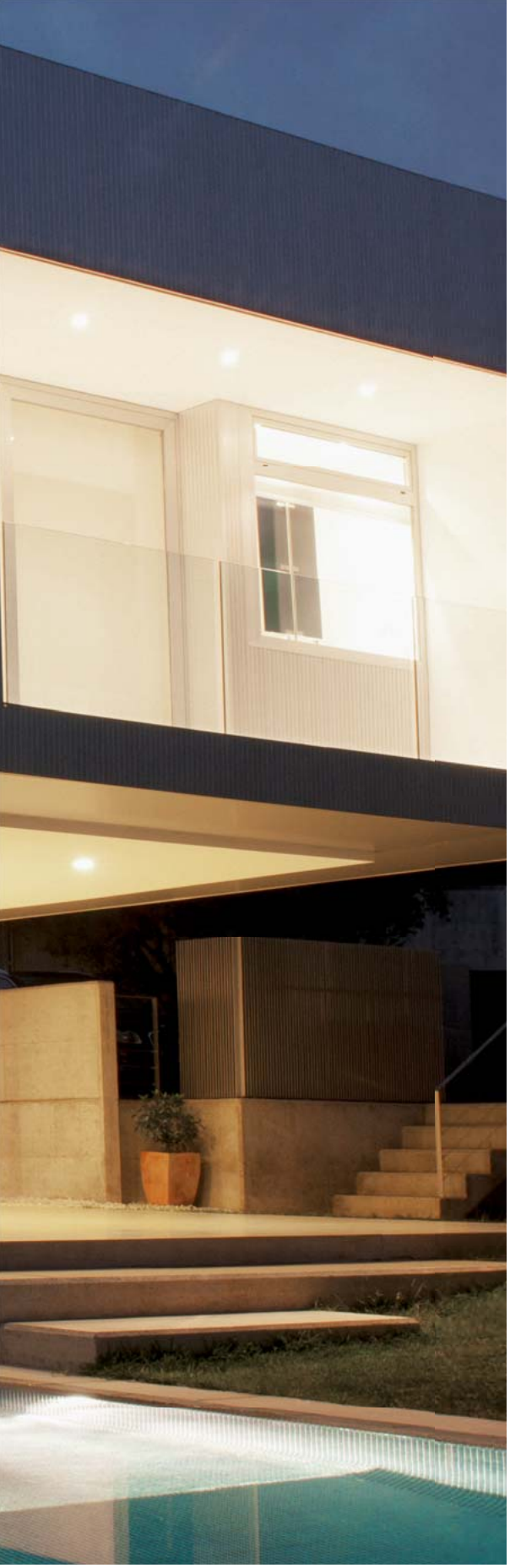
Light is brilliant

Solid State Lighting Solutions

Light is OSRAM

OSRAM
Opto Semiconductors



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

Content

The perfect choice – made easy

Our products combine the competence of nearly 40 years of expertise in the semiconductor industry with 100 years of experience in lighting technology from OSRAM AG. With OSRAM Opto Semiconductors innovative LED products at the core of your application – from lamps to luminaires – you will benefit from outstanding quality, superior reliability and continuous improvement.

OSRAM Opto Semiconductors delivers a broad portfolio of low-, mid- and high-power LEDs – all of them optimized for the lowest failure rates and longest lifetimes under real application conditions – that can be mixed and matched in endless combinations. Our intelligent family platform concept makes it easy for you to find and select the perfect solutions for your visions.

Different families – unique advantages

OSRAM Opto Semiconductors' family concept is our modern response to the rapid development and special demands of the LED market, giving 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.

DURIS® family

Plastic package. Product versions in all power ranges. Perfect mix of efficiency and flexibility. Suitable for many applications, indoors and outdoors. Setting new standards in homogeneity, colors and compactness.

