

Light is OSRAM

Product Portfolio Summary

Low/Mid Power

Product	Description	Features & Benefits
DURIS® E 2 	DURIS E, a low and mid-power LED portfolio is ideal for efficient and homogeneous lighting applications. The combination of a small/medium lumen package, a wide beam angle and compact footprint is perfect for uniform light distribution	<ul style="list-style-type: none"> – Smallest E- series footprint of 2.0 mm x 1.6 mm – Viewing angle of 120° ideal for homogenous linear light distribution – Very compact size with solder cost saving and space saving – Cost optimized with high value in lumen per dollar
DURIS® E 3 	DURIS E, a low and mid-power LED portfolio is ideal for efficient and homogeneous lighting applications. The combination of a small/lumen package, a wide beam angle and compact footprint is perfect for uniform light distribution.	<ul style="list-style-type: none"> – Footprint of 3.0 mm x 1.4 mm – Compact light source in cost-effective PLCC package – Stable brightness over lifetime – Viewing angle of 120° ideal for homogenous linear light distribution – Mid efficacy device with industrial standard footprint
DURIS® E 5 	DURIS E, a low and mid-power LED portfolio is ideal for efficient and homogeneous lighting applications. The combination of a small/lumen package, a wide beam angle and compact footprint is perfect for uniform light distribution.	<ul style="list-style-type: none"> – Footprint of 5.6 mm x 3.0 mm – Long lifetime even at high temperatures and high currents (L70/B50>50,000h at $T_j = 120^\circ\text{C}$ and $I_f = 180\text{ mA}$) – Viewing angle of 120° ideal for homogenous linear light distribution – High efficacy device with industrial standard footprint
DURIS® P 5 	DURIS P 5 is a very compact mid-power LED providing leading-edge technology for white and color outdoor lighting. It is of top quality, an established technology and highly reliable.	<ul style="list-style-type: none"> – Viewing angle at 50% I_f: 120° – Compact light source in SMT package – High maximum operating conditions – High efficacy – Footprint of 2.6 mm x 2.2 mm – Test results according IESNA LM-80 available – Long lifetime at high temperatures and high currents (L70/B50>50,000h at $T_j = 125^\circ\text{C}$ and $I_f = 200\text{ mA}$) – Superior corrosion resistance for high-quality lighting solutions – High forward current of 250 mA
DURIS® S 2 	New DURIS S 2 combines small package size and high efficacy with excellent color uniformity and color stability while providing improved durability and impressive reliability. These tiny power packs offer manufacturers and designers great new opportunities for innovative and space saving interior general lighting design, especially for linear lighting and fluorescent tube replacement, while also delivering overall cost savings.	<ul style="list-style-type: none"> – Luminous flux typ. 30 lm @ 4000 K, 65 mA, 25 °C – High efficacy of typ. 159 lm/W @ 4000 K, CRI min 80, 65 mA – CRI min. 80 (typ. 85) – Viewing angle of 150° ideal for homogenous linear light distribution – Small footprint of 2.0 mm x 1.6 mm – 2016 EMC lead frame material – Excellent color uniformity and stability – Wide color temperature range 2700 K-6500 K – Over-driving capability to 150 mA – Bigger pitch between LED on tube light applications- can reduce number of chips and avoid hot- spot effect – Smaller package size- can save space and save soldering cost – lm/\$ competitive for professional lighting applications
DURIS® S 5 	DURIS S 5 white provides flexibility in forward voltage and luminous flux with high lifetime, even at high temperature. New phosphor, new lead frame and an upgrade of the chip lift the LEDs to a new level of performance.	<ul style="list-style-type: none"> – Various luminous flux package from one package family – Small footprint (3 mm x 3 mm) for clustering – Higher lifetime than PPA packages – Compact light source in white SMT package, colored diffused silicone resin – Viewing angle at 50% I_f: 120° – Optimized driver efficiency and costs due to higher voltage option – Full range of color temperatures: 2700 K-6500 K (white) – Test results according IESNA LM-80 available – High efficacy of typ. 175 m/W



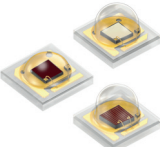
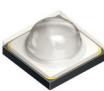
High Power

