



Create life  
General Lighting LED portfolio

Light is OSRAM

**OSRAM**  
Opto Semiconductors



OSRAM Opto Semiconductors  
has the right LED in each power  
class for each application.

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# Create life with OSRAM Opto Semiconductors' extensive product portfolio for General Lighting

The vision for future urban living is more than just concrete and glass. It's a comprehensive concept covering vastly different needs which require an advanced technological solution. Because, the bolder the plan, the more the details matter. Like the durability of small parts or ensuring special legal requirements are met.



So when it comes to lighting, choose LED components from a partner with decades of experience and the power to help you accomplish your project. OSRAM's broad portfolio from low- to ultra-high-power LEDs offers a spectrum of infinite possibilities: thanks to our intelligent family platforms, you can mix and match them in endless combinations. At the same time, you can be sure they always fulfill your requirements in terms of outstanding performance and continuous improvement.

To ensure your project runs smoothly, choose from our product families OSCONIQ®, OSLON® and SOLERIQ® for all your professional applications and our DURIS® family specially designed for consumer needs. All families come from new state-of-the-art production facilities and fulfill the strictest government regulations. They are also recognized for their extensive set of IP rights due to our long-standing tradition of cutting-edge innovations. We are at the heart of your application – from lamps to luminaires – and a precious detail in your plan to help shape the future. We have been leading the market for nearly four decades and are here to help you create life. Start something bright.

## Definition professional and consumer LEDs

OSRAM Opto Semiconductors offers a broad LED portfolio. To meet the different requirements the components are specially designed for consumer or professional lighting applications. The benefit of the consumer products is the optimized cost-performance ratio, whereas the professional products come with best-in-class reliability and performance.

# Different families – unique advantages

OSRAM Opto Semiconductors' family concept is our modern response to the rapid development and special demands of the LED market, offering you also a better and faster way of navigating through our product portfolio.

## Simply better results with our family concept

This technology platform approach makes it easy to navigate through our comprehensive portfolio. At the same time it speeds up product development and therefore reduces time to market considerably for the benefit of our customers. The modularity of the family concept with its different technologies, performance classes and applications offers you maximum demand-based flexibility.

### Professional product families

#### OSCONIQ® family

High performance LEDs from mid- to ultra-high-power. Designed for high reliability and long lifetime for professional indoor and outdoor applications.

- **OSCONIQ® S<sup>1</sup>**  
Compact professional mid-power LEDs that provide flexibility in forward voltage and luminous flux with high performance and long lifetimes
- **OSCONIQ® P**  
Professional mid-, high- and ultra-high-power LEDs with long lifetimes and extreme high performance providing leading edge technology for professional indoor and outdoor lighting applications

#### OSLON® family

High-power LEDs with superior performance. Highly efficient and compact. High quality, even in difficult ambient conditions. Preferred LEDs for indoor and outdoor illumination, architecture and street lighting

- **OSLON® SSL**  
LED with outstanding efficiency and very long lifetime, optimized for use with lenses and reflectors; very broad color spectrum (RGB and other colors)
- **OSLON® Square**  
One of the most popular LEDs in general illumination, key parameters are grouped at high temperatures to get as close as possible to the temperature in the application

#### SOLERIQ® family

Ultra-high-power state-of-the-art CoB LEDs. Simple installation. Ideal for indoor lighting and spotlight applications.

- **SOLERIQ® S**  
The new innovative LEDs that offer flexibility in optics design via smaller LES, high luminous efficacy without compromising the product performance

### Consumer product families

#### DURIS® family











Cost-performance optimized LEDs from mid- to ultra-high-power designed for indoor and outdoor consumer applications.

- **DURIS® E**  
Ideal for lighting applications requiring a homogeneous distributed light source, like fluorescent tube replacements or retrofit bulbs
- **DURIS® S**  
Mid- to ultra-high-power compact LEDs that provide flexibility in forward voltage and luminous flux even at high temperature distribution. The product portfolio covers the full range of lumen packages for white and colored LEDs
- **DURIS® L**  
The perfect choice for all indoor retrofits with a beam angle of 360° to bring modern LED technology into traditional light bulb design



<sup>1</sup> Coming up

## Mid-power (0.2–1 W)

Professional	 <p><b>OSCONIQ® S 1620*</b></p> <ul style="list-style-type: none"> <li>– 28–37 lm</li> <li>– CRI 80</li> <li>– 140°</li> </ul>			 <p><b>OSCONIQ® S 3030*</b></p> <ul style="list-style-type: none"> <li>– 0.2 W (3 V) 35–37 lm</li> <li>– 1.0 W (6 V) 138–148 lm</li> <li>– CRI 70/80/90</li> </ul>					
	 <p><b>OSCONIQ® P 2226 white<sup>1</sup></b></p> <ul style="list-style-type: none"> <li>– 42 lm</li> <li>– CRI 80</li> </ul>			 <p><b>OSCONIQ® P 2226 color<sup>1</sup></b></p> <ul style="list-style-type: none"> <li>– Deep blue</li> <li>– Blue</li> <li>– True green</li> <li>– Yellow</li> <li>– Red</li> <li>– Hyper red</li> <li>– Far red</li> </ul>					
	 <p><b>DURIS® S 5 white</b></p> <ul style="list-style-type: none"> <li>– 0.2 W (3 V) 27–30 lm</li> <li>– 1.0 W (6 V) 130–140 lm</li> <li>– CRI 70/80/90</li> </ul>			 <p><b>DURIS® S 5 color (3 V)</b></p> <ul style="list-style-type: none"> <li>– Deep blue</li> <li>– Blue</li> <li>– Green</li> <li>– PC Lime</li> <li>– PC Yellow</li> <li>– Amber</li> <li>– Red</li> </ul>			 <p><b>DURIS® S 5 color (6 V)</b></p> <ul style="list-style-type: none"> <li>– Deep blue</li> <li>– PC Green</li> <li>– PC Amber</li> <li>– PC Red</li> </ul>		
	 <p><b>DURIS® E 3</b></p> <ul style="list-style-type: none"> <li>– 24–36 lm</li> <li>– CRI 70</li> <li>– CRI 80</li> <li>– CRI 90</li> </ul>			 <p><b>DURIS® E 5</b></p> <ul style="list-style-type: none"> <li>– 27–38 lm</li> <li>– CRI 70</li> <li>– CRI 80</li> <li>– CRI 90</li> </ul>			 <p><b>DURIS® E 2835</b></p> <ul style="list-style-type: none"> <li>– 0.2 W (3 V) 25.5–30 lm</li> <li>– 0.5 W (3 V) 64–72 lm</li> <li>– 1.0 W (9 V) 115–135 lm</li> <li>– CRI 80/90</li> </ul>		
Consumer									

\*Upcoming product

<sup>1</sup>Formerly known as DURIS® P 5

Reference CCT: 5,000 K @ CRI 80

## High-power (1 – 4 W)



### OSLON® SSL white

- Up to 150 lm
- 80°, 150°
- CRI 70
- CRI 80
- CRI 90



### OSLON® SSL color

- 80°, 120°, 150°
- Deep blue
- Blue
- True green
- Yellow
- Amber
- Red
- Hyper red
- Far red



### OSLON® Square white

- Up to 320 lm
- CRI 70
- CRI 80
- CRI 90



### OSLON® Square color

- Deep blue
- Hyper red



### OSCONIQ® P 3737<sup>2</sup>

- 2.0 W up to 480 lm
- 3.0 W up to 1,160 lm
- CRI 70



CAS<sup>5</sup>

### DURIS® S 8

- 350–580 lm
- CRI 70
- CRI 80
- CRI 90



### DURIS® L 38<sup>3</sup>

- 80–250 lm
- CRI 80
- CRI 82

<sup>2</sup>Formerly known as DURIS® P 8 and P 9    <sup>3</sup>Formerly known as SOLERIQ® L 38