- **DURIS® E**
  Ideal solution for all applications in which uniform distribution of light and high efficiency are required but low cost is also a major factor
- **DURIS® P**
  Ideal for professional applications in architectural and interior lighting, can be used in directional light sources such as retrofit lamps
- **DURIS® S**
  Ideal for use indoors in the professional and consumer sectors thanks to high color consistency, such as industrial lighting, downlights and retrofits

OSLON® family

SMD ceramic package with integrated silicon lens. High-power LEDs. Highly efficient and compact. High quality, even in difficult ambient conditions. Preferred LEDs for indoor and outdoor illumination, architecture and street lighting.

- **OSLON® SSL**
  The smallest 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 temperatures in the application

SOLERIQ® family

Based on chip-on-board design. Ultra high-power state-of-the-art LED. Simple installation. Ideal for indoor lighting and spotlight applications.

- **SOLERIQ® P**
  Easily meets the requirements for use in general illumination, offering a combination of low cost and high quality, top solution for indoor spotlights
- **SOLERIQ® S**
  Specially designed for applications with high operating temperatures, perfect for all color temperatures, very efficient solution for indoor downlights

Premium Application Support Services

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, á 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, 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 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
- Lifetime estimation
- LM-80/TM-21 reports

System metrology
Get photometric and thermal measurements for your solution.
- Integrating sphere measurement (total luminous flux)
- Goniophotometer measurement (spatial distribution of light or angular intensity)
- Spot thermal measurement
- Thermal area measurement

Create the lighting of the future, faster.
For more information on the PASS Service Portal go to

ledlight.osram-os.com/pass

LED Light for you

LED Light for you is a global network brought to you by OSRAM Opto Semiconductors. Its worldwide certified partners will support you with standard and customized solutions. From optical experts to specialists in electronics and thermal 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.

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.

LED Light for you
powered by OSRAM
www.ledlightforyou.com

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**

Additional Partners

New: Proudct Selector App
Find suitable products for your LED application quickly and easily.

To download the app just scan the QR code.

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 the test light source 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.

OSLON® SSL White Versions

	.Px power champ	.Ex economic champ	.Cx color champ
Product Benefit	The power champ phosphor LEDs fulfill even the toughest 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
Color Rendering Index R_a	min. 70	min. 80	min. 90
Applications	Outdoor and industrial applications	Home and office applications	Shop and museum applications
			

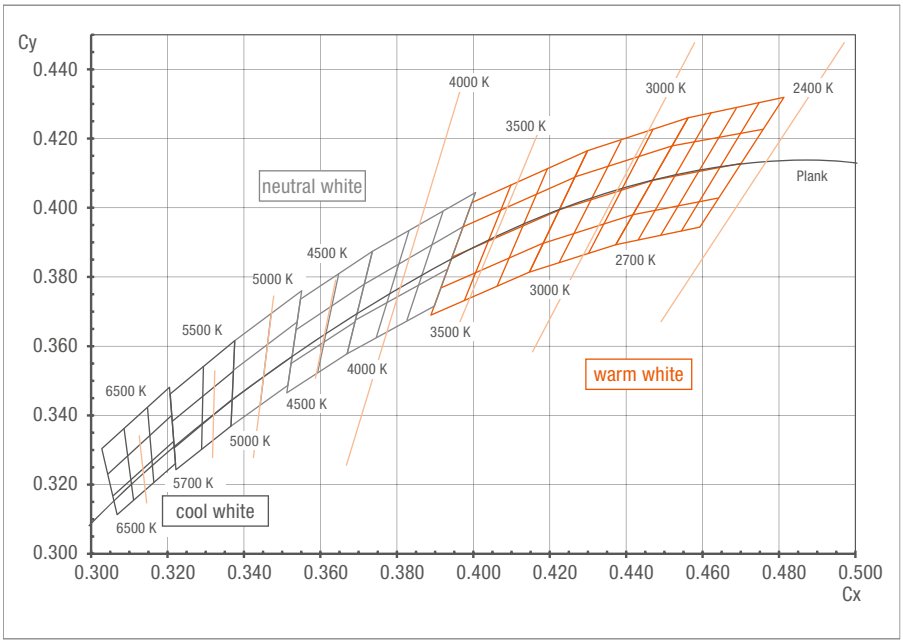
Good to know

- The existing CRI is a value that indicates how good the test light source renders or reproduces colors compared to the reference light source
- A good color rendering is also known as high color fidelity
- Another aspect is color preference, which gives you an indication of how much colors are emphasized
- Thanks to this effect colors can look brilliant – even at a CRI 80 value
- The spectrum of LED light can be modified in many direction by proper choice of LEDs
- Some applications like streetlighting do not need a high CRI value at all