Product	Description	Features & Benefits
DURIS® S 5 	<p>DURIS S 5 white provide flexibility in forward voltage and luminous flux with high lifetime, even at high temperature. New phosphor, new lead frame and an upgrade of the chip lift the LEDs to a new level of performance</p>	<ul style="list-style-type: none"> - Various luminous flux package from one package family - Small footprint (3 mm x 3 mm) for clustering - Higher lifetime than PPA packages - Compact light source in white SMT package, colored diffused silicone resin - Viewing angle at 50% I_v:120° - Optimized driver efficiency and costs due to higher voltage option - CCT ranges include 2000 K, 2200 K for CRI 90 - Test results according IESNA LM-80 available - High efficacy of typ. 140 m/W
DURIS® S 8 (CAS) 	<p>DURIS S 8 is part of the revolutionary OSRAM Opto Semiconductor's Chip ARRAY SMD(CAS) family. This family of multi-chip devices brings the well known advantages of mid-power SMT package technology into the high luminous flux performance of COB devices. It allows completely new designs in the area of directional lights and retrofits as well as high luminous flux clusters.</p>	<ul style="list-style-type: none"> - Footprint: 5 mm x 5 mm - Various luminous flux packages from one package family - Small light emitting surface improves optical behavior in directional lighting - Low thermal resistance to enable high operating power - Provides cost effective alternative to smaller lumen COBs - Optimized driver efficiency and costs due to higher voltage option - Full range of color temperatures: 2700 K-6500 K (white) - Test results according IESNA LM-80 available - Offer packages from 350 lm-500 lm @ 18 V
DURIS® P 8 	<p>DURIS P series offering epoxy-based packages that provide superior lumen/\$. In addition, the new DURIS P high-power and ultra high-power LEDs provide uncompromising reliability and performance. To achieve this, we have transferred our special automotive experience in combining competitive lead frame technology and high-power chips in the field of high volume products for General Lighting.</p>	<ul style="list-style-type: none"> - Higher lumen/\$ - Cost effective alternative to well known ceramic packages - Long lifetime - Small size (3.7 mm x 3.7 mm)
DURIS® P 9 	<p>DURIS P series offering epoxy-based packages that provide superior lumen/\$. In addition, the new DURIS P high-power and ultra high-power LEDs provide uncompromising reliability and performance. To achieve this, we have transferred our special automotive experience in combining competitive lead frame technology and high-power chips in the field of high volume products for General Lighting.</p>	<ul style="list-style-type: none"> - Maximum light output at minimized package size - Enables very compact luminaire designs - Small size (3.7 mm x 3.7 mm)
OSLON® SSL (White) 	<p>OSLON SSL delivers the high efficacy that is necessary for professional indoor and outdoor lighting. The ceramic based package with its superior corrosion robustness addresses perfectly the need for long lifetime applications. The OSLON SSL white LED portfolio is impressive for providing a full CRI and CCT range in order to fit perfectly in numerous applications.</p>	<ul style="list-style-type: none"> - Compact footprint (3 mm x 3 mm) - Available in 80° and 150° viewing angles - Wide options of CRI and CCT ranges available - Key parameters are binned at 85° - Very low thermal resistance - Maximum driving current up to 1.3 A
OSLON® Square (White) 	<p>OSLON Square- the most compact high power LED with well known superior robustness, high reliability, long lifetime and very low thermal resistance. The OSLON Square family is designed for professional outdoor and indoor lighting, based on different color rendering.</p>	<ul style="list-style-type: none"> - Ultra compact footprint (3 mm x 3 mm) for high-density arrays to simplify circuit designs - Available with CRI 70, 80, 90 - Wide range of CCT selection - Binned at 85° - Very low thermal resistance - Superior robustness and long lifetime - Extendable range of current driving condition
SOLERIQ® L 38 	<p>OSRAM Opto Semiconductors' new SOLERIQ L 38 is the first filament LED in the portfolio- and the perfect choice for all indoor retrofits with a beam angle of 360°. Our innovative linear LED evolution now enables luminaire manufacturers and lighting designers to combine the advantages of modern LED technology and the aesthetics of traditional light bulbs.</p>	<ul style="list-style-type: none"> - Package size of 38 mm x 1.8 mm (diameter) - Available in three different lumen packages of 80, 120 and 140 lm - Warm-white light with color temperatures between 2500 K and 4000 K - Good heat dissipation due to blue chips and yellow ceramic converter - Good color rendering with CRI min 80 (typ 85) - 3- step MacAdam binned at 85 °C