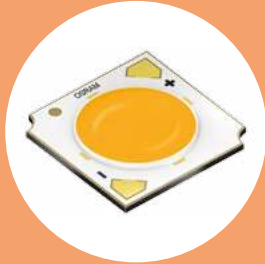
Reference CCT: 5,000 K @ CRI 70, Duris® L 38: 2,700 K @ CRI 80

## Ultra-high-power (> 4 W)



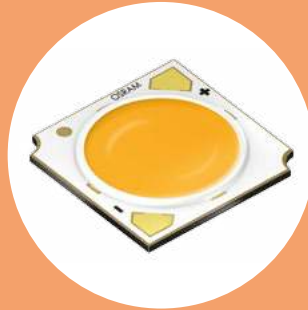
### SOLERIQ® S 9

- 700 – 2,000 lm
- CRI 80/85/90
- Brilliant White
- Brilliant Color



### SOLERIQ® S 13

- 710 – 3,700 lm
- CRI 70/80/85/90
- Brilliant White
- Brilliant Color



### SOLERIQ® S 15\*

- 2,500 – 4,000 lm
- CRI 80/90



### SOLERIQ® S 19

- 2,500 – 7,900 lm
- CRI 70/80/85/90
- Brilliant White
- Brilliant Color



### OSCONIQ® P 7070<sup>4</sup>

- 1,185 lm
- CRI 70



### DURIS® S 8

- 500 – 720 lm
- CRI 70
- CRI 80
- CRI 90



### DURIS® S 10

- 850 – 1,730 lm
- CRI 70
- CRI 80
- CRI 90

CAS<sup>5</sup>

\*Upcoming product









<sup>4</sup>Formerly known as DURIS® P 10

<sup>5</sup>Chip ARRAY SMD

Reference CCT: 3,000K @ CRI 80, OSCONIQ® P 7070: 5,000 K @ CRI 70



# Choose perfection – easily

		DURIS® E	DURIS® S 5 white and colors	DURIS® L 38 <sup>1</sup>	DURIS® S 8/S 10	OSCONIQ® P 2226 <sup>2</sup> white and colors	OSCONIQ® S 1620*/ S 3030* white	OSCONIQ® P 3737 <sup>3</sup> /P 7070 <sup>4</sup>	OSLON® SSL white and colors	OSLON® Square white and colors	SOLERIQ® S
 <b>Retrofit</b>	Bulb	+++	+++	+++	+++	-	-	-	-	-	-
	Directional	-	+++	-	+++	-	-	-	+	+	+++
	Linear	+++	+	-	-	-	+++	-	-	-	-
	Smart lights	-	-	-	-	+++	+	-	+++	-	-
 <b>Home</b>	Spotlight	-	+++	-	+++	-	+	-	+	+	+++
	Pendant	+++	+++	-	+++	-	-	+	+	+	+
	Strip lighting	+++	+	-	-	-	-	-	+	-	-
	Smart lights	-	+++	-	-	+++	-	-	+++	-	-
 <b>Shop</b>	Spot	-	+	-	+++	-	+	+	+	+	+++
	Downlight	+	+++	-	+++	-	+	+	-	-	+++
	Linear/display/ freezer/shelf	+++	+	-	-	+	-	-	-	-	-
 <b>Office</b>	Downlight	+	+++	-	+++	-	-	-	-	-	+++
	Linear/area/troffer	+++	+	-	-	-	+++	-	-	-	-
 <b>Hospitality/ Architainment</b>	Accent lighting	-	+++	-	+++	+++	+++	-	+++	+	+++
	Cove/strip/ wall washer	-	+++	-	-	+	+	+	-	-	-
	Stage lighting	-	+++	-	-	+	+++	+	-	+	+++
 <b>Industry</b>	High/Low Bay	+	+++	-	+++	-	+++	+++	-	+++	+++
	Linear lights	+++	+	-	-	-	+++	-	-	-	-
	Emergency lighting	-	+	-	-	-	+++	+++	-	+++	-
	Portable lights	-	-	-	+++	-	+++	+++	-	+++	+++
 <b>Outdoor</b>	Road lighting	-	+	-	+++	-	+++	+++	+++	+++	+++
	Tunnel	-	+	-	-	-	+++	+++	+++	+++	+
	Area lighting	-	+++	-	+	+	+++	+++	+++	+++	+
	Residential	-	+++	-	+++	-	+++	+++	+++	+++	+++
 <b>Horticulture</b>	Top lighting	-	-	-	-	+++	+++	-	+++	+++	-
	Interlighting	-	-	-	-	+++	+++	-	+++	+++	-

**Guide:** +++ (perfect fit), + (OK fit), - (no fit)

<sup>1</sup> Formerly known as SOLERIQ® L 38

<sup>2</sup> Formerly known as DURIS® P 5

<sup>3</sup> Formerly known as DURIS® P 8 and P 9

<sup>4</sup> Formerly known as DURIS® P 10

\* Upcoming products



[www.osram.com/os/pass](http://www.osram.com/os/pass)

## Your PASS to the future

With PASS, you'll get access to OSRAM Opto Semiconductors' application engineering expertise and lab services through a lean, affordable, à la carte program. PASS is an open, collaborative design and testing process that keeps you involved, allowing flexibility along the way.

Make it good, make it fast and make it easy – with PASS you'll access our Premium Application Support Services through a dedicated web page ([www.osram.com/os/pass](http://www.osram.com/os/pass)), where you can request services through a dynamic menu featuring simulation, prototype, LED data and system metrology services. Our qualification process determines if your business is a good fit for PASS services. And, if we can't provide everything you need, we'll help you to find the right solution through our LED Light for you program, the premier lighting solutions network of certified industry partners.

### Simulation

Simulate your system to study illumination and thermal performance before hardware is realized.

- Simulate your optical system
- Model your illumination environment
- Simulate your thermal system
- Optics and thermal design support

### Prototype

Choose from a list of standard printed circuit boards (PCBs), specify a custom PCB or work with engineering to realize an entire system mockup for proof of concept.

- Standard PCBs
- Custom PCBs
- System mockups

### LED data

LED characterization and lifetime estimation based on your specified parts and drive current.

- LED measurements
- Lumen maintenance estimation
- LM-80/TM-21 reports

### System metrology

Get photometric and thermal measurements for your solution.

- Integrating sphere measurement
- Goniophotometer measurement
- Thermal spot & area measurement
- System luminance

### Also see the Lighting Tools for General Lighting

Safe time and effort to find additional information for our LEDs by using the OSRAM Opto Semiconductors' lighting tools.

- My Luminator
- OSRAM Opto Semiconductors product selector
- LED Information Base
- Horticulture Lighting Tool\*

\* Coming soon

# LED Light for you

LED Light for you (LLFY) is a successful global network brought to you by OSRAM Opto Semiconductors. Its worldwide certified partners will support you with a huge portfolio of accessories such as lenses and reflectors and also customized solutions for your specific application. From optical and electrical experts to specialists in thermal and system management, the LED Light for you partners have the expertise to meet your dedicated requirements. Moreover, our system integrators will assist you at all stages of a project, from an ambitious concept and attractive design to the right layout,

and from a qualified consultation up to a committed system level implementation. LED Light for you has further expanded its support for you. With Underwriters Laboratories, DEKRA and TÜV SÜD, three leading global experts for testing and certification are complementing the existing LLFY expert pool. Furthermore, connectors suitable for all SOLERIQ® devices are now available at the LLFY Product Selector, offering you even more aligned accessories and support based on your selection.

