@photonix.org.uk

Web: www.photonix.org.uk

Photonix Limited is a compound semiconductor growth and fabrication facility. It owns a fully equipped clean-room and offers custom LED fabrication. The InGaN and GaAlAs reactors of the Universities of Strathclyde and Glasgow are located here. The facility has been used since 1999 to fabricate both InGaN and AlGaInP chips.

- Architectural Entertainment & Decorative Lighting ● General Lighting ● LED Arrays & Light Engines

PLM Illumination Ltd

Unit 6 Arthur Drive, Hoo Farm Industrial Estate, Kidderminster, Worcs DY11 7RA, UK

Tel: +44 (0)1562 66441

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Web: www.plmgroup.co.uk

PLM Illumination is a specialist manufacturer and supplier of LED lighting equipment and associated products. PLM specialises in supplying bespoke lighting equipment for airports, local government, the aerospace industry, cinema groups, and major civil engineering projects. Also manufactured by PLM is the UniLED™ landscape lighting range, designed for the professional.

- Employment

Polymer Menschen

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E-mail: barry@pmiauto.com

Web: www.polymer-menschen.com

Polymer Menschen is dedicated to Retained Executive Search specific to the LED Semiconductor Industry. We place executive management in sales, marketing, and engineering with the leading LED

companies, worldwide. Founded in Automotive; today we place for all LED applications. Offices in Detroit, Michigan; Munich, Germany; Reno, Nevada HQ.

- Packaging & Optics

Polymer Systems Technology Ltd

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Tel: +44 (0)1494 446610

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E-mail: sales@silicone-polymers.co.uk

Web: www.silicone-polymers.co.uk

Polymer Systems Technology Limited is an ISO-9001:2000 and ISO-14001:1996 registered company established 1994.

Optically clear silicone adhesives, coatings, molding, gels, fluids, primers are offered, refractive indices from 1.38 to 1.57. High thermally conductive interface and underfill silicone materials are available. Testing services, covering outgassing in a vacuum environment to physical properties.

- General Lighting

NuaLight Ltd

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E-mail: kgiles@nualight.com
Web: www.nualight.com

Greener, cleaner and cheaper are the latest drivers for the lighting industry. NuaLight's pioneering technology in LED illumination delivers on all three.

NuaLight's CryoLED2 flagship product leads the way in assisting retailers around the world to achieve targets for driving down emissions and reducing costs, whilst improving the produce quality. With average power consumption of 10W and with output of 500 lux per linear metre, CryoLED2 leads the way in efficiency.

CryoLED2 is CE approved, UL listed, and RoHS compliant. CryoLED is 100% safe – manufactured from non-hazardous and non-breakable materials. CryoLED2 does not emit UV, thus prolonging the shelf-life of fresh foods. It is the perfect lighting solution for salad bars, serve-over counters, fresh-food merchandisers and cosmetic display counters.

All NuaLight's products come in a range of lengths and color temperatures to suit any retail environment.

NuaLight – welcome to the future of lighting.



- Packaging & Optics

NuSil Technology LLC

1050 Cindy Lane, Carpinteria, California 93013, USA
Tel: 805-684-8780
Fax: 805-566-9905
E-mail: silicone@nusil.com
Web: www.nusil.com/engineering/photronics

NuSil Technology is the cutting-edge manufacturer of silicone products for photonics, electronics, opto-electronics and commercial products requiring precise, predictable, cost-effective materials. ISO-9001 certified since 1994, NuSil operates state-of-the-art laboratories and processing facilities in North America and Europe and provides on-site, in-person application engineering support worldwide.

Headquartered near Santa Barbara, California, USA, the company's principal facilities comprise a multi-building campus with over 250,000 square feet. In Europe, NuSil is based in a 1200 square meter facility in Sophia Antipolis, near Nice, France.

Founded in 1979, employee-owned NuSil focuses exclusively on silicone technology and related process development. NuSil is an independent, international organization of scientists and professionals building their reputation – and their customer's success – on silicone technology.

From LEDs to fiber optics, NuSil's Lightspan brand of silicone products delivers custom formulations and the most comprehensive line of high-refractive index matching adhesives, encapsulants and thermosets available. NuSil sets the standard for quality, reliability and consistency.



- Drivers & Control

NXP Semiconductors

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NXP Semiconductors is a leader in innovative silicon systems for Solid State Lighting. With a 50-year history of providing engineers and designers with semiconductors and software, we deliver better sensory experiences for mobile applications, consumer electronics, general lighting and in-car entertainment.

Drawing on that heritage, NXP is introducing highly integrated drivers for LED lighting, mobile flash and LCD backlighting. These SSL solutions help our customers to deliver lighting products that take full advantage of LEDs.

The NXP portfolio includes discretes, application specific integrated components and complete application reference designs. All our solutions integrate easily into products – taking the burden in designing solid state lighting solutions away from the electronics.

'Hassle-free' integration cuts time-to-market and helps speed the adoption of SSL. Next to the LED drivers portfolio, NXP is also a market leader in advanced silicon submounts for efficient and robust HB LEDs, through NXP's proprietary outstanding ESD protection, TCE matching and surfacing technologies.



- Displays & Signs
- LED Arrays & Light Engines
- LED Packages
- Test & Measurement

Power Light Systems GmbH

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Tel: +49 30 6501 7868
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Web: www.led-eshop.de

Established in 2004, Power Light Systems GmbH specializes in optoelectronic components: chips and packaged LEDs, photodiodes, and modules. We provide both standard and custom parts, in wavelengths from UV to near IR, perform reliability tests, burn-in and 100% final test. Please contact us with your optoelectronics related enquiries.

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PublicScreen and Lightsystem Ltd

First Floor Offices, Bridewell Lane, Bury St Edmunds, Suffolk IP33 1RE, UK
Tel: +44 (0)1284 749809
Fax: +44 (0)1284 749812
E-mail: info@publicscreen.co.uk
Web: www.publicscreen.co.uk

Specialising in the specifying and providing LED and control solutions across a wide ranging market place PublicScreen and Lightsystem offers a unique service to its clients. We focus our attention on providing the best balance between cost and performance, using

those best of breed products most suited to our clients' applications.

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- Displays & Signs
- Packaging & Optics
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RPC Photonics, Inc.

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Web: www.RPCphotonics.com

RPC Photonics, Inc. manufactures micro-optical components for various light-control applications. The engineered surfaces find use in diverse fields – semiconductors, displays, projection systems, solid-state lighting, medical illumination, military and space applications. RPC delivers components in polymer, glass or silicon and offers volume manufacturing with replication and injection molding.

- Packaging & Optics

Nye Lubricants, Inc.

12 Howland Rd, Fairhaven, MA 02719, USA
Tel: 508-996-6721
Tel: 508-996-6721
E-mail: techhelp@nyeoptycal.com
Web: www.nyeoptical.com

SmartGels® by Nye Lubricants, serve as encapsulants for high-brightness LEDs and are designed to increase lumen output, extend lumen life and survive demanding operating conditions. Unlike optical epoxies, SmartGels provide a pliable connection between rigid parts, without inducing excessive stresses or delamination and are crystal clear throughout the visible wavelength. They're manufactured, filtered, and deaerated in a clean room environment to ensure they are free from light-absorbing microscopic particulates.



SmartGels® are "taught" how to work in your LEDs and adapt to your production environment. The refractive index of the gel is matched to the refractive index of your lens. The cured consistency is matched to your specs, from gelatin-like with self-healing characteristics to hard silicone rubber.

SmartGels can also be formulated to resist water, ionizing radiation, reactive chemicals, yellowing at soldering temperatures and more. And every SmartGel is designed for reliability and long service life.



- Architectural Entertainment & Decorative Lighting
- General Lighting
- Packaging & Optics
- Test & Measurement

Ocean Optics, Inc.

830 Douglas Ave., Dunedin, FL 34698, USA
Tel: +1 727 733 2447
Fax: +1 727 733 3962
E-mail: info@oceanoptics.com
Web: www.oceanoptics.com

Ocean Optics offers a comprehensive line of optical-sensing systems and components, including low-cost spectroradiometers for measuring absolute the spectral intensity and color parameters of LEDs. Users can configure application-specific systems for a variety of LED-measurement set-ups with additional modular components including integrating spheres, LED power supplies and sampling optics.

Additionally, we offer pulsed LED lamps for use as excitation sources for spectroscopic applications, with versions in wavelengths that range from 380 nm to 623 nm. We also offer The SeaChanger Color Engine, a dynamic new CYMG color changer for ETC Source Four ellipsoidals. The SeaChanger uses Ocean Optics' patented dichroic filter technology to create a nearly endless palette of stable, reproducible colors that do not shift or fade with time or temperature. Configure the filters in up to 4 billion combinations to create delicate pastels, deep saturated primaries and everything in between. With the SeaChanger, you have enhanced overtones and incredible tonal balance and control.



- Packaging & Optics

Optical Research Associates

3280 East Foothill Blvd., Suite 300, Pasadena CA 91107, United States
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Fax: 626-795-0184
E-mail: info@opticalres.com
Web: www.opticalres.com

For over four decades, Optical Research Associates (ORA®) has been an innovative solutions supplier to the optics industry. ORA is the world's leading developer of optical software, providing the CODE V® and LightTools® software packages. ORA is also the largest independent supplier of optical design and engineering services.

CODE V optical design and analysis software has state-of-the-art capabilities for lens optimization, analysis, tolerancing, beam propagation, and coupling efficiency.

LightTools is a complete optical design and analysis software product featuring virtual prototyping, simulation, optimization, and photorealistic renderings of precision illumination applications. LightTools facilitates innovative illumination designs, including backlit and projection displays, automotive instrumentation, LEDs, reflectors, and more.

ORA's Engineering Services team has successfully completed over 4,500 projects for government, commercial, and consumer products, including technical illumination systems for applications ranging from automotive and medical lighting to machine vision and displays.

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RS Components UK

P.O. Box 99, Bitchington Road, Weldon, Corby, Northamptonshire NN17 9RS, UK
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RS, the award-winning global distributor, offers the latest solid state lighting technology from world leading manufacturers. We supply high-powered LEDs, arrays, clusters, assemblies, drivers and ICs. There's a full range of support products: IC evaluation boards, lenses, and heatsinks. We also stock an extensive range of Osram Opto Semiconductors products.

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Sakaria International

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Tel: +91 22-22974972
Fax: +91 22-22837296
E-mail: dispal@sakariaintl.com

We are into manufacturing of various kinds of LED fixtures. Established in 2000 and now from past two years we are producing many kinds of LED modules and various fixtures used with LEDs.

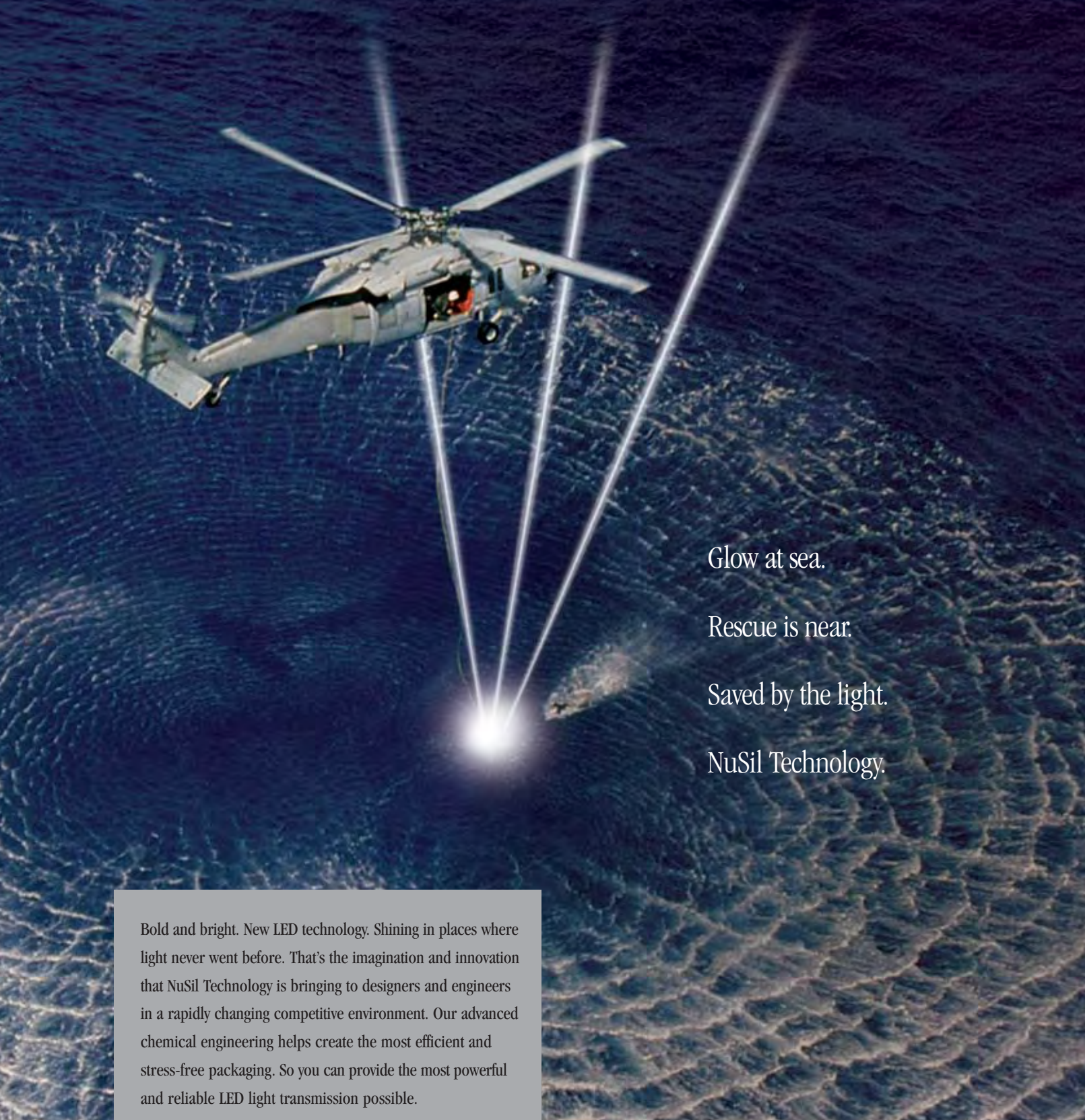
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Samsung Electro-Mechanics

314, Maetan 3-Dong, Yeongtong-Gu, Suwon City, Gyeonggi-Do 443-743, Korea (South)
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Web: www.sem.samsung.com

Samsung Electro-Mechanics cares for nature and the future of the earth. LED Technology is environmentally friendly and proven to be highly effective in saving energy in numerous applications. From Display to Lighting to Automotive, Samsung Electro-Mechanics creates a variety of products using LED Technology.

Products include mid-power 5252 cool white, warm white and RGB LEDs, and high-power 1 W warm white and 3 W cool white LEDs.



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Rescue is near.
Saved by the light.
NuSil Technology.

Bold and bright. New LED technology. Shining in places where light never went before. That's the imagination and innovation that NuSil Technology is bringing to designers and engineers in a rapidly changing competitive environment. Our advanced chemical engineering helps create the most efficient and stress-free packaging. So you can provide the most powerful and reliable LED light transmission possible.

Whatever your scientific needs, look to NuSil for innovative solutions. From LEDs to fiber optics, large batches to small, our Lightspan brand of products delivers precise, custom formulations and the most complete line of high-refractive index-matching adhesives, encapsulants and thermosets available. All backed by more than 25 years of engineering expertise. Follow the light to NuSil.