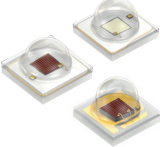
Ultra High Power

Product	Description	Features & Benefits
DURIS® S 8 (CAS) 	<p>DURIS S 8 is part of the revolutionary OSRAM Opto Semiconductor's Chip ARRAY SMD(CAS) family. This multi chip device family brings the well known advantages of mid power SMT package technology into the high luminous flux performance of COB devices. It allows completely new designs in the area of directional lights and retrofits as well as high luminous flux clusters.</p>	<ul style="list-style-type: none"> - Footprint: 5 mm x 5 mm - Various luminous flux packages from one package family - Small light emitting surface improves optical behavior in directional lighting - Low thermal resistance to enable high operating power - Provides cost effective alternative to smaller lumen COBs - Optimized driver efficiency and costs due to higher voltage option - Full range of color temperatures: 2700 K-6500 K (white) - Test results according IESNA LM-80 available - Offer packages from 500 lm-700 lm @ 6 V, 24 V & 30 V
DURIS S 10 (CAS) 	<p>DURIS S 10 is the latest addition to OSRAM Opto Semiconductors' successful chip-array SMD family, using an array of LEDs to create a single spot light design with an easy-to-assembly SMD component. Combining the proven reliability of all DURIS family packages with a new level of light output up to 1500 lumen, DURIS S 10 opens up great new opportunities for both powerful and cost-effective General Lighting solutions, from professional to consumer luminaires.</p>	<ul style="list-style-type: none"> - Luminous flux typ. 1050 lm, 1400 lm @ 3000K, 300 mA, 25 °C - CCTs: 2700 K, 3000 K, 3500 K, 4000 K, 4500 K, 5000 K, 5700 K, 6500 K (white) - Available with CRI 80 and CRI90, CRI 70 will follow - Available with 28 V and 37 V - MacAdam ellipse binning in 3 SDCM and 5 SDCM - Viewing angle of 120° (FWHM) - Single spot appearance - No multiple shadows - PCB designs available for drop-in replacement of existing COBs - Footprint of 7 mm x 7 mm - Epoxy based package in high-power class
DURIS® P 10 	<p>DURIS P series offering epoxy-based packages that provide superior lumen/\$. In addition, the new DURIS P high-power and ultra high-power LEDs provide uncompromising reliability and performance. To achieve this, we have transferred our special automotive experience in combining competitive lead frame technology and high-power chips in the field of high volume products for General Lighting.</p>	<ul style="list-style-type: none"> - Enables significant reduction in system costs - Reconciliation of thermal behavior and best in class 2nd board reliability - A broad choice of lens for secondary optics is readily available on the market - 7 mm x 7 mm package
SOLERIQ® S 9 	<p>SOLERIQ S is specifically designed for applications requiring large flux packages from a compact light emitting area. With a comprehensive list of accessories ranging from connectors to lenses and reflectors, SOLERIQ S is easy for lighting manufacturers to use. With a light emitting surface (LES) of Ø 9.8 mm, Ø 13.5 mm or Ø 19.0 mm, the SOLERIQ platform increases the flexibility for various designs, supports LED interchangeability and even enables Zhaga standard designs for LES 13 and 19.</p>	<ul style="list-style-type: none"> - Package size of 13.5 mm x 13.5 mm x 1.4 mm - Light emitting surface of (LES): Ø 9.8 mm - Excellent color reproduction with CRI min. 80, 90 - Full range of color temperatures: 2700 K-6500 K - Available in various power classes (7.0 W, 10.5 W, 14 W)
SOLERIQ® S 13 	<p>SOLERIQ S is specifically designed for applications requiring large flux packages from a compact light emitting area. With comprehensive list of accessories ranging from connectors to lenses and reflectors, SOLERIQ S is easy for lighting manufacturers to use. With a light emitting surface (LES) of Ø 9.8 mm, Ø 13.5 mm or Ø 19.0 mm, the SOLERIQ platform increases the flexibility for various designs, supports LED interchangeability and even enables Zhaga standard designs for LES 13 and 19.</p>	<ul style="list-style-type: none"> - Package size of 19.0 mm x 19.0 mm x 1.4 mm - Light emitting surface of (LES): Ø 13.5 mm, enables Zhaga standard design - Excellent color reproduction with CRI min 80, 90 - Full range of color temperatures: 2700 K-6500 K - Available in various power classes (7.0 W, 10.5 W, 17.5 W, 21 W, 24.5 W)
SOLERIQ® S 19 	<p>SOLERIQ S is specifically designed for applications requiring large flux packages from a compact light emitting area. With a comprehensive list of accessories ranging from connectors to lenses and reflectors, SOLERIQ S is easy for lighting manufacturers to use. With a light emitting surface (LES) of Ø 9.8 mm, Ø 13.5 mm or Ø 19.0 mm, the SOLERIQ platform increases the flexibility for various designs, supports LED interchangeability and even enables Zhaga standard designs for LES 13 and 19.</p>	<ul style="list-style-type: none"> - Package size of 24.0 mm x 24.0 mm x 1.4 mm - Lighting emitting surface of (LES): Ø 19.0 mm, enables Zhaga standard design - Excellent color reproduction with CRI min 70, 80, 90 - Full range of color temperatures: 2700 K-6500 K - Available in various power classes (24.5 W, 53 W)