## For whom?

LED Light for you serves professionals who want to realize a General Lighting project powered by OSRAM LED technology. Designers, architects and light manufacturers will find worldwide experts to support them in realizing not only standard applications, but exceptional and extravagant light applications. Big projects or small ones – LED Light for you offers the right solution.



## How it works

### You are a

- Designer
- Architect
- Lighting Consultant
- Luminaire Manufacturer
- ...

### You look for

General Lighting  
LED technology

### Your solution: LED Light for you Network

Certified partners participate in:



**Optical Solutions**



**Thermal Solutions**



**Electronic Solutions**



**System Integrator**



**Connector Solutions**

**Additional Partners**



### New: Product Selector App

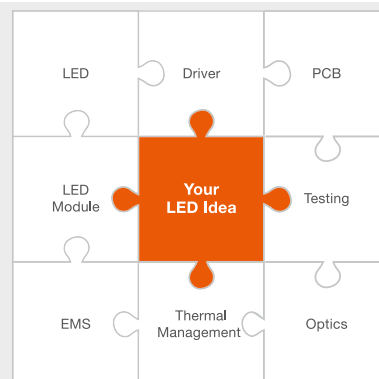
Find suitable products for your LED application quickly and easily.



To download the app just scan the QR code.

## Your LED Idea




Our focus is always your idea and the best support for it. Since different ideas require different approaches, OSRAM Opto Semiconductors brings together all competencies in LED lighting for you – at LED Light for you. According to our one stop philosophy, we cover every stage of the value chain for your lighting project. Whatever you need, the LED Light for you partners turn your idea into reality.



# Color Rendering Index

The Color Rendering Index (CRI) was developed and published by the CIE in 1974 to evaluate the color quality of light sources. It describes the deviation of colors illuminated with a test light source compared to a reference light source. If the colors are reproduced faithfully compared with daylight or an incandescent lamp, the CRI value is at its maximum of 100.

In many applications, color rendering is balanced with the efficacy of the light source. OSRAM Opto Semiconductors has employed this technique to bring you a choice of CRI and efficacy combinations, letting you choose the LED best suited to your application.

	<b>.Px power champ</b>	<b>.Ex economic champ</b>	<b>.Cx color champ</b>
<b>Product Benefit</b>	The power champ phosphor LEDs fulfill even the highest efficacy requirements with good light quality	The economic champ phosphor LEDs is the perfect trade off between great color rendering and highest efficacy	Perfect color rendering is the objective of the color champ phosphor LEDs with an efficacy, which is still outperforming most conventional light sources
<b>Color Rendering Index <math>R_a</math></b>	min. 70	min. 80	min. 90
<b>Applications</b>	Outdoor and industrial applications 	Home and office applications 	Shop and museum applications 



## Brilliant White & Brilliant Color

The “Brilliant White” and “Brilliant Color” LEDs are especially designed for shop lighting applications as they feature a high color quality similar to HID lamps.

### Brilliant White

The “Brilliant White” range is able to deliver the natural whiteness of white objects. This feature is particularly important for professional lighting solutions in shops or museums, where items on display have to look as attractive and genuine as possible. With “Brilliant White” LEDs, the true whiteness of the illuminated object can be rendered and it will look simply eye-catching and exceptionally white. The CoB LEDs (Chip-on-Board) are also the perfect choice for professional downlights, spotlights and general indoor lighting.

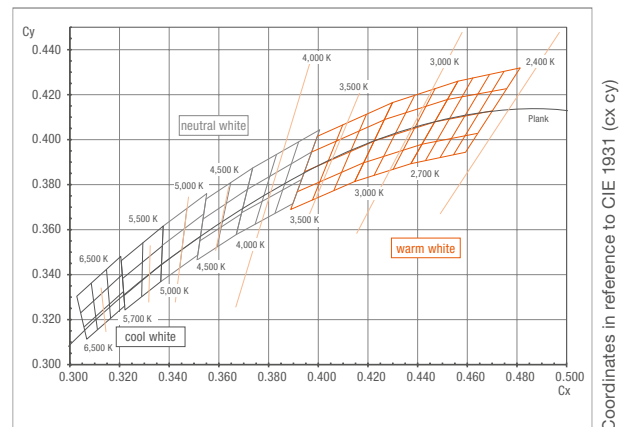
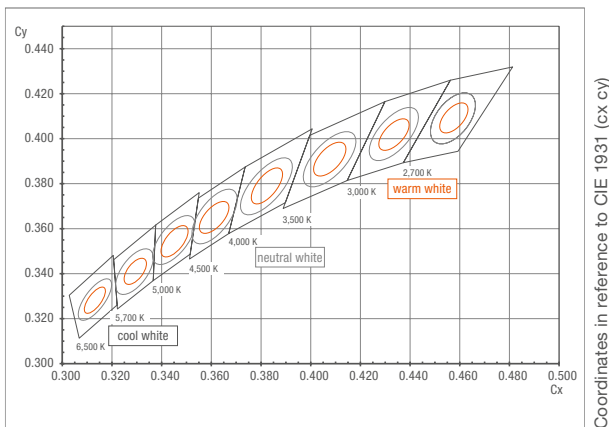
### Brilliant Color

The “Brilliant Color” range enables more saturated and distinct colors, better color contrast and clarity, which leads to the best FCI (Feeling of Contrast Index) of typ. 136. Beside rich and saturated colors, “Brilliant Color” LEDs also provide a high quality of white. The color consistency lies within 3-step MacAdam and the increased color gamut, together with the high color rendering index (CRI) of typ. 85 ensure a good rendering of colors. This originally was a key feature of high intensity discharge lamps and, until now, has been barely seen as a characteristic of LEDs. The CoB LEDs are ideal for shop lighting, emphasizing and creating an appealing appearance for commercial products.

# White binning

LED components vary from each other due to production process. Their difference can manifest in color, forward voltage, and flux. In the SSL field, stable and homogeneous light from products is extremely important. Additionally, the binning of LEDs means they are measured on a variety of factors. For each individual component this is done under the exact same conditions regarding temperature voltage,

etc. Measurement data is divided into classes, which we call bins, and the LED components are sorted accordingly. For this reason, OSRAM Opto Semiconductors consistently improves its binning system and ensures batches of LEDs delivered have only the slightest deviations in performance from one another. Our most advanced development in setting new standards in white binning is our TEN° binning.

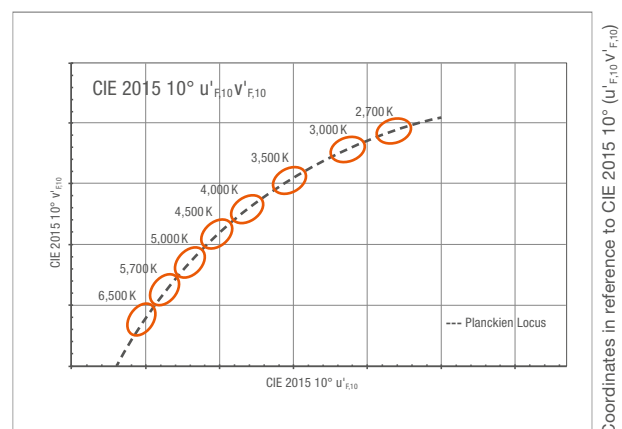
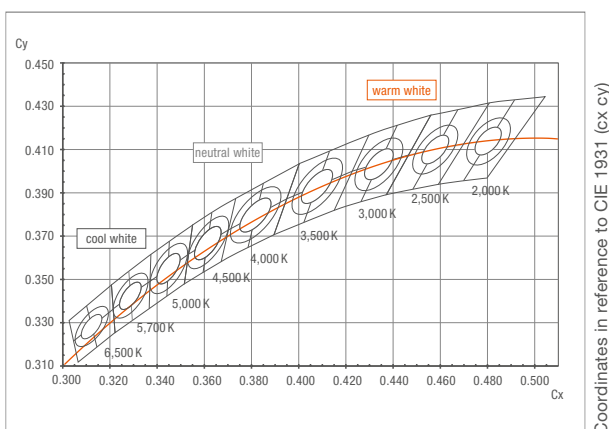


### MacAdam binning

For projects with high demand for color consistency, a premium selection corresponding to 3-step MacAdam is available. The maximum color deviation defined by this binning corresponds to what is most widely used in today's lighting applications.