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- Test & Measurement

Optronic Laboratories

4632 36th Street, Orlando, Florida 32811, USA
Tel: +1 407 422 3171
Fax: +1 407 648 5412
E-mail: info@olinet.com
Web: www.olinet.com

Optronic Laboratories offers the most comprehensive line of LED test solutions available. Our new OL 771 Multichannel Spectroradiometer was designed specifically for measurement and testing of today's innovative solid-state lighting sources, such as the latest ultra high-brightness LEDs. All electronics are housed in a single rugged, portable enclosure. It features highly intuitive Windows-based software and introductory pricing starts around \$12K until October 2007 (USA only).

We also offer the OL 770 Test and Measurement System, a high-speed, CCD-based spectroradiometer that can be customized to any LED measurement application. Lightweight and portable, it provides high-precision, fast, accurate, research-grade measurements to meet your demanding production application within your budget without compromising quality, consistency, and precision. Also available in the UV/VIS and VIS/NIR wavelength ranges, the OL 770 is compatible with our full range of accessories.



- Architectural Entertainment & Decorative Lighting
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Oshino Architectural LED Lighting

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Fax: +44 (0)115 920 9886
E-mail: sales@oshino-led.co.uk
Web: www.oshino-led.co.uk

Established in 1931, Oshino has been at the forefront of the technological development of miniature, sub-miniature and solid-state lighting devices for decades and its products are used by aerospace and automotive industries worldwide.

In the UK, Oshino Lamps (UK) Ltd also brings its technologic and customer service expertise to lighting for the designed environment under the banner of Oshino Architectural LED Lighting.

Oshino Architectural LED Lighting recognizes that the most important element of a successful lighting scheme is the value that it brings to the client.

By utilizing the greater benefits of LEDs, we match the appropriate LED product to the most challenging of lighting duties including the illumination of architectural exteriors and contemporary/modern interiors. Now with LED luminaires from the extensive Neo-Neon range available in the UK from Oshino Architectural LED Lighting and worldwide from the Oshino Group.



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OSRAM GmbH

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Web: www.osram.com/led

As a global player in the general lighting and opto semiconductor market, OSRAM has core competence in development and manufacture of LED - from individual LED to complete modules, including electrical, thermal and optical design.

OSRAM provides a trendsetting range of powerful complete LED-systems including OPTOTRONIC electronic gear and light control systems for versatile applications: architectural indoor and outdoor lighting applications, shop-lighting, accent and decorative lighting, illuminated advertising as well as customized solutions for LCD backlighting applications in e.g. TV and special displays with LED modules and appropriate drivers.

The innovative LED Systems from OSRAM are the ideal basis for creative ideas in different applications and new lighting solutions.



- Architectural Entertainment & Decorative Lighting
- Backlighting & Projection
- Displays & Signs
- Drivers & Control
- General Lighting
- LED Arrays & Light Engines
- LED Chips
- LED Packages
- Medical, Industrial & Other
- Mobile Appliances
- Packaging & Optics
- Signals
- Vehicle Lighting

Sasco Holz GmbH

Wemher-von-Braun-Straße 9a, Putzbrunn, 85640 Germany
Tel: +49 (0) 89/ 46 11-0
Fax: +49 (0) 89/ 46 11-270
E-mail: info@sascoholz.com
Web: www.sascoholz.com

As the solutions distributor of the Arrow Central Europe Group Sasco Holz GmbH, headquartered in Munich, offers its customers complete lighting solutions. The broad product range includes LEDs, LED drivers and power supplies, secondary and tertiary optics and LED based Modules. A dedicated team of engineers is working together with supplier partners Avago, CML and Osram Opto on LED solutions.

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- General Lighting
- LED Arrays & Light Engines
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- Packaging & Optics

SchahLED Lighting GmbH & Co.KG

Rotwandstrasse 16, Pullach, Munich D-82049, Germany
Tel: +49 89 7498 6020
Fax: +49 89 7498 6013
E-mail: erich.obermeier@schahl.de
Web: www.schahled.de

We are an LED solutions provider with 40 years' special lighting experience combined with deep LED knowledge. We offer the best LED solutions for any application; cooperation with market leaders; high power LEDs, LED light engines and modules; integrated LED solutions (standard or custom specific); optics, drivers and controllers; and project business with complete LED fixtures.

- Architectural Entertainment & Decorative Lighting
- Displays & Signs
- General Lighting
- LED Arrays & Light Engines
- LED Packages

Shenzhen Jiuzhou Optoelectronics Co. Ltd

Building 7#, Lantian Technology Park, Ditang Road, Shajing Street, Baoan District, Shenzhen, China
Tel: +86 755-8204 8532
E-mail: overseas@jz-led.com
Web: www.jz-led.com

Shenzhen Jiuzhou Optoelectronics Co. Ltd is a leading professional manufacturer in semiconductor lighting field.

Our company has the most advanced automatic product line of LED in the world, and has ultra clean and antistatic factory with 10 000 square meters. We can provide LED products with CE, UL and RoHS certificate.

TECHNOLOGY
meets simplicity.



the next generation of LED illumination is upon us.



unique designs and illumination solutions
for all types of lighting applications.



specialty LED lamps designed for the lighting,
electronic signage and transportation industries.

ILLUMINATION^{LED}



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The Dynasty High Flux LED has completely redefined the traditional LED packaging. This unique design provides solutions in LED integration without the hassle of a secondary heat sink. Cut down your R&D time by using the most versatile LED on the market.



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OSRAM Opto Semiconductors GmbH

Wernerwerkstrasse 2, Regensburg, 93049, Germany

Tel: 0049 941 850 1700

Fax: 0049 941 850 3302

E-mail: support@osram-os.com

Web: www.osram-os.com

As the world's second largest manufacturer of optoelectronic semiconductor for the illumination, sensing and visualization sectors, OSRAM Opto Semiconductors GmbH combines extensive know-how in semiconductors, converter materials and packages under one roof. At its headquarters in Regensburg, Germany, a further production site in Penang (Malaysia) and a global network of sales and marketing centers, the company employs more than 3500 people. In the 2006 fiscal year, it achieved sales of around 500 million euros. The extensive semiconductor product portfolio of OSRAM Opto Semiconductors includes high-power LEDs in the visible range, high-performance infrared LEDs, high-quality optoelectronic detectors, organic light emitting diodes (OLEDs) and high-power semiconductor lasers. All the components are available in various output categories with different brightness levels, sizes and package formats.



- General Lighting
- LED Arrays & Indicators
- Medical, Industrial & Other
- Signals
- Aircraft, Naval & Vehicle Lighting

Oxley Group plc

H.Q. Priory Park, Bardsea, Ulverston, Cumbria LA12 9QG, UK

Tel: +44 (0) 1229 483226

Fax: +44 (0) 1229 580687

E-mail: marketing@oxley.co.uk

Web: www.oxleygroup.com

Oxley is an established supplier of high quality packaged LEDs with more than 40 years experience as a leading designer and manufacturer. Since early developments of producing high-brightness LED indicators, the company's breadth, scope and product range has increased dramatically.

Our products are durable, reliable and are manufactured to last the life of the application. They are supplied for use in defence, rail, naval, aerospace and industrial applications. The range includes LED indicators, bulb replacements, aircraft, ship and vehicle lighting systems, shelter, area and CCTV lighting.

Our core expertise is in the visible, covert infrared and night-vision technologies. All are designed, manufactured and tested in-house by Oxley engineers.



- Architectural Entertainment & Decorative Lighting
- Backlighting & Projection
- Displays & Signs
- General Lighting
- LED Arrays & Light Engines
- LED Packages
- Medical, Industrial & Other
- Mobile Appliances
- Signals
- Vehicle Lighting

PerkinElmer Optoelectronics

35 Congress Street, Salem, MA 01970, USA

Tel: +1 978-745-3200

Fax: +1 978-745-0894

E-mail: opto@perkinelmer.com

Web: www.optoelectronics.perkinelmer.com

With global resources and manufacturing capabilities, PerkinElmer offers standard and custom LED solutions for medical, architectural lighting, specialty lighting, illumination, and automotive applications that require superior brightness, excellent thermal management and the highest packaging density available. PerkinElmer's distinctive Chip on Board (COB) technology provides OEMs with excellent color mixing, and precision chip placement for a variety of lighting applications.

The ACULED™ (all-color ultra bright LED) is at the cornerstone of PerkinElmer's LED Solutions suite. It is available with the ACULED™ LHS-AL25, a new, easily attachable, cost-effective lens holder system for beam shaping of the ACULED™ RGB LED. With more than 25 years of experience in COB technology, the opportunity to leverage high-volume manufacturing at low costs, and close partnerships with major LED chip suppliers, PerkinElmer offers OEMs great flexibility for implementing new lighting ideas and products.

More information about PerkinElmer's LED solutions is available at optoelectronics.perkinelmer.com.



- Architectural Entertainment & Decorative Lighting
- Drivers & Control
- General Lighting
- LED Arrays & Light Engines

Solar GB Ltd

Unit 5 Parkside Industrial Estate, Glover Way, Leeds, LS11 5JP, UK

Tel: +44 (0) 870 7512860

Fax: +44 (0) 870 7512850

E-mail: sales@solargb.co.uk

Web: www.solargb.co.uk

SOLAR are designers and manufacturers of high end quality LED lighting offering a wide range in Luxeon-based LED lighting products to suit most architects, lighting specifiers, lighting designers or suppliers requirements. We are a member of the Lumileds "Certified Luxeon Luminaire Manufacturer" network and offer a full range of services from bespoke PCB light engines to full custom LED based luminaries.

- General Lighting

SolarOne Solutions

51 Marble Street, Framingham, MA 01702, USA

Tel: +1 508-620-7652

Fax: +1 508-620-7650

E-mail: info@solarone.net

Web: www.solaroneighting.com

SolarOne® Solutions with its SO-Bright™ technology and SolarOne™ lighting line offers the most advanced, energy efficient solar powered LED area lighting systems on the market today.

- Drivers & Control
- LED Arrays & Light Engines
- Signals
- Vehicle Lighting

SoundOff Signal

PO Box 206, 3900 Central Parkway, Hudsonville, MI 49426, USA

Tel: +1 616 896 7100

Fax: +1 616 896 1286

E-mail: sales@soundoffsignal.com

Web: www.soundoffsignal.com

SoundOff Signal offers the latest technology innovations in strobe, halogen and LED lighting for emergency and commercial vehicle lighting. We specialize in low cost tooling, quick turn around and excellent customer service. In-house lead-free surface mount technology also provides for flexibility in product design while meeting stringent environmental requirements.

- Packaging & Optics

sp3 Diamond Technologies

Santa Clara, CA, USA

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Philips Lighting

Philips Centre, Guildford Business Park, Guildford, Surrey GU2 8XH, United Kingdom
Tel: 01293 776 774
Fax: 01483 575 534
E-mail: barbara.neate@philips.com
Web: www.philips.com

Philips Lighting provides lighting solutions which are designed to make life easier, safer, more enjoyable and more productive. Our application know-how, combined with our commitment to developing advanced technology, makes us your reliable partner to help you realise your LED lighting projects. Our comprehensive range of Philips LED lighting solutions are designed to give you creative freedom and flexibility to achieve your lighting design requirements. Now, even more solid state lighting experiences are possible with our LUXEON® K2 LEDs. In turn, this has spawned a new generation of leading edge luminaires for both indoor and outdoor applications. Whatever your needs, Philips can help you meet your LED lighting challenges.



- Backlighting & Projection
- LED Chips
- LED Packages
- Mobile Appliances
- Vehicle Lighting

Philips Lumileds Lighting Company

370 West Trimble Road, San Jose, California 95131, USA
Tel: +1 877-298-9455
E-mail: info@lumileds.com
Web: www.philipslumileds.com

Philips Lumileds Lighting Company is the world's leading manufacturer of power LEDs and a pioneer in the use of solid-state lighting solutions for everyday purposes including general lighting, automotive lighting, LCD backlights, signage and signaling and digital imaging.

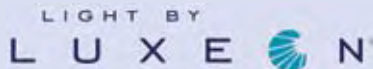
The company's LUXEON® Power Light Sources, LUXEON K2, LUXEON Rebel, LUXEON III, LUXEON V and LUXEON I, combine the brightness of conventional lighting with the small footprint, long life and other advantages of LEDs.

LUXEON LEDs lead the industry in lumens per watt, lumens per square mm and lumens per package.

Philips Lumileds' technology leadership in chip, phosphor and packaging technology continues to deliver ever brighter, more robust LEDs with illumination grade color and quality, to enable the lighting community.

Philips Lumileds manufactures all the chips used in each of the company's LED products.

Philips Lumileds is headquartered in San Jose, California, with operations and sales offices around the world.



- Mobile Appliances
- Packaging & Optics

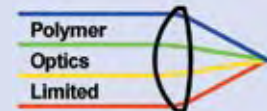
Polymer Optics Ltd

6 Kiln Ride, Wokingham, Berkshire RG40 3JL, UK
Tel: +44 118 989 3341
Fax: +44 118 989 3341
E-mail: info@polymer-optics.co.uk
Web: www.polymer-optics.co.uk

Polymer Optics Limited designs and manufactures plastic optical components, specializing in LED optical systems.



A standard range of stock components are available to suit all major LED types and applications. Custom designs and the manufacturing service can be provided to meet more specialist requirements.



- Architectural Entertainment & Decorative Lighting
- Displays & Signs
- General Lighting
- LED Arrays & Light Engines
- Medical, Industrial & Other
- Signals
- Vehicle Lighting

Starled Inc

1050 E. Dominguez St, Unit P, Carson, CA 90746, USA
Tel: +1 310-603-0403
Fax: +1 310-603-1335
E-mail: sales@starled.com
Web: www.starled.com

Starled is a leading manufacturer of LED lamps for incandescent replacement. Starled's high quality products are currently used by leading OEMs globally. Starled is ISO 9001 certified. Starled products cover all industries including aviation, military, industrial, hazardous, utilities and others with use of state-of-the-art LEDs and solutions.

Solid state LED Lamps for Direct Incandescent Replacements

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 Web: www.starled.com Email: info@starled.com

● Packaging & Optics ● Test & Measurement

Pro-Lite Technology LLP

Innovation Centre, University Way, Cranfield,
Bedfordshire MK43 0BT, UK

Tel: +44 (0) 1234 436110

Fax: +44 (0) 1234 436111

E-mail: info@pro-lite.uk.com

Web: www.pro-lite.uk.com

Pro-Lite provides equipment and measurement services for testing the output (power, intensity, brightness, color, angular/spatial distribution) of LEDs and LED arrays. We also provide software design tools and run training courses in the science of light measurements.

New products for 2007:

- Integrating sphere-based spectroradiometers from Labsphere for total flux, intensity, irradiance as well as color temperature, dominant wavelength, chromaticity and color rendering.
- Labsphere's LSA-3000 goniometer measures LED intensity and color versus angle.
- ProMetric™ CCD-based imaging photometers from Radiant Imaging measure spatial luminance and chromaticity of LED arrays in seconds.
- Radiant's Imaging Sphere™ is the world's fastest LED angular analyzer – measure intensity and color variation over an entire hemisphere in seconds.
- Radiant Source™ models map the 3D light output from LEDs for improved optical ray-tracing.
- Measurement services (flux, angular and spatial variation).
- Training courses on the science of radiometry, photometry, colorimetry and spectroradiometry.