Color

Product	Description	Features & Benefits
DURIS® S 5 	<p>DURIS S 5 color available in four color versions. Thanks to their extremely high color efficacy and brightness, DURIS S 5 blue and green enable less LED usage and smaller PCB design, and thus cost savings in assembly. The good brightness and temperature stability of DURIS S 5 red and amber means a smaller heatsink is required, simplifying retrofit design.</p>	<ul style="list-style-type: none"> - Wide spectrum color solution - Complete portfolio with industrial standard footprint of 3 mm x 3 mm - Best in class flux with hot/cold factor (85 °C to 25 °C) - Single channel driver solution design for all colors: red, amber, green, blue - High CRI and high R9 value for tunable white design from 1800 K-8000 K with RGB solution - Highest efficacy for green LEDs ever: 180 lm/W @ 150 mA - Highest temperature stability for red and amber LEDs ever - Phosphor-converted colors for amber, red and green
DURIS® P 5 	<p>DURIS P 5 color is very compact mid-power LEDs providing leading-edge technology for color outdoor lighting. It stands for top quality, established technology and high reliability. Only the color makes the difference.</p>	<ul style="list-style-type: none"> - Small footprint for clustering (2.6 mm x 2.2 mm) - Excellent robustness - Extreme stability for "deep blue" - High maximum operating conditions - Broad color portfolio (various wavelength from red, green, blue) - Compact light source in white SMT package - High forward driving current of 250 mA - Superior corrosion resistance for high quality lighting solutions and outdoor applications - Viewing angle at 50% I_v: 120° (Deep blue 105°)
OSLON® SSL 	<p>OSLON SSL delivers the high efficacy that is necessary for professional indoor and outdoor lighting. The ceramic based package with its superior corrosion robustness addresses perfectly the need for long life time applications. The OSLON SSL color portfolio provides an unique portfolio of saturated colors. It is an ideal match for all high light quality applications indoors as well as outdoors.</p>	<ul style="list-style-type: none"> - Compact footprint (3 mm x 3 mm) - Broad range of color selection (451 nm-730 nm) - Available in 80°, 120° and 150° viewing angle - Very low thermal resistance - Maximum driving current up to 1 A
OSLON® Square 	<p>OSLON Square- the most compact high power LED with well known superior robustness, high reliability, long lifetime and very low thermal resistance. The OSLON Square family is designed for professional outdoor and indoor lighting, based on different color rendering. The key parameters are binned at high temperature which is closer to the real application conditions of our customers.</p>	<ul style="list-style-type: none"> - Color: Deep blue 445 nm - Ultra compact footprint (3 mm x 3 mm) for high-density arrays to simplify circuit designs - Binned at 85° - Very low thermal resistance - Superior robustness and long lifetime - Extendable range of current driving condition

Horticulture

Product	Description	Features & Benefits
OSLON® Horticulture 	<p>The Horticulture portfolio offers new package and upgraded efficiency by 20%. With the 120° OSLON, it complements the 80°, 150° options for 450 nm (deep blue), 660 nm (hyper red) and 730 nm (far red). Together, these LEDs provide the perfect lighting adaption for all types of plants and flowers.</p>	<ul style="list-style-type: none"> - 100% footprint compatible with complete color and radiation angle options - Deep blue (450 nm) and hyper red (660 nm) offer excellent lighting for the photosynthesis process - Far red (730 nm) to control the plant from germination to vegetative growth and flowering - EQW (white) to add green content - EQW (white) to provide a human friendly working environment - High maximum driving current up to 1 A - Low thermal resistance of 3.8-6 K/W - Different radiation angles-spot or wide illumination characteristics without additional optics 80°, 120° and 150° - High reliable ceramic package with superior lifetime and corrosion stability - Robust even in humid environment

Asia
 OSRAM Opto Semiconductors
 (China) Co., Ltd.
 Hotline: 400 920 6282
 E-mail: prasia@osram-os.com

Europe
 OSRAM Opto Semiconductors
 GmbH
 Phone: +49 941 850 1700
 Fax: +49 941 850 3302
 E-mail: support@osram-os.com

USA
 OSRAM Opto Semiconductors Inc.
 Phone: (408) 962-3700
 Fax: (408) 738-9120
 Toll Free: (866) 993-5211
 E-mail: info@osram-os.com