### Fine white binning

LEDs are available in different color temperatures from warm white 2,700 K up to cool white 6,500 K. OSRAM Opto Semiconductors' fine bin system is based on a 3-step MacAdam ellipse to ensure color consistency in any lighting application.



### Hybrid binning scheme

Combining, harmonizing and standardizing our own Fine Bin Group and MacAdam ellipse, the Hybrid binning scheme subdivides the color temperature into 9 subgroups, being also further expandable due to further extension of CCTs.

### TEN° binning

TEN° binning\* introduces a more accurate 10° color space based on CIE 170-2:2015, using the latest fundamental color matching functions to create a chromaticity diagram with physiological axes. That allows to capture color differences in the measurements and binning, which would be visible only in the application otherwise.



\* For availability please contact our sales team



## OSCONIQ® P 2226

OSCONIQ® P 2226 is a professional mid-power LED providing leading-edge technology for indoor and outdoor lighting applications requiring monochrome colors. The new types create new opportunities and fit perfectly into the existing OSRAM Opto Semiconductors' LED color portfolio.

### **Advantages**

**Combining high performance, compactness and extreme robustness.**

OSCONIQ® P 2226 enables superior fixture and lamp designs for a great variety of indoor and outdoor applications. It combines a compact package with high performance and a wide operating range of current and temperature, thus allowing complete new design flexibility. OSCONIQ® P 2226 offers freedom to choose from different colors and white versions with the same small footprint.

### Features

- Full mid-power color portfolio
- Professional grade robustness and corrosion resistance
- Compact footprint of 2.6 mm × 2.2 mm
- Wide operating range of current and temperature

### Applications

Because of its high corrosion resistance and wide operating range the OSCONIQ® P 2226 is perfectly suitable for professional lighting applications.

- Architectural lighting
- Accent and effect lighting
- Interior lighting: ceiling light, cove lighting, chandeliers, pendants, sconces, linear lights
- Channel letters
- Horticulture lighting for vertical farming



Effect lighting



Horticulture lighting



### OSCONIQ® P 2226

Type	Color	Dominant wavelength	Typ. Luminous/Radiant flux (100 mA)
GD DASPA2.14	Deep blue	439 – 461 nm	166 mW
GB DASPA2.13	Blue	459 – 476 nm	8 lm
GT DASPA2.13	True green	513 – 543 nm	30 lm
GY DASPA2.23	Yellow	583 – 595 nm	16 lm
GR DASPA2.23	Red	612 – 630 nm	19 lm
GH DASPA2.24	Hyper red	660 nm	115 mW
GF DASPA2.24	Far red	730 nm	66 mW
GW DASPA2.UC	Ultra white	—	42 lm
GW DASPA2.EC	White	—	33 lm

■ Upcoming product

# OSCONIQ® P 3737 and P 7070

Until now, costly ceramic-based LEDs are used for professional exterior lighting applications. With the OSCONIQ® P series OSRAM Opto Semiconductors is now offering epoxy-based packages that generally provide superior lumen/\$. In addition, the new OSCONIQ® 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.



Powerful LEDs for street lighting applications



**Features**

- Superior corrosion robustness and long lifetime
- Best in class second board reliability compared to ceramic packages
- Key parameters binned at 85 °C

**Applications**

- Professional outdoor lighting (street and tunnel lighting)
- High mast lighting
- Industrial luminaires (high bay, low bay)

**OSCONIQ® P 3737**

- Long lifetime
- Maximum light output at minimized package size
- Enables very compact luminaire designs
- 2 Watt version (formerly known as DURIS® P 8) and 3 Watt version (formerly known as DURIS® P 9) available

**OSCONIQ® P 7070**

- Enables significant reduction in system costs
- Reconciliation of thermal behavior and best in class second board reliability
- A broad choice of lens for secondary optics is readily available on the market



Professional outdoor lighting in public spaces



**OSCONIQ® P**

Type	Color	Available CCT range (K)	CRI min.	Typ. Luminous flux (lm)	Power (W)	Typ. Forward Voltage $V_f$ (V)	Binning temperature (°C)	Binning CCT (K)	Viewing angle at 50 % $I_v$	Footprint (mm <sup>2</sup> )
<b>OSCONIQ® P 3737</b>										
GW PUSRA1.PM	White	3,000–6,500	70	309	2	2.80	85	5,000	120°	3.7 × 3.7
GW PUSTA1.PM	White	3,000–6,500	70	473	3	2.75	85	5,000	120°	3.7 × 3.7
<b>OSCONIQ® P 7070</b>										
GW P7STA1.PM	White	3,000–6,500	70	1,185	8	11.40	85	5,000	120°	7.0 × 7.0
GW P7STA2.PM	White	3,000–6,500	70	1,185	8	5.60	85	5,000	120°	7.0 × 7.0

# OSOLON<sup>®</sup> SSL

OSOLON<sup>®</sup> 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.



## OSOLON<sup>®</sup> SSL white

The OSOLON<sup>®</sup> SSL white LED portfolio is impressive for providing a full CRI and CCT range in order to fit perfectly in numerous applications.

### Features

- Compact footprint (3 mm × 3 mm)
- Available in 80° and 150° viewing angles
- Wide options of CRI and CCT ranges available
- Key parameters are binned at 85 °C
- Very low thermal resistance
- Maximum driving current up to 1.3A

### Applications

- Street and tunnel lighting
- Architectural lighting
- Professional spot lights for shop and museums lighting

Strong alternatives for professional white lighting



## OSOLON<sup>®</sup> SSL white

Type	Viewing angle	Available CCT range (K)	Typ. Luminous flux (lm)	CRI min.	Binning CCT (K)
GW CSxPM1.PM	80°, 150°	3,000–6,500	144	70	5,000
GW CSxPM1.EM	80°, 150°	2,500–5,000	117	80	3,000
GW CSxPM1.CM	80°, 150°	2,700–4,000	103	90	3,000



Striking accent and effect lighting



High-class horticulture lighting

**OSOLON<sup>®</sup> SSL color**

The OSOLON<sup>®</sup> SSL color portfolio provides a unique portfolio of saturated colors. It is an ideal match for all high-light-quality applications indoors as well as outdoors.