● Packaging & Optics

QSi / ACC Silicones

Quantum Silicones Inc, 8021 Reycan Rd,
Richmond, VA 23237, US

Contact: Blaire Loman, US

Tel: +1 804 271 9010

E-mail: blaireloman@quantumsilicones.com

Web: www.quantumsilicones.com

ACC Silicones Europe, Showground Rd, Bridgwater,
Somerset, TA6 6AJ, UK

Contact: Janis Grant, Europe

Tel: +44 (0)1278 411400

E-mail: info@acc-silicones.com

Web: www.acc-silicones.com

ACC Silicones manufacture silicone compounds both in the US and Europe for the packaging of LEDs. Two key design requirements for LED packaging, the transmission of light and dissipation of heat can be enhanced using our silicone based technology.

Optically transparent, thermally stable, UV resistant gels and elastomers can be used for stress free LED encapsulation at all levels. Thermally conductive encapsulants and adhesives will dissipate heat away from the diode, improving both performance and longevity.

Our experienced technologists provide assistance with all aspects of the design process and can formulate materials to meet specific customer requirements.



● Test & Measurement

Radiant Imaging Inc

15321 Main Street NE, Duvall, Washington
98019, USA

Tel: +1 425 844 0152

Fax: +1 425 844 0153

E-mail: support@radiantimaging.com

Web: www.radiantimaging.com

Radiant Imaging is the world's largest supplier of CCD-based Imaging Colorimeters and Photometers with more than 1000 systems installed throughout Asia, Europe and North America. Designed for ease of use, durability and accuracy, our ProMetric cameras have dynamic ranges from 10 to 16-bits and CCD resolution from 512x512 up to 3072x2048.

In addition, each ProMetric camera includes Radiant's PM Software, which includes powerful data analysis tools and highly intuitive measurement and calibration routines.

Radiant Imaging offers Applications Specific tools for the LED industry, including Accurate Calibration and Correction of LED display module color and brightness; LED array measurement and characterization of signs, traffic signal, automotive lighting and backlights; Luminous Intensity measurements of encapsulated LEDs and LED optical assemblies, using our Imaging Sphere technology; LED source characterization with our Source Imaging Goniometer and Radiant Source Models; and characterization of OLEDs at pixel, module and display levels.



● Market Research

Strategies Unlimited

201 San Antonio Circle, Suite 205, Mountain View,
CA 94040, USA

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Fax: 1-650-941-5120

E-mail: tcarli@strategies-u.com

Web: www.strategies-u.com

Founded in 1979, Strategies Unlimited is the premier provider of market research reports and custom consulting services on the high-brightness LED market, as well as other optoelectronic component markets. It also sponsors the highly-regarded annual LED industry conference Strategies in Light.

● Displays & Signs ● General Lighting ● LED Packages

Sunfire LED, LLC

Denver, CO, USA

● Architectural Entertainment & Decorative Lighting ● Drivers & Control ● General Lighting ● LED Packages ● Medical, Industrial & Other ● Packaging & Optics ● Vehicle Lighting

Super Bright LEDs, Inc.

100 Washington Street, Florissant, MO 63031, USA

Tel: +1 314-972-6200

E-mail: sales@superbrightleds.com

Web: www.superbrightleds.com

Online sales of LEDs, LED bulbs and many other LED Products. LEDs include Super Bright 5mm, 3mm and High Power. LED replacement bulbs for many common automotive, household and industrial applications. Other products include LED Light Bars, Utility Lamps, Truck Lamps, etc. Full catalog and credit card ordering available online only at superbrightleds.com

● Architectural Entertainment & Decorative Lighting ● Backlighting & Projection ● Displays & Signs ● General Lighting ● LED Arrays & Light Engines ● Mobile Appliances ● Signals

Tachai Industrial Co. Ltd

Taipei, Taiwan

● Test & Measurement

Test Equipment Connection

Lake Mary, FL, USA

● Chip Design & Manufacturing ● LED Chips ● LED Packages ● Medical, Industrial & Other

The Fox Group, Inc.

200 Voyageur Drive, Montreal, Quebec H9R 6A8,
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Tel: +1 925 980-5645

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E-mail: sales@thefoxgroupinc.com

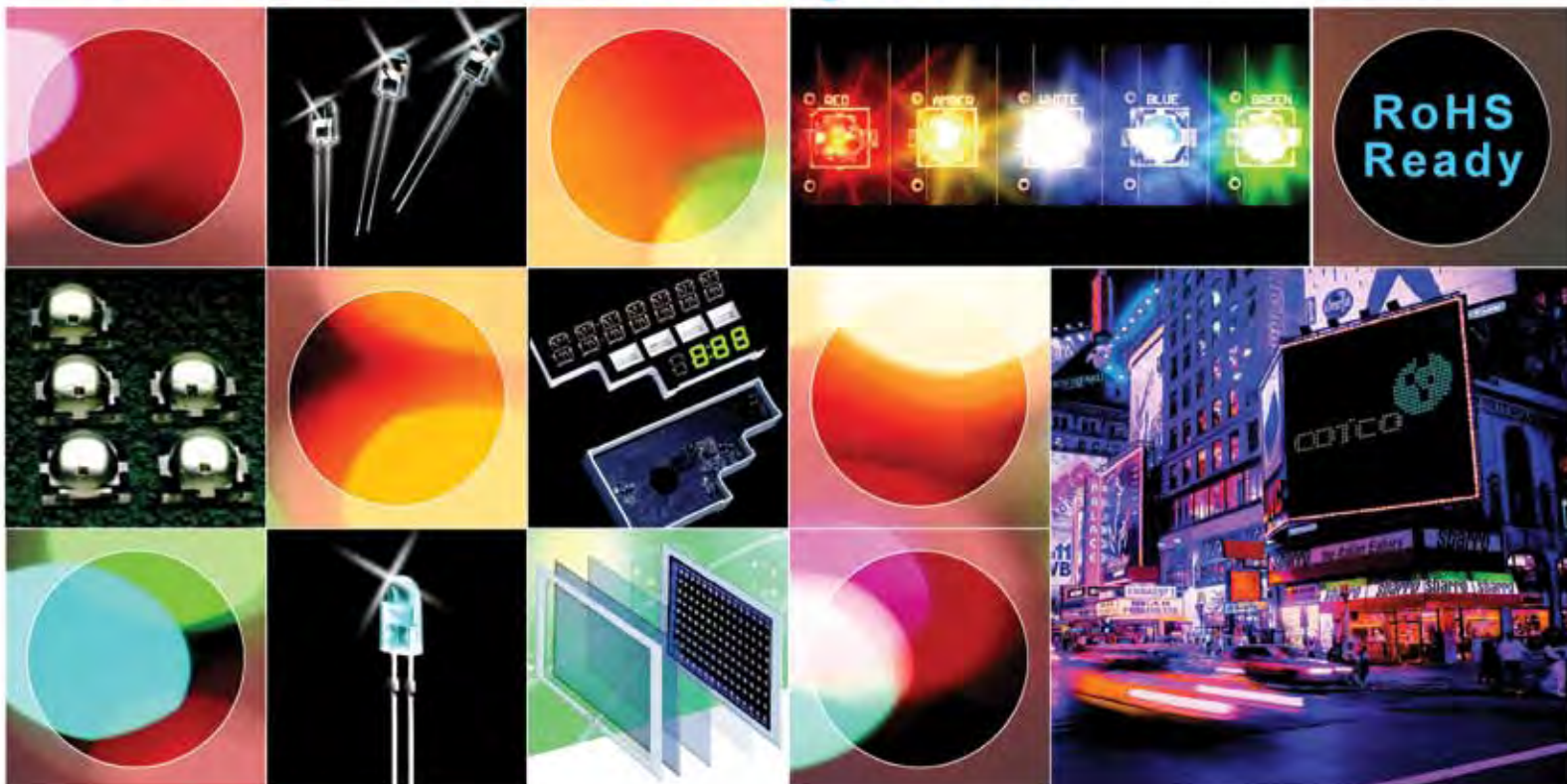
Web: www.thefoxgroupinc.com

FoxUV™ LEDs have peak wavelengths in the ranges of 360–365nm and 350–355nm with 10nm spectral distribution. The wavelength of FoxUV™ LEDs is extremely consistent; typically +/- 1nm, and the Vf is typically +/- 0.2mV. FoxUV™ LEDs are available in standard and power die formats, as well as many standard and custom packages.

COTCO LED - illuminating the Future

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SGS
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PHOTONICS CENTRE
TECHNOLOGICAL
ACHIEVEMENT
CERTIFICATE OF MERIT



RoHS Ready

Established since 1982, COTCO International Ltd. is a world-class quality LED components and products manufacturer. We have over 20 years of experience and expertise in manufacturing and over 10 years experience in development and delivery of High Brightness (HB) LED lamps, displays and modules. Through innovative design, we are committed to delivering products that meet high levels of performance, quality, energy efficiency and cost-effectiveness.

In addition to QS 9000 and ISO 9001 accreditation, COTCO was awarded the ISO/TS16949 accreditation in 2005 for our dedication and devotion to quality assurance. Our continuous research and development in technology has allowed us to break new ground, setting the benchmark in High Brightness LED technology.

COTCO offers a wide range of products specifically designed for a variety of applications:

- Architectural & Entertainment decoration
- Automotive lighting
- Traffic signals
- Channel letters & Signage
- Indoor/ Outdoor video screens
- LCD TV Backlight
- Dot Matrix, 7-Segment & displays



COTCO International Ltd.
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- Drivers & Control ● LED Arrays & Light Engines
- Packaging & Optics

ROAL Electronics S.p.A.

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Tel: +1.570.421.5750
Fax: +1.570.421.5687

E-mail: info@freeyourlight.com
Web: www.roalelectronics.com

ROAL provides HB LED lighting product design and manufacture. Our turn-key capabilities are based on our patented high-efficiency power converters, digital controllers, drivers and thermal packing. Our highly integrated designs leverage our know-how into your solid-state lighting project.

ROAL will help you unlock the true benefits of LED lighting with integrated high-performance electronics, shorter design cycles and low-cost manufacturing.

The HB LED has been labeled a disruptive technology in lighting. ROAL will help insure that the adoption of this technology is not disruptive to your business.



ROAL
 living energy

- Backlighting & Projection ● Displays & Signs ● Drivers & Control ● LED Arrays & Light Engines ● LED Chips ● LED Packages ● Mobile Appliances ● Packaging & Optics

ROHM

10145 Pacific Heights Blvd., Ste. 1000,
 San Diego, CA 92121, USA
Tel: 888-775-ROHM
Fax: 858-625-3670
E-mail: marketing76@rohmelectronics.com
Web: www.rohm.com

Established in Kyoto, Japan, in 1958, ROHM designs and manufactures integrated circuits and other electronic components. ROHM's LED product line includes an ultra-bright LED series that incorporates an original four-element (AlGaInP) compound.

ROHM's full-color dot matrix LED units utilize exclusive potting lens development technology that results in greater readability and viewing contrast. Incorporating a 1,024-level grayscale driver for each color (red, green, blue), these modules are capable of producing up to a billion colors, resulting in the highest quality color expressions in a variety of visual formats.

ROHM's latest development, the SML-P12 series (PicoLED™), are the smallest (0.04 × 0.02 in), thinnest (t = 0.008 in) full-color LEDs available. These new units feature the same level of brightness as conventional chip LEDs and are available in a variety of colors: red, orange, yellow, green, blue and white.

ROHM

- LED Packages ● LED Arrays & Light Engines ● Backlighting & Projection ● Vehicle Lighting ● Mobile Appliances

Seoul Semiconductor

148-29 Gasan-Dong, Geumcheon-Gu, Seoul
 153-801, Korea, South
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Fax: +82-2-858-7739
E-mail: bleach79@seoul-semicon.co.kr
Web: www.acriche.com

Seoul Semiconductor is the largest LED lighting solutions manufacturer in Korea, and one of the ten largest in the world. Seoul Semiconductor has recently been named in *Forbes'* and *BusinessWeek's* lists as one of the most promising Asian companies.

Its semiconductor light source, Acriche, was named "Product of the Year in 2006" by one of the most prestigious electronics magazines in Europe,

Elektronik. Applications for the company's LED products include general illumination, signage, street lighting, architectural lighting, back lighting for mobile phones, TVs, and notebook computers, cars, home appliances, task lighting, traffic signals, and portable lighting. Seoul Semiconductor has 927 patents and 83 licences.

The company reported US\$200 million in sales in 2006 and has more than 1000 employees, of which more than 160 are dedicated to research and development.



"A Good Company of Good People"
SEOUL SEMICONDUCTOR CO.,LTD

- Architectural Entertainment & Decorative Lighting ● Drivers & Control ● General Lighting ● LED Arrays & Light Engines

TIR Systems Ltd

7700 Riverfront Gate, Burnaby, British Columbia V5J 5M4, Canada
Tel: +1 800 663 2036
Fax: +1 604 294 3733
E-mail: info@tirsys.com
Web: www.tirsys.com

TIR Systems Ltd developed Lexel®, the first fully-integrated light source based on LEDs. Lexel® was designed specifically to produce high-quality white light essential for 21st century lighting applications. This new light source has the potential to reduce energy consumption on a global scale while delivering substantially greater lighting functionality and an unrivaled light quality. The first Lexel-based products are available from our partners in 2007.

- Drivers & Control ● LED Chips ● LED Packages ● Mobile Appliances ● Vehicle Lighting

Toshiba Electronics Europe GmbH

Hansaallee 181, Dusseldorf 40549, Germany
Tel: +49 211 5296 0

E-mail: info@toshiba-components.com
Web: www.toshiba-components.com

Toshiba is one of the world's leading manufacturers of optoelectronic components. Toshiba LEDs are available in a wide SMD package line-up. All colors can be served with highest luminosity and highest reliability for applications from automotive and LCD backlighting to general lighting. Latest products are very efficient, powerful white LEDs.

- Architectural Entertainment & Decorative Lighting ● General Lighting

Traxon Technologies (UK) Ltd

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 Birmingham B48 7QA, UK
Tel: +44 (0)8701503523
E-mail: info@traxon-uk.com
Web: www.traxontechnologies.com

- Architectural Entertainment & Decorative Lighting ● Drivers & Control ● LED Arrays & Light Engines ● LED Packages

TridonicAtco Optoelectronics GmbH

Technologiepark 10, Jennersdorf, A-8380, Austria
Tel: +43 3329 9010 840-0

E-mail: office-opto@tridonicatco.com
Web: www.tridonicatco.com

We can offer our customers products with ideal, thermal, optical, electrical, mechanical properties, built around LED modules, for every application, with optimal lifetimes and brightness.

- Architectural Entertainment & Decorative Lighting ● Displays & Signs ● Drivers & Control ● General Lighting ● LED Arrays & Light Engines

Tri-O-Light

Hermesweg 23, Bameveld, Gelderland 3771 ND,
 Netherlands
Tel: +31 (0)342 450506
Fax: +31 (0)342 450232
E-mail: info@triolight.com
Web: www.triolight.com

Tri-O-Light supplies LED and fibre-optic lighting all over Europe and abroad on a daily basis, mostly to the professional end user like distributors, wholesalers, architects, lighting designers, installers and OEM. Tri-O-Light produces her plug and play product range partly in house, partly externally in Asia.

- Test & Measurement

SphereOptics

One Horseshoe Pond Lane, Suite 1, Concord, NH 03301, USA

Tel: +1 603 715 3000

Fax: +1 603 225 3089

E-mail: sales@sphereoptics.com

Web: www.sphereoptics.com

SphereOptics designs, produces and sells precision radiometric and photometric test and measurement products addressing the specific needs of the aerospace, electronic imaging, LED, lighting, medical imaging and optics industries.

The company offers a broad line of integrating sphere systems, specializing in custom design and manufacturing services.

SphereOptics has sales and service centers located in the USA, France and Germany, and a network of qualified representatives worldwide.



- Backlighting & Projection
- LED Arrays & Light Engines
- Mobile Appliances
- Vehicle Lighting
- General Lighting
- LED Packages
- Packaging & Optics

Stanley Electric (Co) Ltd

Atrium Court, The Ring, Bracknell, Berkshire RG12 1BW, UK

Tel: +44 (0)1344 393053

Fax: +44 (0)1344 393 153

E-mail: sales@stanley-electric-eu.com

Web: www.stanley-components.com

Stanley Electric is a world leading manufacturer of LEDs and other optoelectronic devices. With cutting-edge development, excellent design and technical expertise together with world-class manufacturing capabilities we support clients from the automotive, mobile phone and lighting industries and beyond.

Stanley is also involved currently in exciting new fields such as LED street lighting and commercial lighting applications, as well as camera flash technology and other innovative opto electrical technologies.

With Headquarters in Japan, and local sales offices globally, we are able to support our customers in any region. Europe is supported not only by our offices in the UK, but also by offices in France and Germany. Contact us today for more information.



- Test & Measurement

Sterner Automation Ltd

55 Fieldway Road, Toronto, Ontario M8Z 3L4, Canada

Tel: 1-416-538-1826 x272

Fax: 1-416-538-2876

E-mail: elliot.dobski@sternerautomation.com

Web: www.sternerautomation.com

Growing demand for LED lighting combined with increasing testing complexity, continue to challenge lighting manufacturers. Sterner Automation, a leader in LED test technology provides solutions that address these specialized requirements, including the versatile igentic™ 821t panel testing system.

This automated process combines advanced vision technology with flexible positioning and power-up capabilities to detect inconsistencies in individual LED lights at the panel production level.

Features included:

- Measures color and luminous intensity
- Handles both steady-glow and flashing LED lights
- Provides greater flexibility needed to handle individual or multiple board contact and power-up requirements
- Multiple product handling capability
- Provides product and operator traceability
- Ability to detect off-axis LED lights
- Multi-language compatibility, remote monitoring and 24-7 help support our global customers.



- Architectural Entertainment & Decorative Lighting
- Drivers & Control
- LED Arrays & Light Engines
- Signals
- General Lighting
- LED Packages
- Vehicle Lighting

Tryka L.E.D. Ltd

Shepreth, UK

- LED Chips
- LED Packages

Twin Hill Corp. Ltd

7F-5, No. 57, Fu-Hsing N. Rd, Taipei 105, Taiwan

Tel: +886-2-2731-8199

E-mail: twinhill@twinhill.com.tw

Web: www.twinhill.com.tw

Exclusive agent of Toyoda Gosei LED products in Greater China, supplying InGaN dice (high output power blue/green) and packaged products (SMD t=0.6/0.8, lamp etc).

- Test & Measurement

UL International (UK) Ltd

Wonersh House, The Guildway, Old Portsmouth Road, Guildford, Surrey GU3 1LR, UK

Tel: +44 (0)1483 302 130

Fax: +44 (0)1483 302 230

E-mail: info.uk@uk.ul.com

Web: www.ul.com

As one of the world's leading product safety

testing and certification organizations, Underwriters Laboratories Inc. (UL) is synonymous with safety. Its UL Mark is the most recognized and trusted symbol of safety in the world. UL has a special standard for LEDs and LED lighting, which will facilitate the North-American market access of your products.

- Backlighting & Projection
- LED Arrays & Light Engines
- LED Packages
- Mobile Appliances
- Vehicle Lighting

Unity Microelectronics, Inc.

1501 Summit Ave, Suite 10, Plano, TX 75074, USA

Tel: +1 972.312.0702

Fax: +1 972.312.9301

E-mail: sales@unity.com

Web: www.unity.com

Unity Microelectronics, Inc. is a leader in high bright visible LEDs and IR devices. Our visible portfolio includes SMT and through-hole packages utilizing high bright AllnGaP and InGaN technology as well as laser diodes and LCD backlighting. IR products include emitters, photodiodes, phototransistors, receiver modules, photo interrupters and photolink products.

- Architectural Entertainment & Decorative Lighting
- Displays & Signs
- Drivers & Control
- General Lighting
- LED Arrays & Light Engines
- LED Packages
- Vehicle Lighting

Versabright

Warren, Michigan, USA

- Drivers & Control
- LED Packages
- Vehicle Lighting

Vishay Intertechnology, Inc.

Malvern, PA, USA

- Architectural Entertainment & Decorative Lighting
- Drivers & Control
- LED Packages
- Packaging & Optics
- Lenses & Other Optical components

VLM GmbH – The World of Lights

Mettmann, Germany

- Packaging & Optics

ZEMAX Development Corporation

Bellevue, WA, USA

● Drivers & Control

Supertex

1235 Bordeaux Drive, Sunnyvale, CA 94089, USA
Tel: +1 408 222 8888
Fax: +1 408 222 4895
E-mail: mktg@supertex.com
Web: www.supertex.com

Supertex is a producer of high voltage analog and mixed signal semiconductors and integrated circuits (ICs) that are used primarily to interface between low voltage computer signals and high voltage applications in the real analog world. We design, develop, manufacture and market these semiconductor devices utilized in key products for the telecommunication, networking system, flat panel display, medical and industrial electronic industries. Our process technologies have enabled us to penetrate emerging markets such as the high-brightness LED (HB LED) arena where the number of applications and the demand for LEDs continues to grow significantly.



Supertex inc.

● Chip Design & Manufacturing ● LED Chips

Tekcore Co. Ltd

No.18, Tzu-Chung 3rd Road, Nan-Kung Industrial Zone, Nantou City, 540, Taiwan
Tel: +886 49 226 1626
Fax: +886 49 226 1635
E-mail: sharon@tekcore.com.tw
Web: www.tekcore.com.tw

Tekcore is one of the leading LED wafer and chip production companies in Taiwan. Specializing in GaN based high brightness LED technology of green, blue, and ultraviolet wavelengths and expanding into AlInGaP based red, yellow, and orange, we strive to be a world leader in wafer and chip production. Tekcore was established in the year 2000 and continues to grow and offer its customers the very best in products, service, and prices.

At Tekcore our outlook is clear: by combining cutting edge science, top quality products, competitive prices, and excellent customer service we can ensure the continued prosperity of our company and help encourage the proliferation of LED technology in general. Our approach is based on thorough Quality Control procedures and continual Research and Development. This ensures that our products remain on the crest of the LED advancement wave and are guaranteed to be of the highest available quality.



● Packaging & Optics

Ticona Engineering Polymers

8040 Dixie Highway, Florence, KY 41042, US
Contact: prodinfo@ticona.com
Tel: 1-800-833-4882
E-mail: prodinfo@ticona.com
Web: www.ticona.com

Ticona, a global engineering thermoplastics supplier and the world's largest producer of liquid crystal polymer (LCP), has helped pioneer the use of this high-performance plastic in high-brightness LEDs.

For LED housing material, Vectra® LCP provides the features and benefits expected of a high-performance engineering polymer.

In precision molding applications, Vectra LCP replicates thin and intricate housing features. Because it withstands temperatures well above 300 °C, it preserves LED integrity during lead-free reflow soldering. Vectra LCP has negligible outgassing, so its volatiles will not fog the lens or affect contacts.

Ticona also serves as a technology partner, helping its LED customers make optimum use of its high-performance engineering polymers with an array of design, analytical and molding support services.

Ticona is active in other lighting areas, including Vectra LCP for high temperature sockets and bezels in advanced automotive lighting systems and Celanex® PBT for auto bezels and housings.



Index: Components

LED PACKAGES

AC LEADS

Lynk Labs
 Seoul Semiconductor
 YEG Components

FIBER-COUPLED LEADS

AP Technologies Ltd
 Epiled
 Everlight Electronics
 OPTEK Technology

PHOSPHORS

Intematix Corp
 Nichia America Corp
 ROHM
 Toshiba Electronics Europe
 YEG Components

POWER LEADS

American Bright Optoelectronics
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 Sunfire LED, LLC

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 Edison Opto Corp
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- Backlighting & Projection
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- General Lighting
- LED Arrays & Light Engines
- Medical, Industrial & Other
- Packaging & Optics
- Signals
- Vehicle Lighting

Universal Science Ltd

16 Walker Avenue, Wolverton Mill, Milton Keynes, Bucks MK12 5TW, UK
Tel: 44 1908 222211
Fax: 44 1908 222221
E-mail: sales@universal-science.com
Web: www.universal-science.com

Universal Science is a leading specialist in the thermal management of electronic assemblies in many industry sectors from automotive to motor drives. Our experience in this field is highly relevant in cooling LEDs. We have helped many traditional lighting companies with the design, development and manufacture of LED-based light engines.

We do this by manufacturing the widest range of thermal products dedicated to cooling LEDs and we are able to computer-model the proposed design and then test prototypes in our comprehensive laboratory.

Universal Science owns high-speed fully automated production to assemble LED light engines. We offer the manufacture of fully integrated LED lighting systems including the PSU and drivers, optics and housings. If required we can deliver the LED luminaire with your company's logo applied and ready for use.



- Architectural Entertainment & Decorative Lighting
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- Signals
- Vehicle Lighting

US A'SYCK Corporation

One Park Plaza, Suite 600, Irvine, CA 92614, USA
Tel: 248-345-7795
Fax: 248-305-5764
E-mail: r.ponkey@usasyck.com
Web: www.usasyck.com

US A'SYCK Corporation is a division of A'SYCK Co. Ltd with corporate headquarters in Kyoto, Japan. We are a privately held and growing company with sales in excess of US\$45 million.

Our products include tri-color surface mount LEDs, segment displays, alpha-numeric displays, semi-custom and custom LED assemblies. Product capabilities include LED manufacturing, product design, PCB design, plastic molding, final assembly and test.

Industries served include gaming, automotive, general lighting, electronic signboard, and test and measurement. US A'SYCK is a quality ISO 9000 manufacturer of LED products with more than 25 years of experience in the LED industry.



- Chip Design & Manufacturing

Veeco Instruments Inc.

100 Sunnyside Blvd., Woodbury, New York 11797, USA
Tel: +1 516 677 0200
Fax: +1 516 714 1231
E-mail: sales@veeco.com
Web: www.veeco.com

Veeco is the world's leading supplier of equipment to the compound semiconductor industry, and the only company offering both Metal Organic Chemical Vapor Deposition (MOCVD) and Molecular Beam Epitaxy (MBE) solutions. With Veeco, you get the maximum flexibility, backed by leading process expertise. Veeco not only provides you with more choices, but the leading technology platforms as well.

Our metrology and process equipment products provide solutions for nanoscale applications in the worldwide LED/wireless, data storage, semiconductor and scientific research markets. Veeco's tools help grow, process and measure integrated circuits at the nanoscale level using MOCVD, MBE and Atomic Force Microscopy (AFM) technologies, fostered by the industry's most advanced Process Integration Center (PIC).



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- Everlight Electronics
- Forge Europa
- Future Lighting Solutions
- Helio Optoelectronics Corp
- ISP Co, Ltd
- JK Components Ltd
- Kingbright Corp
- Lamina
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- LEDs.com.mx
- Marl International Ltd
- MSC Vertriebs GmbH
- Nichia America Corp
- Novoled
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- Osram GmbH
- Osram Opto Semiconductors
- PerkinElmer Optoelectronics
- Philips Lighting
- Philips Lumileds Lighting
- Power Light Systems
- ROHM
- RS Components
- Samsung Electro-Mechanics
- Sasco Holz GmbH

- Seoul Semiconductor
- Shenzhen Jiuzhou Optoelectronics
- Stanley Electric (Co) Ltd
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- Twin Hill Corp, Ltd
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- US A'SYCK Corp
- Versabright
- VLM GmbH
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- YEG Components

SURFACE-MOUNT LEDs

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- Citizen Electronics Co. Ltd
- Cotco International Ltd
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- E Wave Corp
- EBV Elektronik
- Edison Opto Corp
- Enfis Ltd
- Epiled
- Everlight Electronics

- Forge Europa
- Future Lighting Solutions
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- Novoled
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- Osram Opto Semiconductors
- PerkinElmer Optoelectronics
- Philips Lighting
- Power Light Systems
- ROHM
- RS Components
- Samsung Electro-Mechanics
- Sasco Holz GmbH
- SchahILED Lighting
- Seoul Semiconductor
- Shenzhen Jiuzhou Optoelectronics

- Stanley Electric (Co) Ltd
- The Fox Group, Inc
- Toshiba Electronics Europe
- Twin Hill Corp, Ltd
- Unity Microelectronics, Inc
- US A'SYCK Corp
- Versabright
- Vishay
- VLM GmbH
- Vossloh-Schwabe Optoelectronic
- YEG Components

THROUGH-HOLE LEDs

- American Bright Optoelectronics
- AP Technologies Ltd
- Arrow Electronics, Inc
- Avago Technologies
- Binay Opto Electronics
- Brite-LED Optoelectronics Inc
- CAO Group, Inc
- Cotco International Ltd
- Cree, Inc
- EBV Elektronik
- Elumina Technology, Inc
- Epiled
- Everlight Electronics
- Forge Europa
- Future Lighting Solutions

- Architectural Entertainment & Decorative Lighting
- Backlighting & Projection
- Displays & Signs
- Drivers & Control
- LED Arrays & Light Engines
- LED Packages

Vossloh-Schwabe Optoelectronic GmbH & Co. KG

Carl-Friedrich-Gauß-Str. 3, Kamp-Lintfort, North Rhine-Westphalia 47475, Germany
Tel: +49 2842 980 0
Fax: +49 2842 980 299
E-mail: vertriebvs@vsw.vossloh-schwabe.com
Web: www.vs-optoelectronic.com

VS Optoelectronic, which is headquartered in Kamp-Lintfort, Germany, is part of the Panasonic Electric Works Vossloh-Schwabe Group, known for its excellent product line and technological know-how in the utilization of LEDs in the lighting industry.

With more than 25 years of experience in the field of LED technologies and a vast range of LED modules, controls and connector technologies, VS Optoelectronic is the competent and experienced partner in finding solutions that are the perfect match to customers' requirements.

VS Optoelectronic applies COB, SMD and T-type technologies as well as high-power LED solutions. In particular, innovative chip-on-board technology enables chip densities of up to 70 chips/cm². This innovation is well suited when there is a need for miniaturization and opens up new and fascinating areas of applications.

VS Optoelectronic is approved according to DIN EN ISO 9001 and ISO 14001.



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- LED Arrays & Light Engines
- LED Chips
- LED Packages
- Medical, Industrial & Other
- Mobile Appliances
- Packaging & Optics
- Signals
- Vehicle Lighting

YEG Components

Coronation Road, Cressex Business Park, High Wycombe, Buckinghamshire HP12 3TA, UK
Tel: +44 (0)1494 753500
Fax: +44 (0)1494 753501
E-mail: sales@youngelectronics.com
Web: www.younelectronics.com

YEG Components distributes a broad range of LED and opto devices from global suppliers at the leading edge of technology.

Our strength in distribution is coupled with a commitment to high levels of customer service to bring you the latest technology products at competitive prices. In addition, our in-house expertise includes design-in assistance if required to compliment your product development.

We distribute LEDs and opto devices from world-class partners such as Bright LED, Cosmo, Excellence Opto Inc, Seoul Semiconductor and Sunled. We are able to draw on the specific expertise of our principals to promote an extensive selection in terms of packages, chip technology, optics and modules. We can fulfil needs from markets as demanding as brown goods, professional audio, Highway Agency, automotive and lighting.