**Features**

- Best in class horticulture performance
- Compact footprint (3 mm × 3 mm)
- Broad range of color selection (450 nm–730 nm)
- Available in 80°, 120° and 150° viewing angle
- Very low thermal resistance
- Maximum driving current up to 1 A

**Applications**

- Horticultural lighting
- Accent and effect lighting
- Architectural lighting



**OSOLON<sup>®</sup> SSL color**

Type	Viewing angle	Color	Wave length (nm)
GD CSxPM1.xx	80°, 120°, 150°	Deep blue	450
GB CSxPM1.xx	80°, 150°	Blue	470
GT CSxPM1.xx	80°, 120°, 150°	True green	528
GY CSxPM1.xx	80°, 150°	Yellow	590
GA CSxPM1.xx	80°, 120°, 150°	Amber	617
GR CSxPM1.xx	80°, 150°	Red	623
GH CSxPM1.xx	80°, 120°, 150°	Hyper red	660
GF CSxPM1.xx	80°, 120°, 150°	Far red	730



Impressive color range

# OSLO<sup>®</sup> Square

OSLO<sup>®</sup> Square – the most compact high-power LED with well-known superior robustness, high reliability, long lifetime and very low thermal resistance. The OSLO<sup>®</sup> 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.



Modern street lighting with high reliability and long lifetime



Professional high bay application



Shop lighting



Perfect light choice for modern architecture and interiors

### Features

- Ultra compact footprint (3 mm × 3 mm) for high-density arrays to simplify circuit designs
- Available with CRI 70, 80, 90
- Wide range of CCT selection
- Binned at 85 °C
- Very low thermal resistance
- Superior robustness and long lifetime
- Extendable range of current driving condition

### Applications

- Street lighting
- Tunnel lighting
- Path lighting
- Architectural lighting
- Low bay, high bay
- Professional shop lights
- Museum lighting
- Spot lights

### OSLO<sup>®</sup> Square

Type	Available CCT range (K)	CRI	Typ. Luminous flux (lm) <sup>1</sup>	Typ. Efficacy (lm/W) <sup>1</sup>	Typ. Forward voltage (V) <sup>1</sup>
GW CSSRM2.PM	3,000–6,500	min. 70	320 <sup>2</sup>	160 <sup>2</sup>	2.8
GW CSSRM2.EM	2,700–5,000	min. 80	252 <sup>3</sup>	129 <sup>3</sup>	2.8
GW CSSRM2.CM	2,700–6,500	min. 90	211 <sup>3</sup>	108 <sup>3</sup>	2.8
GW CSSRM1.BM	2,700–4,000	typ. 95 (R9 typ. 90)	193 <sup>3</sup>	98 <sup>3</sup>	2.8

<sup>1</sup> @ 700 mA, 85 °C | <sup>2</sup> @ 5,000 K, 85 °C | <sup>3</sup> @ 3,000 K, 85 °C



# SOLERIQ® S

SOLERIQ® S is OSRAM Opto Semiconductors' state-of-the-art easy to use Chip-on-Board family specifically designed for professional lighting applications. The "Brilliant White" and "Brilliant Color" versions extend the CoB portfolio by offering superior light quality solutions. "Brilliant White" delivers more natural white appearance while "Brilliant Color" offers natural white plus an enhancement in illuminating colored objects. The new CRI 97 series complements the CoB line-up.





Brilliant Lighting

### SOLERIQ® S 9, S 13, S 15, S 19

#### Full portfolio, strong performance, superb color quality

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  $\varnothing$  9.8 mm,  $\varnothing$  13.0 mm,  $\varnothing$  14.5 mm or  $\varnothing$  19.0 mm, the SOLERIQ® S platform increases the flexibility for various designs, supports LED interchangeability and even enables Zhaga standard designs for LES 9, 13 and 19.

#### SOLERIQ® S Brilliant White and Brilliant Color

The SOLERIQ® S “Brilliant White” range offers pure, clean and clear white light, free of greenish or yellowish tints – white just appears whiter. The SOLERIQ® S “Brilliant Color” range offers the same appearance of natural white and also enhances the appearance of colored objects – with more saturated and distinct colors, better color discrimination and clarity, an effect well-known from HID lamps.

#### SOLERIQ® S – CRI 97

Premium color rendering offers superior performance for high end interior applications.

#### General features

- High luminous flux from one single LED package
- Higher lumen/\$ compared to ceramic based packages
- Uniform illumination without multi shadows due to uniform light emitting surface
- Color consistency within 3-step MacAdam
- Easy-to-use metal core board
- Easy to install with off-the-shelf solderless connectors and lenses
- Very stable brightness over lifetime
- Viewing angle at 50 %  $I_v$ : 120°
- Binning temperature of 85°C

#### Applications

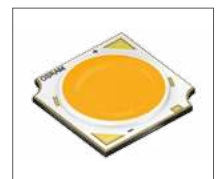
- Professional spotlighting, e.g. in shops or museums
- High end home lighting, e.g. spotlights or downlights
- Outdoor lighting

#### Features SOLERIQ® S 9

- Package size of 13.5 mm × 13.5 mm × 1.4 mm
- Light emitting surface of (LES):  $\varnothing$  9.8 mm
- Excellent color reproduction with CRI min. 80, 90, 97 (typ.)
- Full range of color temperatures: 2,700 K–6,500 K
- Available in various power classes (7.0 W, 10.5 W, 14 W)

#### SOLERIQ® S 9

Type	CRI min.	Available CCT range (K)	Typ. Luminous flux (lm)	Typ. Efficacy (lm/W)	Typ. Binning current (mA)	Max. Current (mA)	Typ. Binning voltage (V)	Typ. $R_{th,JS_{el}}$ (K/W)	Binning CCT (K)
GW KAFGB3.EM	80	2,700–6,500	960	138	200	460	34.7	1.1	3,000
GW KAFHB3.EM	80	2,700–6,500	1,395	134	300	690	34.7	0.8	3,000
GW KAFHB5.EM	80	2,700–4,000	1,478	142	300	700	34.7	*	3,000
GW KAFJB3.EM	80	2,700–6,500	1,820	131	400	920	34.7	0.5	3,000
GW KAFJB5.EM	80	2,700–4,000	2,013	145	400	1,050	34.7	*	3,000
GW KAFGB3.DM <sup>2</sup>	85	3,250	677	98	200	460	34.7	1.1	3,000
GW KAFJB3.DM <sup>2</sup>	85	3,250	1,250	90	400	920	34.7	0.5	3,000
GW KAFGB3.CM <sup>1</sup>	90	2,700–4,000	774	110	200	460	34.7	1.0	3,000
GW KAFHB3.CM	90	2,700–4,000	1,035	99	300	690	34.7	0.8	3,000
GW KAFHB5.CM	90	2,700–4,000	1,208	116	300	700	34.7	*	3,000
GW KAFJB3.CM <sup>1</sup>	90	2,700–4,000	1,453	104	400	920	34.7	0.5	3,000
GW KAFJB5.CM	90	2,700–4,000	1,638	118	400	1,050	34.7	*	3,000
GW KAFGB5.BM	97 Typ.	2,700–3,500	760	109	200	460	34.7	1.9	3,000
GW KAFHB5.BM	97 Typ.	2,700–3,500	1,102	105	300	690	34.7	1.3	3,000
GW KAFJB5.BM	97 Typ.	2,700–3,500	1,453	104	400	920	34.7	0.5	3,000



■ Upcoming product \* Data available in Q4 2017 | <sup>1</sup> Available in “Brilliant White” | <sup>2</sup> Available in “Brilliant Color”



### Features SOLERIQ® S 13

- Package size of 19.0 mm × 19.0 mm × 1.4 mm
- Light emitting surface of (LES): Ø 13.0 mm, enables Zhaga standard design
- Excellent color reproduction with CRI min. 70, 80, 90, 97 (typ.)
- Full range of color temperatures: 2,700 K–6,500 K
- Available in various power classes (7.0 W, 10.5 W, 17.5 W, 21 W, 24.5 W)