- Drivers & Control
- Mobile Applications
- Vehicle Lighting

Zetex Semiconductors plc

Zetex Technology Park, Chadderton, Oldham, Lancs OL9 9LL, UK
Tel: +44-161-622-4444
Fax: +44-161-622-4469
E-mail: hq@zetex.com
Web: www.zetex.com

Zetex Semiconductors provides LED driver ICs for a range of applications, from LCD backlighting and automotive tail-lights to building illumination and digital camera flash.

Purpose designed to drive high luminance white LEDs, the Zetex boost and buck converters ensure highly accurate continuous current control and offer efficiencies as high as 95%.

Small package size combined with high power dissipation is another hallmark of Zetex LED drivers. The use of miniature packages such as the TSOT23-5 and the SC70-6 helps to address the space limitations of even the smallest portable consumer electronics.

Renowned for their high integration and versatility, the Zetex LED drivers present an elegant design platform, which is easily configured to suit the needs of specific applications through a simple change in external components.

With its power efficient transistors and diodes, Zetex can also offer a more complete LED driving solution for higher voltage, higher current switching applications.



Helio Optoelectronics Corp
 International Light Technologies
 ISP Co, Ltd
 JK Components Ltd
 Kingbright Corp
 Ledium Ltd
 Marl International Ltd
 MSC Vertriebs GmbH
 Nichia America Corp
 OPTEK Technology
 OSA Opto Light GmbH
 Osram Opto Semiconductors
 Philips Lighting
 Power Light Systems
 ROHM
 RS Components
 Sasco Holz GmbH
 SchahlLED Lighting
 Seoul Semiconductor
 Shenzhen Jiuzhou Optoelectronics
 Stanley Electric (Co) Ltd
 Super Bright LEDs, Inc
 The Fox Group, Inc
 Toshiba Electronics Europe

Twin Hill Corp, Ltd
 Unity Microelectronics, Inc
 Vishay
 VLM GmbH
 Vossloh-Schwabe Optoelectronic
 YEG Components

UV AND IR LEDES

American Bright Optoelectronics
 AP Technologies Ltd
 Arrow Electronics, Inc
 Brite-LED Optoelectronics Inc
 CAO Group, Inc
 E Wave Corp
 EBV Elektronik
 Edison Opto Corp
 Epiled
 Everlight Electronics
 Future Lighting Solutions
 Helio Optoelectronics Corp
 International Light Technologies
 ISP Co, Ltd
 JK Components Ltd
 Kingbright Corp

LED Lighting Supply
 MSC Vertriebs GmbH
 Nichia America Corp
 NOCTRON S+ßrl
 Novoled
 OPTEK Technology
 OSA Opto Light GmbH
 Osram GmbH
 Osram Opto Semiconductors
 PerkinElmer Optoelectronics
 Power Light Systems
 RS Components
 Sasco Holz GmbH
 Stanley Electric (Co) Ltd
 Super Bright LEDs, Inc
 The Fox Group, Inc
 Toshiba Electronics Europe
 Unity Microelectronics, Inc
 YEG Components

WHITE LEDES

American Bright Optoelectronics
 Arrow Electronics, Inc
 Avago Technologies

Binay Opto Electronics
 Brite-LED Optoelectronics Inc
 CAO Group, Inc
 Color Stars, Inc
 Cotco International Ltd
 Cree, Inc
 E Wave Corp
 EBV Elektronik
 Edison Opto Corp
 Enfis Ltd
 Epiled
 Everlight Electronics
 Forge Europa
 Future Lighting Solutions
 GE Lumination
 Helio Optoelectronics Corp
 International Light Technologies
 ISP Co, Ltd
 JK Components Ltd
 Kingbright Corp
 Lamina
 LED Lighting Supply
 Ledium Ltd
 Lexedis Lighting GmbH

Marl International Ltd
 MSC Vertriebs GmbH
 Nichia America Corp
 NOCTRON S+βrl
 Novoled
 OPTEK Technology
 OSA Opto Light GmbH
 Osram GmbH
 Osram Opto Semiconductors
 PerkinElmer Optoelectronics
 Philips Lighting
 Philips Lumileds Lighting
 Photonic Products Ltd
 Power Light Systems
 ROHM
 RS Components
 Samsung Electro-Mechanics
 Sasco Holz GmbH
 SchahLED Lighting
 Seoul Semiconductor
 Stanley Electric (Co) Ltd
 Sunfire LED, LLC
 Super Bright LEDs, Inc
 The Fox Group, Inc
 Toshiba Electronics Europe
 TridonicAtco Optoelectronics
 Twin Hill Corp, Ltd
 Unity Microelectronics, Inc
 US A'SYCK Corp
 Versabright
 Vishay
 VLM GmbH
 Vossloh-Schwabe Optoelectronic
 YEG Components

LED ARRAYS & LIGHT ENGINES

CHIP-ON-BOARD (COB) ASSEMBLIES

American Bright Optoelectronics
 AP Technologies Ltd
 Arrow Electronics, Inc
 Avago Technologies
 Binay Opto Electronics
 CAO Group, Inc
 Cotco International Ltd
 Cree, Inc
 E Wave Corp
 Elumina Technology, Inc
 Enfis Ltd
 Epiled
 Future Lighting Solutions
 Heatron, Inc
 JK Components Ltd
 Lagotronics BV
 Lamina
 LED Lighting Supply
 LEDdynamics Inc
 Lexedis Lighting GmbH
 Lynk Labs
 Marl International Ltd
 MSC Vertriebs GmbH
 Neo-Neon International Ltd
 OPTEK Technology
 PerkinElmer Optoelectronics
 PRP Optoelectronics Ltd
 PublicScreen and Lightsystem

ROAL Electronics USA
 RS Components
 SchahLED Lighting
 Seoul Semiconductor
 Shenzhen Jiuzhou Optoelectronics
 TridonicAtco Optoelectronics
 Tri-O-Light
 Tryka L.E.D. Ltd
 Unity Microelectronics, Inc
 Universal Science Ltd
 US A'SYCK Corp
 Vossloh-Schwabe Optoelectronic
 YEG Components

CONTRACT MANUFACTURING FOR LED ASSEMBLIES

Allaays LED Instruments NV
 American Bright Optoelectronics
 AP Technologies Ltd
 Apcus Technologies
 Arrow Electronics, Inc
 Automated Concepts, Inc
 Binay Opto Electronics
 Brillianz Ltd
 Brite-LED Optoelectronics Inc
 CAO Group, Inc
 Clarity Lighting Ltd
 Cotco International Ltd
 E Wave Corp
 Edison Opto Corp
 Epiled
 Fusion Optix
 GK Import Export
 Heatron, Inc
 I2Systems
 JK Components Ltd
 LED Lighting Supply
 LED Specialists, Inc
 LEDdynamics Inc
 Palomar Technologies, Inc,
 PerkinElmer Optoelectronics
 PRP Optoelectronics Ltd
 PublicScreen and Lightsystem
 SoundOff Signal
 Tachai Industrial Co, Ltd
 Unity Microelectronics, Inc
 Universal Science Ltd
 US A'SYCK Corp
 YEG Components

CUSTOM MODULES & DESIGN SERVICES

American Bright Optoelectronics
 AP Technologies Ltd
 Arrow Electronics, Inc
 Automated Concepts, Inc
 Avago Technologies
 Binay Opto Electronics
 Brillianz Ltd
 Brite-LED Optoelectronics Inc
 CAO Group, Inc
 Clarity Lighting Ltd
 Color Kinetics
 Color Stars, Inc
 DigitalLicht AG
 E Wave Corp
 Edison Opto Corp
 Elumina Technology, Inc

LCS LED SOLUTIONS Characterization System

TOTAL LUMINOUS FLUX

TOTAL SPECTRAL FLUX

AVERAGED LUMINOUS INTENSITY

AVERAGED SPECTRAL RADIANT INTENSITY

DOMINANT WAVELENGTH

PEAK WAVELENGTH

CENTER WAVELENGTH

CENTROID WAVELENGTH

FWHM FULL WIDTH/HALF MAX

SPECTRAL PURITY

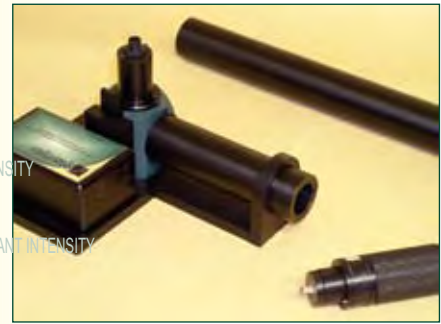
CORRELATED COLOR TEMPERATURE

COLOR RENDERING INDEX

CHROMATICITY COORDINATES

L-I-V CHARACTERIZATION CURVES

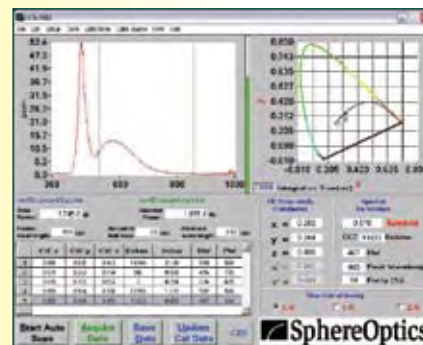
SOAK TIME



The LCS LED Characterization system is designed with measurement accuracy, flexibility and ease-of-use in mind. The base LCS system accepts a series of integrating spheres, ILEDA or ILEDB adapters to achieve any geometry needed to measure optical, spectral, color and purity characteristics of LEDs Lamps and large light sources.

FEATURES:

- high sensitivity spectrometer
- spectral range covering 360 to 1000 nm or 300 to 800 nm
- 1.5 nm spectral resolution
- 0.5 nm wavelength accuracy
- NIST traceable calibrated lamp
- Application software and DLL's



Main data acquisition screen shows real time updates of LED spectrum along with calculated spectral quantities.

Contact us today for more information

SphereOptics

www.sphereoptics.com

603-746-2000

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 Epiled
 Everlight Electronics
 Flomerics Ltd
 Forge Europa
 Fusion Optix
 Future Lighting Solutions
 GK Import Export
 Heatron, Inc
 Helio Optoelectronics Corp
 Integrated System Technologies Ltd
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 Lamina
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 LED Lighting Supply
 LED Specialists, Inc
 LEDdynamics Inc
 Ledium Ltd
 Lumiere Technologies
 Lynk Labs
 MSC Vertriebs GmbH
 Neo-Neon International Ltd
 OPTEK Technology
 OSA Opto Light GmbH
 Osram GmbH
 Oxley Group plc
 PerkinElmer Optoelectronics
 PLM Illumination Ltd
 Power Light Systems
 PRP Optoelectronics Ltd
 PublicScreen and Lightsystem
 ROAL Electronics USA
 ROHM
 Sakaria International
 Sasco Holz GmbH
 SchahLED Lighting
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 Tryka L.E.D. Ltd
 Unity Microelectronics, Inc
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 US A'SYCK Corp
 Vossloh-Schwabe Optoelectronic
 YEG Components

LIGHT ENGINES

AMA Precision Inc
 AP Technologies Ltd
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 Binay Opto Electronics
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 Color Stars, Inc
 Cotco International Ltd
 Dialight Corp
 E Wave Corp
 Edison Opto Corp
 Elumina Technology, Inc
 Enfis Ltd
 Epiled
 Foreal Spectrum
 Future Lighting Solutions
 GE Lumination
 GVA Lighting
 LED Lighting Supply

LED Linear GmbH
 LED Specialists, Inc
 Ledium Ltd
 Lexedis Lighting GmbH
 Luminus Devices
 Lynk Labs
 Marl International Ltd
 MSC Vertriebs GmbH
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 Osram GmbH
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 SchahLED Lighting
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 Solar GB Ltd
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 Stanley Electric (Co) Ltd
 Starled Inc
 TIR Systems Ltd
 Universal Science Ltd

PACKAGED LED ARRAYS

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 Avago Technologies
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 EBV Elektronik
 Edison Opto Corp
 Elumina Technology, Inc
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 Everlight Electronics
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 Heatron, Inc
 I2Systems
 Integrated System Technologies Ltd
 IRC Advanced Film Division
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 Marl International Ltd
 MSC Vertriebs GmbH
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 NOCTRON S+ßrl
 OPTEK Technology
 Oxley Group plc
 PerkinElmer Optoelectronics
 PRP Optoelectronics Ltd
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ROAL Electronics USA
 ROHM
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 US A'SYCK Corp
 Versabright
 Vossloh-Schwabe Optoelectronic
 YEG Components

PACKAGING & OPTICS

BONDING MATERIALS (EPOXIES, THERMAL TAPES ETC)

ACC Silicones Europe
 Asymtek
 Bergquist Company, The
 Dow Corning Corp
 DYMAX Corp
 Future Lighting Solutions
 Huntsman
 Polymer Systems Technology
 YEG Components

ENCAPSULANTS (SILICONES, GELS ETC) & DISPENSERS

ACC Silicones Europe
 Asymtek
 Dow Corning Corp
 DYMAX Corp
 Huntsman
 I2Systems
 NuSil Technology LLC
 Nye Lubricants, Inc
 Polymer Systems Technology
 Sasco Holz GmbH

INSULATED METAL SUBSTRATES

Arrow Electronics, Inc
 Bergquist Company, The
 Future Lighting Solutions
 Sasco Holz GmbH
 Universal Science Ltd

LENSES & OTHER OPTICAL COMPONENTS

Arrow Electronics, Inc
 Carlo Technical Plastics
 EBV Elektronik
 Edison Opto Corp
 Enfis Ltd
 Foreal Spectrum
 Fraen Corp
 Fusion Optix
 Future Lighting Solutions
 Heptagon
 I2Systems
 Integrated System Technologies Ltd
 Khatod Optoelectronic
 Lamina

LED Lighting Supply
 LEDdynamics Inc
 LEDIL Oy
 Ledium Ltd
 Luminit
 NuSil Technology LLC
 PerkinElmer Optoelectronics
 Philips Lighting
 Photonic Products Ltd
 Polymer Optics Ltd
 Polymer Systems Technology
 Pro-Lite Technology LLP
 ROHM
 RPC Photonics, Inc
 RS Components
 Sasco Holz GmbH
 SchahLED Lighting
 Stanley Electric (Co) Ltd
 Super Bright LEDs, Inc
 US A'SYCK Corp
 VLM GmbH
 YEG Components

LIGHT GUIDES

Arrow Electronics, Inc
 Avago Technologies
 Carlo Technical Plastics
 DYMAX Corp
 EBV Elektronik
 Foreal Spectrum
 Fraen Corp
 Fusion Optix
 Khatod Optoelectronic
 LEDIL Oy
 Luminit
 Photonix Ltd
 Polymer Optics Ltd
 Polymer Systems Technology
 RS Components
 Sasco Holz GmbH
 YEG Components

OPTICAL DESIGN SOFTWARE & SERVICES

Arrow Electronics, Inc
 Breault Research
 Carlo Technical Plastics
 Ecie Engineering srl
 Enfis Ltd
 Fraen Corp
 Fusion Optix
 Heptagon
 I2Systems
 Lambda Research Corp
 LED Lighting Supply
 LEDdynamics Inc
 LEDIL Oy
 Ocean Optics, Inc
 OPTEK Technology
 Optical Research Associates
 Philips Lighting
 Polymer Optics Ltd
 Pro-Lite Technology LLP
 SchahLED Lighting
 US A'SYCK Corp
 ZEMAX Development Corp

OPTICAL FILMS & OPTICAL MATERIALS

Arrow Electronics, Inc
Foreal Spectrum
Fusion Optix
Future Lighting Solutions
Luminit
Ocean Optics, Inc
Photonix Ltd
Polymer Systems Technology
Pro-Lite Technology LLP

PACKAGES & RAW MATERIALS FOR PACKAGES

ACC Silicones Europe
Cool Polymers, Inc
GK Import Export
Huntsman
Hymite A/S
Kyocera Corp
SchahILED Lighting
Ticona Engineering Polymers

PACKAGING & ASSEMBLY EQUIPMENT

Asymtek
Palomar Technologies, Inc,
Stern Automation Ltd

PCBS

Arrow Electronics, Inc
Bergquist Company, The
Cool Polymers, Inc
Enfis Ltd
Future Lighting Solutions
GK Import Export
Heatron, Inc
Huntsman
I2Systems
LED Lighting Supply
OPTEK Technology
Philips Lighting
SchahILED Lighting
Universal Science Ltd
US A'SYCK Corp
YEG Components

THERMAL DESIGN SOFTWARE & SERVICES

AMS Technologies AG
Arrow Electronics, Inc
Cooler Master
Enfis Ltd
Flomerics Ltd
Heatron, Inc
I2Systems
LED Lighting Supply
LEDdynamics Inc
SchahILED Lighting
Universal Science Ltd

THERMAL MATERIALS & HEAT SINKS

ACC Silicones Europe
Arrow Electronics, Inc
Bergquist Company, The
Cool Polymers, Inc
Cooler Master

Future Lighting Solutions
GK Import Export
IRC Advanced Film Division
Lamina
Lynk Labs
Nye Lubricants, Inc
ROAL Electronics USA
RS Components
Sasco Holz GmbH
sp3 Diamond Technologies
Stanley Electric (Co) Ltd
Universal Science Ltd
YEG Components

DRIVERS & CONTROL

DRIVER ICs

Advanced Analogic Tech
Allegro MicroSystems, Inc
Arrow Electronics, Inc
EBV Elektronik
Future Lighting Solutions
International Rectifier
Linear Technology
Macroblock Inc
Maxim Integrated Products, Inc
Melexis
National Semiconductor
NXP Semiconductors
Philips Lighting
ROHM
RS Components
Sasco Holz GmbH
Supertex
Toshiba Electronics Europe
Vishay
YEG Components
Zetex Semiconductors plc

DRIVERS

Advanced Analogic Tech
Allaey's LED Instruments NV
Arrow Electronics, Inc
Binay Opto Electronics
Clarity Lighting Ltd
Color Kinetics
Color Stars, Inc
Cooper Lighting & Security
Dialight Corp
DigitaLicht AG
Elumina Technology, Inc
EREA
Future Lighting Solutions
GK Import Export
GVA Lighting
I2Systems
Integrated System Technologies Ltd
Justin Inc
Lagotronics BV
LED FX Ltd
LED Lighting Supply
LED Specialists, Inc
LEDdynamics Inc
LEDs.com.mx
Lumiere Technologies
Lynk Labs
Macroblock Inc
Melexis

sim·ple \sim-peɪ\ *adj.*

freedom from difficulty or hardship or effort

com·plete \kəm-'plēt\ *adj.*

having all parts or elements; lacking nothing

cor·rect \kə-'rekt\ *adj.*

to set or make true, accurate or right

THE FUTURE OF
LED CHARACTERIZATION
IS COMING



CAPTURE. PRODUCE. REFLECT.

US: +1 (603) 927 4266
EUROPE: +49 (0) 2203 2969728
ASIA: +86 137 6133 4405

[SPRING 2007]

MSC Vertriebs GmbH
Mundocolor
NXP Semiconductors
Oshino
Osram GmbH
Philips Lighting
PRP Optoelectronics Ltd
PublicScreen and Lightsystem
ROAL Electronics USA
ROHM
RS Components
Sakaria International
Sasco Holz GmbH
SchahLED Lighting
Solar GB Ltd
SoundOff Signal
Supertex
TIR Systems Ltd
Toshiba Electronics Europe
TridonicAtco Optoelectronics
Tri-O-Light
Tryka L.E.D. Ltd
Universal Science Ltd
Versabright
VLM GmbH
Vossloh-Schwabe Optoelectronic
YEG Components

LIGHTING CONTROL EQUIPMENT

Arrow Electronics, Inc
ATG Electronics, Inc
Clarity Lighting Ltd
Color Kinetics
Color Stars, Inc
Cooper Lighting & Security
DigitaLicht AG
EBV Elektronik
Elumina Technology, Inc
EREA
Future Lighting Solutions
GK Import Export
GVA Lighting
Lagotronics BV
LED FX Ltd
LEDdynamics Inc
LEDs.com.mx
Marl International Ltd
Mundocolor
Neo-Neon International Ltd
NXP Semiconductors
Oshino
Osram GmbH
PublicScreen and Lightsystem
ROAL Electronics USA
RS Components
Sasco Holz GmbH
Solar GB Ltd
SoundOff Signal
TIR Systems Ltd
Tri-O-Light
Universal Science Ltd
Versabright
VLM GmbH
YEG Components

POWER SUPPLIES & ELECTRONIC LOADS

AMS Technologies AG

Arrow Electronics, Inc
Astrodyne Corp
ATG Electronics, Inc
Binay Opto Electronics
Clarity Lighting Ltd
Color Kinetics
Color Stars, Inc
EBV Elektronik
Elumina Technology, Inc
EREA
Future Lighting Solutions
GK Import Export
International Light Technologies
Justin Inc
LED FX Ltd
LED Lighting Supply
LED Specialists, Inc
LEDdynamics Inc
LEDs.com.mx
Lynk Labs
MSC Vertriebs GmbH
Mundocolor
National Semiconductor
Oshino
Osram GmbH
PublicScreen and Lightsystem
ROAL Electronics USA
RS Components
Sasco Holz GmbH
SchahLED Lighting
Solar GB Ltd
SoundOff Signal
Super Bright LEDs, Inc
TIR Systems Ltd
Tri-O-Light
Universal Science Ltd
Versabright
VLM GmbH
Vossloh-Schwabe Optoelectronic
YEG Components

TEST & MEASUREMENT

TEST & MEASUREMENT EQUIPMENT

AMS Technologies AG
Bentham Instruments Ltd
Ecie Engineering srl
FEASA
Flomerics Ltd
Instrument Systems GmbH
International Light Technologies
Labsphere, Inc
LEDdynamics Inc
National Physical Laboratory
Ocean Optics, Inc
Optronic Laboratories
Pro-Lite Technology LLP
Radiant Imaging Inc
SphereOptics
Sterner Automation Ltd
Test Equipment Connection

TESTING SERVICES

AMS Technologies AG
Cranage EMC & Safety
Ecie Engineering srl
Fusion Optix
LEDdynamics Inc

National Physical Laboratory
Optronic Laboratories
Power Light Systems
Pro-Lite Technology LLP
Radiant Imaging Inc
SphereOptics
Sterner Automation Ltd
UL International (UK) Ltd

LED CHIPS

AlGaInP RED, ORANGE, YELLOW LED CHIPS

American Bright Optoelectronics
Arrow Electronics, Inc
Bandwidth Semiconductor
Cree, Inc
E Wave Corp
EBV Elektronik
Epiled
Epistar Corp
JK Components Ltd
LED Lighting Supply
OSA Opto Light GmbH
Osram GmbH
Osram Opto Semiconductors
Philips Lighting
Philips Lumileds Lighting
Photonix Ltd
ROHM
RS Components
Samsung Electro-Mechanics
Sasco Holz GmbH
Tekcore Co. Ltd
Toshiba Electronics Europe
YEG Components

INFRARED LED CHIPS

American Bright Optoelectronics
AP Technologies Ltd
Arrow Electronics, Inc
E Wave Corp
EBV Elektronik
Epiled
Epistar Corp
JK Components Ltd
OSA Opto Light GmbH
Osram GmbH
Osram Opto Semiconductors
Philips Lighting
ROHM
RS Components
Sasco Holz GmbH
Toshiba Electronics Europe
YEG Components

NITRIDE (InGaN) BLUE, GREEN LED CHIPS

American Bright Optoelectronics
Arrow Electronics, Inc
Cree, Inc
E Wave Corp
EBV Elektronik
Epiled
Epistar Corp
JK Components Ltd
LED Lighting Supply
Lexedis Lighting GmbH

Nichia America Corp
Osram GmbH
Osram Opto Semiconductors
Philips Lighting
Philips Lumileds Lighting
Photonix Ltd
ROHM
RS Components
Samsung Electro-Mechanics
Sasco Holz GmbH
Tekcore Co. Ltd
The Fox Group, Inc
Twin Hill Corp, Ltd
YEG Components

UV LED CHIPS

Arrow Electronics, Inc
E Wave Corp
Epiled
Epistar Corp
JK Components Ltd
LED Lighting Supply
RS Components
Samsung Electro-Mechanics
Tekcore Co. Ltd
The Fox Group, Inc
YEG Components

CHIP DESIGN & MANUFACTURING

EPITAXIAL GROWTH EQUIPMENT & MATERIALS

Aixtron AG
Veeco Instruments Inc

EPITAXIAL WAFERS

Bandwidth Semiconductor
E Wave Corp
Photonix Ltd
Tekcore Co. Ltd
The Fox Group, Inc

PHOTONIC CRYSTAL MANUFACTURING

Molecular Imprints
Obducat AB

PROCESSING EQUIPMENT

KLA-Tencor Corp
Obducat AB
Palomar Technologies, Inc
Veeco Instruments Inc

WAFER CHARACTERIZATION

KLA-Tencor Corp
Veeco Instruments Inc

WAFERS (SAPPHIRE, SiC ETC)

Cree, Inc
The Fox Group, Inc

Index: Systems

ARCHITECTURAL ENTERTAINMENT & DECORATIVE LIGHTING

BACKLIGHTING FOR PANELS ETC

Allaey's LED Instruments NV
American Bright Optoelectronics
AP Technologies Ltd
Arrow Electronics, Inc
ATG Electronics, Inc
Binay Opto Electronics
CAO Group, Inc
Clarity Lighting Ltd
Color Kinetics
Cooper Lighting & Security
Cotco International Ltd
DigitaLicht AG
Dipl-Ing Juergen Kanz
Element Labs
Energy Bright Ltd
Forge Europa
Future Lighting Solutions
GVA Lighting
Heatron, Inc
Integrated System Technologies Ltd
JK Components Ltd
Lagotronics BV

LED FX Ltd
LED Linear GmbH
LED Specialists, Inc
Ledium Ltd
LEDLight.com, LLC
LEDs.com.mx
Lynk Labs
Marl International Ltd
Mundocolor
Neo-Neon International Ltd
Novoled
Ocean Optics, Inc
Oshino
Osram GmbH
Philips Lighting
PublicScreen and Lightsystem
Sakaria International
Sasco Holz GmbH
Solar GB Ltd
Starled Inc
Super Bright LEDs, Inc
Tachai Industrial Co, Ltd
Traxon Technologies
Tri-O-Light
Tryka L.E.D. Ltd
Universal Science Ltd
Versabright

Vossloh-Schwabe Optoelectronic
YEG Components

BORDER/CONTOUR LIGHTING

Advanced LEDs Ltd
Allaey's LED Instruments NV
American Bright Optoelectronics
Arrow Electronics, Inc
ATG Electronics, Inc
Binay Opto Electronics
Brilliantz Ltd
CAO Group, Inc
Clarity Lighting Ltd
Color Kinetics
Cooper Lighting & Security
Dialight Corp
DigitaLicht AG
Dipl-Ing Juergen Kanz
EcoLEDLighting Ltd
Element Labs
Elumina Technology, Inc
EREA
Forge Europa
GE Lumination
Heatron, Inc
I2Systems
Integrated System Technologies Ltd

JK Components Ltd
Lagotronics BV
LED FX Ltd
LED Linear GmbH
Ledium Ltd
LEDLight.com, LLC
LEDs.com.mx
Lynk Labs
Marl International Ltd
Mundocolor
Neo-Neon International Ltd
Novoled
Oshino
Osram GmbH
Philips Lighting
PLM Illumination Ltd
PublicScreen and Lightsystem
RPC Photonics, Inc
Sasco Holz GmbH
SchahLED Lighting
Shenzhen Jiuzhou Optoelectronics
Solar GB Ltd
Starled Inc
Super Bright LEDs, Inc
The Fox Group, Inc
TIR Systems Ltd
Traxon Technologies

Your Light is on the Horizon

Careers in LED's

SALES - MARKETING - ENGINEERING

Polymer Menschen
Lighting Recruiting Specialists
Reno, Detroit, Munich
775.825.4606
careers@pmiauto.com

TridonicAtco Optoelectronics
Tri-O-Light
Tryka L.E.D. Ltd
Universal Science Ltd
Versabright
Vossloh-Schwabe Optoelectronic
YEG Components

DECORATIVE & HOLIDAY LIGHTING

American Bright Optoelectronics
Arrow Electronics, Inc
ATG Electronics, Inc
Binay Opto Electronics
Brilliantz Ltd
Color Kinetics
Color Stars, Inc
Cooper Lighting & Security
DigitaLicht AG
Dipl-Ing Juergen Kanz
Elumina Technology, Inc
Energy Bright Ltd
Forge Europa
Fusion Optix
Heatron, Inc
Integrated System Technologies Ltd
JK Components Ltd
Lagotronics BV
LED FX Ltd
LED Linear GmbH
LED Specialists, Inc
Ledium Ltd
LEDLight.com, LLC
LEDs.com.mx
Marl International Ltd
Mundocolor
Neo-Neon International Ltd
Oshino
Osram GmbH
Philips Lighting
PLM Illumination Ltd
PublicScreen and Lightsystem
Sakaria International
Sasco Holz GmbH
Shenzhen Jiuzhou Optoelectronics
Super Bright LEDs, Inc
The Fox Group, Inc
Tri-O-Light
Tryka L.E.D. Ltd
Universal Science Ltd
YEG Components

FLOODLIGHTS, WALL-WASHERS, BATTENS

Advanced LEDs Ltd
Allaays LED Instruments NV
American Bright Optoelectronics
Arrow Electronics, Inc
ATG Electronics, Inc
Binay Opto Electronics
Clarity Lighting Ltd
Color Kinetics
Color Stars, Inc
Cooper Lighting & Security
Cotco International Ltd
DigitaLicht AG
Dipl-Ing Juergen Kanz
EcoLEDLighting Ltd
Energy Bright Ltd

Forge Europa
Fusion Optix
GVA Lighting
Heatron, Inc
I2Systems
Integrated System Technologies Ltd
James Thomas Engineering -
PixelRange
JK Components Ltd
Lagotronics BV
LED FX Ltd
Ledium Ltd
LEDLight.com, LLC
LEDs.com.mx
Lumiere Technologies
Lynk Labs
Marl International Ltd
Mundocolor
Neo-Neon International Ltd
NeoPac Optoelectronics
Novoled
Ocean Optics, Inc
Oshino
Osram GmbH
PerkinElmer Optoelectronics
Philips Lighting
PLM Illumination Ltd
PublicScreen and Lightsystem
Sakaria International
Sasco Holz GmbH
SchahlLED Lighting
Solar GB Ltd
Starled Inc
Super Bright LEDs, Inc
TIR Systems Ltd
Traxon Technologies
Tri-O-Light
Tryka L.E.D. Ltd
Universal Science Ltd
US A'SYCK Corp
Versabright
VLM GmbH
YEG Components