### Features SOLERIQ® S 15

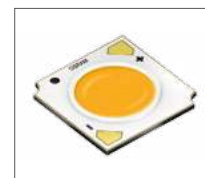
- Package size of 19.0 mm × 19.0 mm × 1.4 mm
- Light emitting surface of (LES): Ø 14.5 mm
- CRI 80, 90
- CCT 2,700 K–4,000 K
- Available power classes 17.5 W, 21 W, 24.5 W

### Features SOLERIQ® S 19

- Package size of 24.0 mm × 24.0 mm × 1.4 mm
- Light 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: 2,700 K–6,500 K
- Available in various power classes (24.5 W, 53 W)

### SOLERIQ® S 13

Type	CRI min.	Available CCT range (K)	Typ. Luminous flux (lm)	Typ. Efficacy (lm/W)	Typ. Binning current (mA)	Max. Current (mA)	Typ. Binning voltage (V)	Typ. R <sub>th,JS el</sub> (K/W)	Binning CCT (K)
GW KAGLB3.PM <sup>2</sup>	70	4,000–6,500	3,062	148	600	1,380	34.7	0.4	5,000
GW KAGMB3.PM <sup>2</sup>	70	4,000–6,500	3,548	145	700	1,610	34.7	0.3	5,000
GW KAGGB3.EM	80	2,700–6,500	988	142	200	460	34.7	1.1	3,000
GW KAGHB3.EM	80	2,700–6,500	1,468	139	300	690	34.7	0.9	3,000
GW KAGJB3.EM	80	2,700–6,500	2,496	143	500	1,150	34.7	0.5	3,000
GW KAGLB3.EM	80	2,700–6,500	2,862	136	600	1,380	34.7	0.4	3,000
GW KAGMB3.EM	80	2,700–6,500	3,221	133	700	1,610	34.7	0.3	3,000
GW KAGJB3.DM <sup>2</sup>	85	3,250	1,661	96	500	1,150	34.7	0.5	3,000
GW KAGLB3.DM <sup>2</sup>	85	3,250	2,019	98	600	1,380	34.7	0.4	3,000
GW KAGMB3.DM <sup>2</sup>	85	3,250	2,188	91	700	1,610	34.7	0.3	3,000
GW KAGGB3.CM	90	2,700–4,000	741	104	200	460	34.7	1.1	3,000
GW KAGHB3.CM <sup>1</sup>	90	2,700–4,000	1,050	101	300	690	34.7	0.9	3,000
GW KAGJB3.CM <sup>1</sup>	90	2,700–4,000	1,895	109	500	1,150	34.7	0.5	3,000
GW KAGLB3.CM <sup>1</sup>	90	2,700–4,000	2,271	108	600	1,380	34.7	0.4	3,000
GW KAGMB3.CM	90	2,700–4,000	2,613	100	700	1,610	34.7	0.3	3,000
GW KAGJB5.BM	97 Typ.	2,700–3,500	1,845	107	500	1,150	34.7	0.5	3,000
GW KAGLB5.BM	97 Typ.	2,700–3,500	2,271	108	600	1,380	34.7	0.4	3,000
GW KAGMB5.BM	97 Typ.	2,700–3,500	2,613	105	700	1,610	34.7	0.4	3,000



### SOLERIQ® S 15

GW KAGJB5.EM	80	2,700–4,000	2,63	150	500	1,470	34.7	*	3,000
GW KAGLB5.EM	80	2,700–4,000	3,081	148	600	1,680	34.7	*	3,000
GW KAGMB5.EM	80	2,700–4,000	3,997	144	800	2,100	34.7	*	3,000
GW KAGJB5.CM	90	2,700–4,000	2,082	120	500	1,470	34.7	*	3,000
GW KAGLB5.CM	90	2,700–4,000	2,457	118	600	1,680	34.7	*	3,000
GW KAGMB5.CM	90	2,700–4,000	3,221	116	800	2,100	34.7	*	3,000



### SOLERIQ® S 19

GW KAHLB2.PM	70	4,000–6,500	4,027	165	700	1,920	34.8	0.3	5,000
GW KAHQB2.PM	70	4,000–6,500	7,401	137	1,500	2,530	36.0	0.3	5,000
GW KAHQB2.EM	80	2,700–6,500	6,460	120	1,500	2,530	36.0	0.3	3,000
GW KAHLB2.DM <sup>2</sup>	85	3,250	3,559	93	1,050	1,920	36.4	0.3	3,000
GW KAHLB2.CM <sup>1</sup>	90	2,700–4,000	2,713	111	700	1,920	34.8	0.3	3,000



■ Upcoming product \* Data available in Q4 2017 | <sup>1</sup> Available in "Brilliant White" | <sup>2</sup> Available in "Brilliant Color"





# DURIS® E

DURIS® E, a mid-power LED portfolio from OSRAM Opto Semiconductors, is ideal for efficient and homogeneous lighting applications. An industrial standard footprint with the combination of a small/medium lumen package and a wide beam angle is perfect for uniform light distribution.

## Advantages

### Benefit from homogeneous illumination and optimized cost-performance ratio

The DURIS® E meets the user requirements for consumer applications. That's why they are the preferred choice for replacing fluorescent tubes or light bulbs in the field of home, shop and office.

## Applications in indoor general lighting, e.g. residential, office

- Linear lights including fluorescent replacement lamps
- Area lights including troffer and panel lights
- Signage e.g. channel letters
- Industry applications e.g. white goods
- Retrofit bulbs



Small and medium lumen packages with compact footprint



Perfect homogeneity and high efficiency for cost-conscious applications



Modern office application



Retrofit bulb application



Area lights

**Features DURIS® E 2835**

- Footprint of 2.8 mm × 3.5 mm
- Value package with optimum lumen package to retrofit and linear light
- Viewing angle of 120° ideal for homogenous linear light distribution
- With high value in lumen per dollar

**Features DURIS® E 5**

- Footprint of 5.6 mm × 3.0 mm
- Long lifetime even at high temperatures and high currents (L70/B50 > 50,000 h 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

**Features DURIS® E 3**

- Footprint of 3.0 mm × 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 2835**

Type	Typ. $R_{th, JS\ et}$ (K/W)	Available CCT range (K)	CRI min.	Typ. Luminous flux (lm)	Typ. Efficacy (lm/W)	Max. Current (mA)	Typ. Binning current (mA)	Typ. Binning temperature (°C)	Typ. Binning voltage (V)	ESD withstand voltage (kV)	Binning CCT (K)
GW JTLMS1.EM	35	2,200–6,500	80	27.0	150	120	60	25	3.00	2	5,000
GW JTLRS1.EM	13	2,200–6,500	80	113.0	118	120	100	25	9.60	2	3,000
GW JTLPS1.EM	15	2,200–6,500	80	67.0	146	250	150	25	3.05	2	4,000
GW JTLPS2.EM	15	2,200–6,500	80	67.0	146	250	150	25	3.05	5	4,000
GW JTLPS1.CM	16	2,200–6,500	90	55.0	120	250	150	25	3.06	2	4,000
GW JTLPS2.CM	16	2,200–6,500	90	55.0	120	250	150	25	3.06	5	4,000
GW JTLRS1.CM	13	2,200–6,500	90	102.0	107	150	100	25	9.50	2	3,000