MARKER LIGHTS, UPLIGHTS

Advanced LEDs Ltd
Allaays LED Instruments NV
American Bright Optoelectronics
Arrow Electronics, Inc
Binay Opto Electronics
Clarity Lighting Ltd
Cooper Lighting & Security
DigitaLicht AG
Dipl-Ing Juergen Kanz
EcoLEDLighting Ltd
Forge Europa
GVA Lighting
Heatron, Inc
I2Systems
Integrated System Technologies Ltd
JK Components Ltd
Lagotronics BV
LED FX Ltd
LED Linear GmbH
Ledium Ltd
LEDLight.com, LLC
LEDs.com.mx
Lumiere Technologies

Lynk Labs
Marl International Ltd
Mundocolor
Neo-Neon International Ltd
Novoled
Oshino
Osram GmbH
PerkinElmer Optoelectronics
Philips Lighting
PLM Illumination Ltd
PublicScreen and Lightsystem
Sasco Holz GmbH
Shenzhen Jiuzhou Optoelectronics
Solar GB Ltd
Starled Inc
Super Bright LEDs, Inc
The Fox Group, Inc
Traxon Technologies
TridonicAtco Optoelectronics
Tri-O-Light
Tryka L.E.D. Ltd
Universal Science Ltd
US A'SYCK Corp
VLM GmbH
YEG Components

BACKLIGHTING & PROJECTION

BACKLIGHT UNITS (BLUS) AND COMPONENTS FOR LCDS

American Bright Optoelectronics
AP Technologies Ltd
Arrow Electronics, Inc
Automated Concepts, Inc
Avago Technologies
Carlo Technical Plastics
Citizen Electronics Co. Ltd
Cotco International Ltd
Edison Opto Corp
Everlight Electronics
Forge Europa
Fusion Optix
Future Lighting Solutions
Heatron, Inc
Heptagon
I2Systems
Khatod Optoelectronic
Kingbright Corp
Luminus Devices
Lynk Labs
Neo-Neon International Ltd
OPTEK Technology
Osram GmbH
Osram Opto Semiconductors
PerkinElmer Optoelectronics
Philips Lumileds Lighting
Photonic Products Ltd
ROHM
RS Components
Samsung Electro-Mechanics
Sasco Holz GmbH
Seoul Semiconductor
Stanley Electric (Co) Ltd
Unity Microelectronics, Inc
Universal Science Ltd
US A'SYCK Corp
Vossloh-Schwabe Optoelectronic

YEG Components

LIGHT SOURCES FOR PROJECTION SYSTEMS

Arrow Electronics, Inc
ATG Electronics, Inc
Binay Opto Electronics
Citizen Electronics Co. Ltd
E Wave Corp
EBV Elektronik
Foreal Spectrum
Future Lighting Solutions
Helio Optoelectronics Corp
International Light Technologies
Luminus Devices
Mundocolor
Neo-Neon International Ltd
Osram Opto Semiconductors
PerkinElmer Optoelectronics
RS Components
Sasco Holz GmbH
SchahlLED Lighting
Seoul Semiconductor
Stanley Electric (Co) Ltd
Tachai Industrial Co, Ltd
Unity Microelectronics, Inc
Universal Science Ltd

DISPLAYS & SIGNS

ALPHANUMERIC DISPLAYS

AMA Precision Inc
American Bright Optoelectronics
Arrow Electronics, Inc
Avago Technologies
CAO Group, Inc
Clarity Lighting Ltd
EBV Elektronik
Epiled
Everlight Electronics
Forge Europa
Future Lighting Solutions
Kingbright Corp
MSC Vertriebs GmbH
Neo-Neon International Ltd
Novoled
Osram Opto Semiconductors
PRP Optoelectronics Ltd
ROHM
RS Components
Sasco Holz GmbH
Shenzhen Jiuzhou Optoelectronics
US A'SYCK Corp
Versabright
Vossloh-Schwabe Optoelectronic
YEG Components

CHANNEL LETTER MODULES

Advanced LEDs Ltd
AMA Precision Inc
American Bright Optoelectronics
Arrow Electronics, Inc
ATG Electronics, Inc
Avago Technologies
Binay Opto Electronics
Brilliantz Ltd
CAO Group, Inc
Clarity Lighting Ltd

Color Kinetics
 Cotco International Ltd
 EBV Elektronik
 Elumina Technology, Inc
 Energy Bright Ltd
 Epiled
 EREA
 GE Lumination
 Heatron, Inc
 Kingbright Corp
 Lagotronics BV
 LED FX Ltd
 Ledium Ltd
 Lynk Labs
 MSC Vertriebs GmbH
 Mundocolor
 Neo-Neon International Ltd
 Novoled
 Oshino
 Osram GmbH
 Power Light Systems
 PublicScreen and Lightsystem
 ROHM
 RPC Photonics, Inc
 RS Components
 Sakaria International
 Sasco Holz GmbH
 SchahlLED Lighting
 Starled Inc
 Sunfire LED, LLC
 Tri-O-Light
 US A'SYCK Corp
 Versabright
 Vossloh-Schwabe Optoelectronic
 YEG Components

EXIT & EMERGENCY SIGNS

American Bright Optoelectronics
 Arrow Electronics, Inc
 ATG Electronics, Inc
 Binay Opto Electronics
 Clarity Lighting Ltd
 Cooper Lighting & Security
 Energy Bright Ltd
 Epiled
 Forge Europa
 Heatron, Inc
 Integrated System Technologies Ltd
 Lagotronics BV
 Marl International Ltd
 Mundocolor
 Neo-Neon International Ltd
 PerkinElmer Optoelectronics
 PublicScreen and Lightsystem
 ROHM
 Starled Inc
 Tachai Industrial Co, Ltd

LARGE VIDEO DISPLAYS & BILLBOARDS

Arrow Electronics, Inc
 ATG Electronics, Inc
 Color Kinetics
 DigitaLicht AG
 Forge Europa
 Lagotronics BV
 Neo-Neon International Ltd
 Photonic Products Ltd

PublicScreen and Lightsystem
 ROHM
 Shenzhen Jiuzhou Optoelectronics

MODULAR, SEMI-TRANSPARENT DISPLAYS

Arrow Electronics, Inc
 Cotco International Ltd
 DigitaLicht AG
 Element Labs
 Lynk Labs
 Neo-Neon International Ltd
 PublicScreen and Lightsystem
 Versabright
 YEG Components

VARIABLE MESSAGE SIGNS

Arrow Electronics, Inc
 ATG Electronics, Inc
 Cotco International Ltd
 Forge Europa
 Macroblock Inc
 Neo-Neon International Ltd
 Philips Lighting
 Photonic Products Ltd
 PublicScreen and Lightsystem
 ROHM
 Shenzhen Jiuzhou Optoelectronics
 The Fox Group, Inc
 Versabright
 YEG Components

GENERAL LIGHTING

EMERGENCY & SECURITY LIGHTING

American Bright Optoelectronics
 Arrow Electronics, Inc
 ATG Electronics, Inc
 Binay Opto Electronics
 CAO Group, Inc
 Cooper Lighting & Security
 Dipl-Ing Juergen Kanz
 EcoLEDLighting Ltd
 Heatron, Inc
 JK Components Ltd
 LED Linear GmbH
 LEDLight.com, LLC
 Lynk Labs
 Marl International Ltd
 Mundocolor
 Neo-Neon International Ltd
 Novoled
 Oxley Group plc
 PerkinElmer Optoelectronics
 PLM Illumination Ltd
 PublicScreen and Lightsystem
 Shenzhen Jiuzhou Optoelectronics
 SolarOne Solutions
 Starled Inc
 Tachai Industrial Co, Ltd
 Tri-O-Light
 Universal Science Ltd

LED LIGHTBULBS

Allaelys LED Instruments NV
 American Bright Optoelectronics
 Arrow Electronics, Inc
 ATG Electronics, Inc

Binay Opto Electronics
 CAO Group, Inc
 Color Stars, Inc
 DigitaLicht AG
 Dipl-Ing Juergen Kanz
 EcoLEDLighting Ltd
 Edison Opto Corp
 Elumina Technology, Inc
 Forge Europa
 Fusion Optix
 Heatron, Inc
 I2Systems
 Integrated System Technologies Ltd
 International Light Technologies
 JK Components Ltd
 Lagotronics BV
 LED FX Ltd
 LED Specialists, Inc
 LEDynamics Inc
 Ledium Ltd
 LEDLight.com, LLC
 LEDs.com.mx
 Lynk Labs
 Marl International Ltd
 Mundocolor
 Neo-Neon International Ltd
 NOCTRON S+βrl
 Novoled
 Ocean Optics, Inc
 Oshino
 Osram GmbH
 Philips Lighting
 PublicScreen and Lightsystem
 Sakaria International
 Sasco Holz GmbH
 SchahlLED Lighting
 Shenzhen Jiuzhou Optoelectronics
 Solar GB Ltd
 Stanley Electric (Co) Ltd
 Starled Inc
 Sunfire LED, LLC
 Super Bright LEDs, Inc
 Tachai Industrial Co, Ltd
 TIR Systems Ltd
 Tri-O-Light
 Tryka L.E.D. Ltd
 Universal Science Ltd
 US A'SYCK Corp
 Versabright
 YEG Components

LIGHTING DESIGNERS & CONSULTANTS

American Bright Optoelectronics
 Arrow Electronics, Inc
 ATG Electronics, Inc
 Binay Opto Electronics
 DigitaLicht AG
 Dipl-Ing Juergen Kanz
 EBV Elektronik
 Fusion Optix
 Heatron, Inc
 JK Components Ltd
 Lagotronics BV
 LED FX Ltd
 LED Specialists, Inc
 LEDLight.com, LLC
 LEDs.com.mx

Neo-Neon International Ltd
 Novoled
 Oshino
 Osram GmbH
 PublicScreen and Lightsystem
 Sakaria International
 Sasco Holz GmbH
 Solar GB Ltd
 Starled Inc
 Tri-O-Light
 Universal Science Ltd
 Versabright
 YEG Components

PORTABLE LIGHTING (FLASHLIGHTS, LANTERNS ETC)

Allaelys LED Instruments NV
 American Bright Optoelectronics
 Arrow Electronics, Inc
 Binay Opto Electronics
 Brillianz Ltd
 CAO Group, Inc
 Color Stars, Inc
 Dipl-Ing Juergen Kanz
 Heatron, Inc
 I2Systems
 Integrated System Technologies Ltd
 JK Components Ltd
 LED Specialists, Inc
 LEDynamics Inc
 Ledium Ltd
 LEDLight.com, LLC
 Neo-Neon International Ltd
 NOCTRON S+βrl
 Novoled
 Osram GmbH
 PerkinElmer Optoelectronics
 Philips Lighting
 Super Bright LEDs, Inc
 Universal Science Ltd
 US A'SYCK Corp

RECESSED LIGHTING

American Bright Optoelectronics
 Arrow Electronics, Inc
 Brillianz Ltd
 Cooper Lighting & Security
 Dialight Corp
 Dipl-Ing Juergen Kanz
 EcoLEDLighting Ltd
 Gallium Lighting
 GVA Lighting
 Heatron, Inc
 Lagotronics BV
 LED FX Ltd
 LED Linear GmbH
 LED Specialists, Inc
 Ledium Ltd
 Lynk Labs
 Marl International Ltd
 Neo-Neon International Ltd
 NeoPac Optoelectronics
 Oshino
 Osram GmbH
 Prescolite
 Sakaria International
 Starled Inc
 Tri-O-Light

PHOTONICS FESTIVAL in TAIWAN

<http://www.optotaiwan.com>

Exhibits

- Compound Semiconductor
- Optoelectronics Devices
 - Optics & Lenses
 - Solar Power
- Optical Fiber Communication
- Optical I/O & Storage Devices
 - Laser Applications
 - Vacuum Coating
- Precision Instruments / Equipment

OPTO
TAIWAN
2007

OPTO TAIWAN

The 16th Int'l Optoelectronics Exposition

June 13-16, 2007

Exhibits

- LED Lighting Fixture
- LED Applications
- Package / Module
- Epi Wafer, Chip
- Manufacturing Equipment & Materials

LED 2007
LIGHTING
Taiwan

LED Lighting Taiwan

The 3rd Int'l LED Lighting Exposition

June 13-16, 2007

Exhibits

- FPD Applications
- Panel / Module
- Components & Materials
- Processing Equipment
- PDP / OLED Related Equipment & Materials

expo
display
TAIWAN 2007

Display Taiwan

The 9th Int'l Flat Panel Display Exposition

July 04-06, 2007

Advisory

National Science Council, The Executive Yuan
Industrial Development Bureau, MOEA
Bureau of Foreign Trade, MOEA

Organizer



Photonics Industry and Technology
Development Association

Versabright

RESIDENTIAL LIGHTING

Allaey's LED Instruments NV
 American Bright Optoelectronics
 Arrow Electronics, Inc
 ATG Electronics, Inc
 Binay Opto Electronics
 Color Stars, Inc
 DigitaLicht AG
 Dipl-Ing Juergen Kanz
 EcoLEDLighting Ltd
 EREA
 GVA Lighting
 JK Components Ltd
 Lagotronics BV
 LED FX Ltd
 LED Linear GmbH
 LED Specialists, Inc
 LEDLight.com, LLC
 Lynk Labs
 Marl International Ltd
 Mundocolor
 Neo-Neon International Ltd
 NeoPac Optoelectronics
 Novoled
 Oshino
 Osram GmbH
 PublicScreen and Lightsystem
 Sakaria International
 Stanley Electric (Co) Ltd
 Super Bright LEDs, Inc
 Tri-O-Light
 Universal Science Ltd
 US A'SYCK Corp
 Versabright

RETAIL DISPLAY LIGHTING

Allaey's LED Instruments NV
 American Bright Optoelectronics
 Arrow Electronics, Inc
 ATG Electronics, Inc
 Binay Opto Electronics
 Brillianz Ltd
 Color Kinetics
 Color Stars, Inc
 Cooper Lighting & Security
 Dipl-Ing Juergen Kanz
 EcoLEDLighting Ltd
 EREA
 GE Lumination
 GVA Lighting
 Heatron, Inc
 JK Components Ltd
 LED FX Ltd
 LED Linear GmbH
 LED Specialists, Inc
 LEDLight.com, LLC
 Lynk Labs
 Marl International Ltd
 Mundocolor
 Neo-Neon International Ltd
 NeoPac Optoelectronics
 NuaLight Ltd
 Osram GmbH
 PerkinElmer Optoelectronics
 PublicScreen and Lightsystem
 Sakaria International

Shenzhen Jiuzhou Optoelectronics
 Starled Inc
 Super Bright LEDs, Inc
 Traxon Technologies
 Universal Science Ltd
 US A'SYCK Corp
 Versabright

SOLAR-POWERED & OFF-GRID LIGHTING

Advanced LEDs Ltd
 American Bright Optoelectronics
 Arrow Electronics, Inc
 Binay Opto Electronics
 Brillianz Ltd
 Dipl-Ing Juergen Kanz
 EcoLEDLighting Ltd
 Elumina Technology, Inc
 Heatron, Inc
 I2Systems
 LED FX Ltd
 LEDLight.com, LLC
 Neo-Neon International Ltd
 Oshino
 PublicScreen and Lightsystem
 Solar GB Ltd
 SolarOne Solutions
 Super Bright LEDs, Inc
 Universal Science Ltd