**DURIS® E 3**

Type	Typ. $R_{th, JS\ et}$ (K/W)	Available CCT range (K)	CRI min.	Typ. Luminous flux (lm)	Typ. Efficacy (lm/W)	Max. Current (mA)	Typ. Binning current (mA)	Typ. Binning temperature (°C)	Typ. Binning voltage (V)	Binning CCT (K)
LCW/LUW JNSH.PC	100	3,000–6,500	70	8.6	141	30	20	25	3.05	5,000
LCW/LUW JNSH.EC	100	2,400–6,500	80	7.9	130	30	20	25	3.05	5,000
GW JCLMS1.EC	41	2,700–6,500	80	27.0	134	150	65	25	3.10	5,000
GW JCLPS2.EM	24	2,700–6,500	80	31.5	159	150	65	25	3.05	5,000
GW JCLPS2.CM	24	2,700–6,500	90	26.0	131	150	65	25	3.05	4,000

**DURIS® E 5**

Type	Typ. $R_{th, JS\ et}$ (K/W)	Available CCT range (K)	CRI min.	Typ. Luminous flux (lm)	Typ. Efficacy (lm/W)	Max. Current (mA)	Typ. Binning current (mA)	Typ. Binning temperature (°C)	Typ. Binning voltage (V)	Binning CCT (K)
GW JDSMS1.PC	24	3,000–6,500	70	52.0	138	180	120	25	3.15	5,000
GW JDSMS1.EC	24	2,400–6,500	80	49.0	130	180	120	25	3.15	5,000
GW JDSRS1.EC	16	2,700–6,500	80	56.0	156	180	120	25	3.00	5,000
GW JDSTS2.EM (PLUS)	12	2,700–6,500	80	36.5	201	180	65	25	2.80	5,000
GW JDSTS2.EM (STD)	16	2,700–6,500	80	35.3	191	180	65	25	2.85	5,000
GW JDSTS2.EM (ECO)	20	2,700–6,500	80	34.1	181	180	65	25	2.90	5,000
GW JDSMS1.CC	24	2,700–4,000	90	43.0	114	180	120	25	3.15	4,000
GW JDSRS1.CC	16	2,700–4,000	90	47.0	131	180	120	25	3.00	4,000
GW JDSTS2.CM (PLUS)	12	2,700–6,500	90	30.0	164	180	65	25	2.80	4,000



# DURIS® S 5

The proven, innovative DURIS® S 5 family consists of various white and colored mid-power LEDs with compact dimensions and excellent efficiency, offering manufacturers and designers great versatility and flexibility.

## DURIS® S 5 white: bright benefits

DURIS® S 5 white provides flexibility in forward voltage and luminous flux with high lifetime even at high temperature. Optimized phosphor, lead frame and chip design lift the LEDs to a new level of performance.

## Features

- Various luminous flux packages from one package family
- Small footprint (3 mm × 3 mm) for clustering
- Compact light source in white SMT package, colored diffused silicone resin
- Viewing angle at 50 % I<sub>v</sub>: 120°
- Full range of color temperatures: 2,700 K–6,500 K (white)
- Excellent color reproduction with CRI min. 70, 80 and 90
- Long lifetime
- Outdoor stable

## Applications

- Industrial (portable lighting, emergency lighting, high/low bay, linear lighting)
- Architainment and hospitality (accent/mood lighting, cove lighting, strip lighting)
- Shop (spotlight, downlight, linear lighting, freezer/display, shelf lighting)
- Office (downlight, linear/area lighting)
- Home (pendant lighting, strip lighting, spotlight)
- Retrofit (omnidirectional, directional, linear)



High bays



Outdoor lighting

## DURIS® S 5 white

Type	Typ. P <sub>th JS el</sub> (K/W)	Available CCT range (K)	CRI min.	Typ. Luminous flux (lm)	Typ. Efficacy (lm/W)	Max. Current (mA)	Typ. Binning current (mA)	Typ. Binning voltage (V)
GW PSLR31.PM	11	4,000–6,500	70	143	150	200	150	6.3
GW PSLR31.EM	11	2,700–6,500	80	129	137	200	150	6.3
GW PSLR32.EM	11	2,700–6,500	80	54	157	400	120	2.85
GW PSLM31.EM	20	2,700–6,500	80	32	170	200	65	2.9
GW JSLPS1.EM	15	2,700–6,500	80	124	133	200	150	6.2
GW PSLR31.CM	11	2,700–4,000	90	102	107	200	150	6.3
GW PSLR32.CM	11	2,700–6,500	90	40	117	400	120	2.85
GW PSLM31.CM	20	2,700–4,000	90	25	133	200	65	2.9

Binning Conditions: 3,000 K, 25 °C





Hospitality lighting

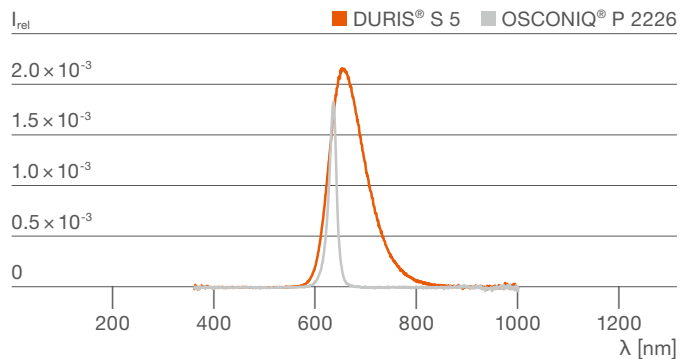
### DURIS® S 5 color: striking options

DURIS® S 5 is also available in four color versions, offering exciting and efficient opportunities for innovative applications and designs. 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 over temperature stability of DURIS® S 5 red and amber makes less heatsink required, simplifying retrofit design.

### Features

- Wide spectrum color solution
- Complete portfolio with industrial standard footprint (3030) of 3 mm × 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 – and assisting white color
- High CRI and high R9 value for tunable white design from 1,800 K–8,000 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

### Wide spectrum DURIS® S 5 red color compared to narrow spectrum OSCONIQ® P 2226 red color



### Applications

- Smart lighting
- Color changing mood lighting designs
- High color quality tunable white retrofits
- High color quality tunable white LEDfits (RGB solution to achieve tunable white)

### DURIS® S 5 color

Type	Color	Dominant wavelength (nm)	Radiant flux (mW)	Typ. V <sub>f</sub> (V)	Typ. R <sub>th, JS et</sub> (K/W)	Typ. Luminous flux (lm)	Max. Current (mA)	Viewing angle	Package
GR PSLR31.13	Red	620	—	6.25	11	22	200	120°	epoxy based
GA PSLR31.13	Amber	613	—	6.25	11	45	200	120°	epoxy based
GT PSLR31.13	Green	540	—	6.25	11	170	200	120°	epoxy based
GD PSLR31.13	Deep blue	450	420	6.25	11	—	200	120°	epoxy based





Vintage design with modern LED technology

## DURIS® L 38

OSRAM Opto Semiconductors' DURIS® L 38 is the filament LED in the portfolio – and the perfect choice for all indoor retrofits with a beam angle of 360°. Our innovative linear LED enables luminaire manufacturers and lighting designers to combine the advantages of modern LED technology and the aesthetics of traditional light bulbs.