STREETLIGHTS, GENERAL AREA ILLUMINATION

Advanced LEDs Ltd
 Allaey's LED Instruments NV
 AMA Precision Inc
 American Bright Optoelectronics
 Arrow Electronics, Inc
 Binay Opto Electronics
 DigitaLicht AG
 Dipl-Ing Juergen Kanz
 EcoLEDLighting Ltd
 Forge Europa
 Heatron, Inc
 I2Systems
 Integrated System Technologies Ltd
 JK Components Ltd
 LED FX Ltd
 LED Linear GmbH
 LED Specialists, Inc
 LEDLight.com, LLC
 LEDs.com.mx
 Lynk Labs
 Neo-Neon International Ltd
 NeoPac Optoelectronics
 Novoled
 Oshino
 Osram GmbH
 Oxley Group plc
 Philips Lighting
 PublicScreen and Lightsystem
 SchahLED Lighting
 Shenzhen Jiuzhou Optoelectronics
 Solar GB Ltd
 Stanley Electric (Co) Ltd
 Tri-O-Light
 Universal Science Ltd
 Versabright

MEDICAL, INDUSTRIAL & OTHER**INSPECTION LIGHTING**

AP Technologies Ltd
 Arrow Electronics, Inc
 Binay Opto Electronics
 Dipl-Ing Juergen Kanz
 Epiled
 GVA Lighting
 PerkinElmer Optoelectronics
 Sasco Holz GmbH
 Starled Inc
 Super Bright LEDs, Inc
 The Fox Group, Inc
 Universal Science Ltd

MACHINE VISION LIGHTING

American Bright Optoelectronics
 AP Technologies Ltd
 Arrow Electronics, Inc
 Binay Opto Electronics
 Dipl-Ing Juergen Kanz
 Epiled
 GVA Lighting
 Heatron, Inc
 I2Systems
 Integrated System Technologies Ltd
 LEDynamics Inc
 Neo-Neon International Ltd
 Oxley Group plc
 PerkinElmer Optoelectronics
 Photonic Products Ltd
 Super Bright LEDs, Inc
 The Fox Group, Inc
 Universal Science Ltd

MEDICAL & DENTAL LIGHTING

American Bright Optoelectronics
 AMS Technologies AG
 AP Technologies Ltd
 Arrow Electronics, Inc
 Binay Opto Electronics
 CAO Group, Inc
 Dipl-Ing Juergen Kanz
 Epiled
 Heatron, Inc
 I2Systems
 Integrated System Technologies Ltd
 PerkinElmer Optoelectronics
 Starled Inc
 The Fox Group, Inc
 Universal Science Ltd
 YEG Components

PHOTOTHERAPY LIGHTING

AP Technologies Ltd
 Arrow Electronics, Inc
 Binay Opto Electronics
 Dipl-Ing Juergen Kanz
 Epiled
 LED Linear GmbH
 PerkinElmer Optoelectronics
 PRP Optoelectronics Ltd
 PublicScreen and Lightsystem
 Super Bright LEDs, Inc
 The Fox Group, Inc
 Universal Science Ltd

UV CURING LIGHTS

AMS Technologies AG
 AP Technologies Ltd
 Arrow Electronics, Inc
 Binay Opto Electronics
 CAO Group, Inc
 Dipl-Ing Juergen Kanz
 DYMAX Corp
 Epiled
 Neo-Neon International Ltd
 PerkinElmer Optoelectronics
 PRP Optoelectronics Ltd
 Super Bright LEDs, Inc
 The Fox Group, Inc
 Universal Science Ltd
 YEG Components

MOBILE APPLIANCES**CAMERA FLASH LEDS & DRIVERS**

Advanced Analogic Tech
 American Bright Optoelectronics
 Arrow Electronics, Inc
 Avago Technologies
 Citizen Electronics Co. Ltd
 EBV Elektronik
 Edison Opto Corp
 Everlight Electronics
 Future Lighting Solutions
 LEDynamics Inc
 Linear Technology
 MSC Vertriebs GmbH
 Nichia America Corp
 NXP Semiconductors
 Osram Opto Semiconductors
 PerkinElmer Optoelectronics
 Philips Lighting
 Philips Lumileds Lighting
 ROHM
 RS Components
 Samsung Electro-Mechanics
 Sasco Holz GmbH
 Seoul Semiconductor
 Stanley Electric (Co) Ltd
 Toshiba Electronics Europe
 Unity Microelectronics, Inc
 YEG Components

LEDS & COMPONENTS FOR MOBILE

Advanced Analogic Tech
 AMA Precision Inc
 American Bright Optoelectronics
 Arrow Electronics, Inc
 Avago Technologies
 Carclo Technical Plastics
 Citizen Electronics Co. Ltd
 Cotco International Ltd
 EBV Elektronik
 Everlight Electronics
 Future Lighting Solutions
 Helio Optoelectronics Corp
 Heptagon
 I2Systems
 ISP Co, Ltd
 Khatod Optoelectronic
 Kingbright Corp
 Linear Technology
 MSC Vertriebs GmbH

Nichia America Corp
 NXP Semiconductors
 OPTEK Technology
 Osram Opto Semiconductors
 PerkinElmer Optoelectronics
 Polymer Optics Ltd
 ROHM
 RS Components
 Samsung Electro-Mechanics
 Sasco Holz GmbH
 Seoul Semiconductor
 Stanley Electric (Co) Ltd
 Tachai Industrial Co, Ltd
 Toshiba Electronics Europe
 Unity Microelectronics, Inc
 YEG Components

SIGNALS

BEACONS, EMERGENCY DIRECTIONAL AIDS

Advanced LEDs Ltd
 American Bright Optoelectronics
 AP Technologies Ltd
 Arrow Electronics, Inc
 Binay Opto Electronics
 Dialight Corp
 Epiled
 Forge Europa
 Heatron, Inc
 I2Systems
 Integrated System Technologies Ltd
 Lagotronics BV
 Ledium Ltd
 LEDLight.com, LLC
 Oxley Group plc
 PerkinElmer Optoelectronics
 SoundOff Signal
 Starled Inc
 Universal Science Ltd

US A'SYCK Corp

RAILROAD, MARINE, AIRPORT SIGNALS

Advanced LEDs Ltd
 American Bright Optoelectronics
 Arrow Electronics, Inc
 Binay Opto Electronics
 CAO Group, Inc
 Dialight Corp
 Dipl-Ing Juergen Kanz
 Epiled
 Forge Europa
 GE Lumination
 Heatron, Inc
 I2Systems
 Integrated System Technologies Ltd
 LED Linear GmbH
 Ledium Ltd
 LEDLight.com, LLC
 Marl International Ltd
 Oxley Group plc
 PerkinElmer Optoelectronics
 SoundOff Signal
 Starled Inc
 Tachai Industrial Co, Ltd
 Tryka L.E.D. Ltd
 Universal Science Ltd
 US A'SYCK Corp

ROADWAY MARKING & SAFETY LIGHTING

Advanced LEDs Ltd
 American Bright Optoelectronics
 Arrow Electronics, Inc
 Binay Opto Electronics
 CAO Group, Inc
 Dialight Corp
 Dipl-Ing Juergen Kanz
 Elumina Technology, Inc

Epiled
 Forge Europa
 Heatron, Inc
 I2Systems
 Integrated System Technologies Ltd
 LED Linear GmbH
 Ledium Ltd
 LEDLight.com, LLC
 Marl International Ltd
 Neo-Neon International Ltd
 Oshino
 PerkinElmer Optoelectronics
 Photonic Products Ltd
 PublicScreen and Lightsystem
 Starled Inc
 Tachai Industrial Co, Ltd
 Tryka L.E.D. Ltd
 Universal Science Ltd

TRAFFIC & PEDESTRIAN SIGNALS

Advanced LEDs Ltd
 American Bright Optoelectronics
 Arrow Electronics, Inc
 ATG Electronics, Inc
 Binay Opto Electronics
 CAO Group, Inc
 Cotco International Ltd
 Dialight Corp
 Dipl-Ing Juergen Kanz
 Elumina Technology, Inc
 Energy Bright Ltd
 Epiled
 Forge Europa
 GE Lumination
 Heatron, Inc
 I2Systems
 Integrated System Technologies Ltd
 LEDLight.com, LLC
 Neo-Neon International Ltd
 Novoled
 Oshino
 Philips Lighting
 Photonic Products Ltd
 Sasco Holz GmbH
 Universal Science Ltd
 YEG Components

VEHICLE LIGHTING

LEDs & COMPONENTS FOR VEHICLE LIGHTING

American Bright Optoelectronics
 Arrow Electronics, Inc
 Avago Technologies
 Binay Opto Electronics
 CAO Group, Inc
 Carclo Technical Plastics
 Citizen Electronics Co. Ltd
 Concept Design Lighting
 Cotco International Ltd
 E Wave Corp
 EBV Elektronik
 Elumina Technology, Inc
 Forge Europa
 Future Lighting Solutions
 G.L.I. Global Light Industries GmbH
 Heatron, Inc
 Helio Optoelectronics Corp

I2Systems
 ISP Co, Ltd
 Khatod Optoelectronic
 Kingbright Corp
 Lamina
 LEDdynamics Inc
 Linear Technology
 Marl International Ltd
 Melexis
 MSC Vertriebs GmbH
 Nichia America Corp
 Novoled
 OPTEK Technology
 OSA Opto Light GmbH
 Osram GmbH
 Osram Opto Semiconductors
 PerkinElmer Optoelectronics
 Philips Lighting
 Philips Lumileds Lighting
 RPC Photonics, Inc
 RS Components
 Samsung Electro-Mechanics
 Sasco Holz GmbH
 Seoul Semiconductor
 SoundOff Signal
 Stanley Electric (Co) Ltd
 Starled Inc
 Super Bright LEDs, Inc
 Toshiba Electronics Europe
 Unity Microelectronics, Inc
 Universal Science Ltd
 US A'SYCK Corp
 Versabright
 Vishay
 YEG Components

VEHICLE LIGHTING (EXTERIOR & INTERIOR)

AMA Precision Inc
 American Bright Optoelectronics
 Arrow Electronics, Inc
 ATG Electronics, Inc
 Binay Opto Electronics
 Citizen Electronics Co. Ltd
 Concept Design Lighting
 Dialight Corp
 Dipl-Ing Juergen Kanz
 Forge Europa
 G.L.I. Global Light Industries GmbH
 Heatron, Inc
 LED Linear GmbH
 LED Specialists, Inc
 Lynk Labs
 MSC Vertriebs GmbH
 Osram GmbH
 Osram Opto Semiconductors
 Oxley Group plc
 Philips Lighting
 Photonic Products Ltd
 RPC Photonics, Inc
 Sasco Holz GmbH
 SoundOff Signal
 Stanley Electric (Co) Ltd
 Super Bright LEDs, Inc
 Universal Science Ltd
 US A'SYCK Corp
 Versabright
 YEG Components

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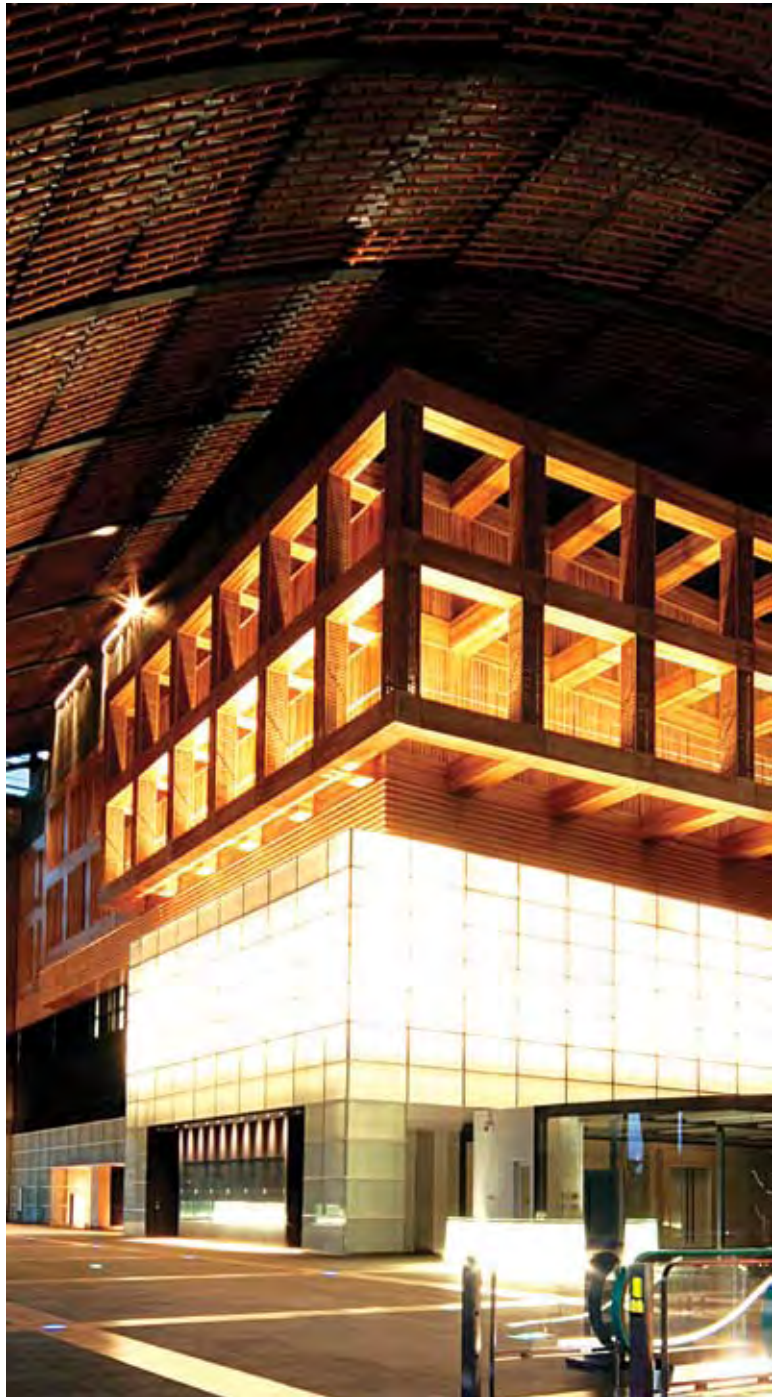
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with

Ultra High Bright LEDs



The Only LED Lamps with a Pressure Release Structure (SLI / R-343 Series).

No Retouch Soldering

ROHM's pressure release structure prevents pressure build-up during the soldering process when the LED is mounted on the PCB.

Conventional Product



Defects (holes) can occur during soldering

ROHM's SLI/R-343 Series



Perfect soldering (no holes)

Pick a color. ROHM's ultra high bright LEDs are available in many luminous colors.

Lamp LEDs

Ø3mm with Pressure Release Structure



SLI-343URC SLI-343DC SLI-343YC SLR343ECT SLR343BCT

Ø5mm



SLI-580UT SLI-580DT SLI-580YT SLA580ECT SLA580BCT

Chip LEDs

Mini-Mold



SML-512UW SML-512DW SML-512WW SML312ECT SML312BCT

with Reflector



SML-012UT SML-012DT SML-012YT SML012ECT SML012BCT

Wide Directivity

ROHM's Ø3mm LEDs feature a directivity equivalent to that of Ø5mm LEDs (luminous intensity half-power viewing angle approximately 40°).

Many Luminous Colors

ROHM offers an LED lineup in a variety of luminous colors using both AlGaInP (a proprietary compound) and InGaN.

A Broad Lineup of LEDs

- Right angle chip LEDs
- Reverse mount chip LEDs
- Low current chip LEDs (ideal for portables)
- Dual color chip LEDs
- LED lamps with pressure release structure
- Direct mount LED lamps

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