**Features**

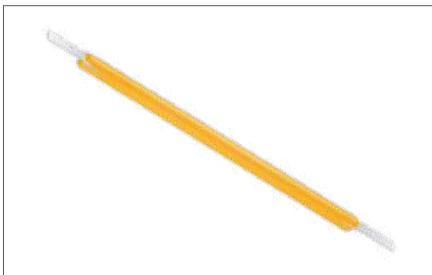
- Package size of 38 mm × 1.8 mm and 38 mm × 2.2 mm (l × Ø)
- Available with various lumen packages of 80, 100, 120, 140, 180, 250 lm
- Warm white light with color temperature between 2,200 K and 4,000 K
- Good heat dissipation due to blue chips and yellow ceramic converter
- Good color rendering with CRI min. 80 and 82
- 3-step MacAdams binned at 85 °C
- Typ. viewing angle 360 °

**Applications**

- All types of classic omnidirectional "light bulb" luminaires, e.g. chandeliers and open light fixtures
- For a wide variety of hospitality and home applications, e.g. hotel rooms, foyers, restaurants, boutiques and workspaces
- Suitable lamp types: A17-A19, A5-A60, B12, ST64, G25-G40



Traditional light design with latest technology



**DURIS® L 38**

Typ	Typ. R <sub>th,JA</sub> el (K/W) <sup>1</sup>	Available CCT range (K)	CRI	Current (mA)		Voltage (V)		Power class (W)		Brightness/flux (lm)	Efficacy (lm/W)
				min.	typ.	max.	typ.	max.	typ.		
GW T3LMF1.EM	26	2,200–4,000	80	10	15	60	64	0.60	0.96	92	153
GW T3LPF1.EM	26	2,200–2,700	80	10	15	67	70	0.67	1.05	107	159
GWT 3LRF1.EM	26	2,200–4,000	80	10	15	86	90	0.86	1.35	126	146
GW T3LSF1.EM	26	2,200–4,000	80	10	15	92	96	0.92	1.44	142	154
GW T3LSF2.EM	18	2,200–2,700	82	30	40	27	30	0.81	1.20	142	175
GW T3LSF3.EM	18	2,200–2,700	82	15	20	54	57	0.81	1.14	150	185
GW T3LTF1.EM	18	2,200–2,700	82	15	20	67	70	1.01	1.40	185	183
GW T3LWF1.EM	15	2,200–2,700	82	30	40	50	53	1.50	2.12	250	167

■ Upcoming product

<sup>1</sup> Helium condition, 4 filament in A60 bulb

# DURIS® S 8

DURIS® S 8 is part of the revolutionary OSRAM Opto Semiconductors' 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 devices. It allows completely new designs in the area of directional lights and retrofits as well as high luminous flux clusters.

## Features

- Footprint: 5 mm × 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
- Optimized driver efficiency and costs due to higher voltage option
- Full range of color temperatures: 2,700 K–6,500 K (white)
- Test results according IESNA LM-80 available
- Color binned at 85°C

## Applications

DURIS® S 8 is a perfect solution for all directional lights and also a perfect replacement for small clusters of mid-power LEDs, providing the advantage of a single spot appearance.

- Directional lights for shops, hospitality and home
- Directional retrofits (e.g. MR16)
- High luminous flux clusters, e.g. high bay lights
- Street light
- Consumer outdoor



Residential indoor lighting



Indoor lighting and retrofit solutions







Pedestrian streetlight



Residential outdoor lighting

**DURIS® S 8**

Type	CRI min.	Available CCT range (K)	Typ. Luminous flux (lm)	Typ. Efficacy (lm/W)	Typ. Binning current (mA)	Max. Current (mA)	Typ. Voltage (V)	Typ. R <sub>th,JS el</sub> (K/W)	Binning CCT (K)
GW P9LR31.PM	70	3,000 – 6,500	580	152	150	200	25.5	3.5	5,000
GW P9LT31.PM	70	3,000 – 6,500	740	159	150	200	31.5	2.6	5,000
GW P9LT32.PM	70	3,000 – 6,500	740	159	750	1,000	6.3	2.6	5,000
GW P9LM31.EM	80	2,700 – 6,500	380	136	150	200	18.6	4.4	3,000
GW P9LR31.EM	80	2,700 – 6,500	520	140	150	200	24.8	3.5	3,000
GW P9LR32.EM	80	2,700 – 6,500	520	140	600	800	6.2	3.5	3,000
GW P9LT31.EM	80	2,700 – 6,500	640	138	150	200	31	2.6	3,000
GW P9LT32.EM	80	2,700 – 6,500	640	138	750	1,000	6.2	2.6	3,000
GW P9LT31.CM	90	2,700 – 4,000	520	112	150	200	31	2.6	3,000
GW P9LR33.CM	90	2,700 – 4,000	430	116	150	200	24.8	3.5	3,000
GW P9LR32.CM	90	2,700 – 4,000	430	116	600	800	6.2	3.5	3,000
GW P9LT32.CM	90	2,700 – 4,000	518	111	750	1,000	6.2	2.6	3,000



# DURIS® S 10

DURIS® S 10 is a member of OSRAM Opto Semiconductors' successful Chip ARRAY SMD (CAS) family, using an array of LEDs to create a single spot light design with an easy-to-assemble SMD component. Combining the proven reliability of all DURIS® family packages DURIS® S 10 opens up great new opportunities for both powerful and cost-effective General Lighting solutions, from professional to consumer luminaires.



Single spot design with a new level of performance



## Advantages

### **A truly strong and really brilliant alternative to CoBs**

DURIS® S 10 is available in different versions of lumens, with the same footprint and a wide range of color temperatures from 2,700 K to 6,500 K. The new LEDs enable a very flexible, powerful single light source design without multiple shadows, allowing also simple optics design and flexibility to fit various accessories. The combination of small light-emitting surface and high lumen package provides excellent optical control and very narrow angle design. The brilliant result for manufacturers and designers: DURIS® S.



High bay application



Retail lighting

**Features**

- Footprint of 7 mm × 7 mm
- CCTs: 2,700K, 3,000K, 3,500K, 4,000K, 4,500K, 5,000K, 5,700K, 6,500K (white)
- Available with CRI 70, 80 and 90
- MacAdams ellipse binning in 3 SDCM and 5 SDCM
- Viewing angle of 120° (FWHM)
- Single spot appearance
- No multiple shadows
- Same optics useable for various lumen replacement (using DURIS® S 10: 18 and 24 chip version respectively)
- Epoxy-based package in high-power class
- Color binned at 85° C

**Applications**

- Directional retrofits (PAR38 and MR16 in 9 W and 12 W)
- Directional spot luminaires
- Downlights
- Track lights
- High bay
- Street lighting
- Consumer outdoor



Flexibility to fit various applications

**DURIS® S 10**

Type	CRI min.	Available CCT range (K)	Typ. Luminous flux (lm)	Typ. Efficacy (lm/W)	Typ. Binning current (mA)	Max. Current (mA)	Typ. Voltage (V)	Typ. R <sub>th, JS et</sub> (K/W)	Binning CCT (K)
GW P7LP32.PM	70	3,000–6,500	1,730	152	300	400	38.0	1.2	5,000
GW P7LM32.PM	70	3,000–6,500	1,350	158	300	400	28.5	1.4	5,000
GW P7LP32.EM	80	2,700–6,500	1,460	128	300	400	38.0	1.2	3,000
GW P7LM32.EM	80	2,700–6,500	1,100	131	300	400	28.5	1.4	3,000
GW P7LL31.EM	80	2,700–4,000	860	129	150	700	44.4	2.1	3,000
GW P7LL32.EM	80	2,700–4,000	920	128	450	600	16.0	2.1	3,000
GW P7LP32.CM	90	2,700–4,000	1,120	98	300	400	38.0	1.2	3,000
GW P7LM32.CM	90	2,700–4,000	850	101	300	400	28.5	1.4	3,000
GW P7LL31.CM	90	2,700–4,000	684	103	150	700	44.4	2.1	3,000
GW P7LL32.CM	90	2,700–4,000	750	107	450	600	16.0	2.1	3,000



# Be informed – completely

Looking for more information and data on our products for LEDs in general lighting or LEDs in general? All you need to know about our state-of-the-art products, modern LED technology and the latest LED trends can be found on our website along with other related links.

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