White Binning

Binning means the sorting of LED packages by color and brightness group in order to maintain color consistency within a finished product. Each LED is tested for specific characteristics such as luminous intensity, luminous flux, forward voltage, dominant wavelength and chromaticity.

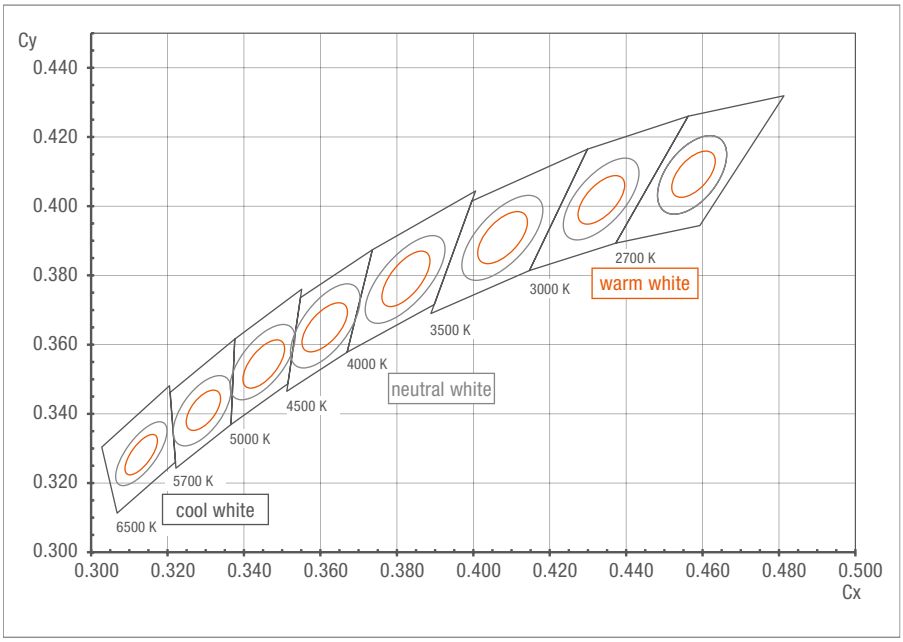
Upon completion of assembly, LEDs are measured for brightness and color and are then placed into “bins” according to their intensity group and their color group. The binned LEDs are then placed onto reels for shipment.



Fine white binning

LEDs are available in different color temperatures from warm white 2700 K up to cool white 6500 K. OSRAM Opto Semiconductors’ fine bin system is based on a three-step MacAdam’s ellipse to ensure color consistency in any lighting application.

Coordinates in reference to CIE 1931 (cx cy)



Binning for SOLERIQ®

Binning for the SOLERIQ® simplifies the design of luminaires. The maximum color deviation defined by this binning corresponds to what is most commonly required by customers and most widely used in today’s lighting applications: For projects with high demand for color consistency, a premium selection corresponding to 3-step MacAdam is available.

Coordinates in reference to CIE 1931 (cx cy)

DURIS® E

The DURIS® E 3 and E 5 are the low- and mid-power LEDs, ideal for efficient and homogeneous lighting applications. The combination of a small/medium lumen package, a wide beam angle and a compact footprint is perfect for uniform light distribution.

Perfect homogeneity and high efficiency
for cost conscious application

Linear lighting

Light bulbs

Linear and area lighting

Features DURIS® E

- Footprint of 3.0 mm × 1.4 mm (DURIS® E 3) / 5.6 mm × 3.0 mm (DURIS® E 5)
- Compact light source in cost-effective PLCC package
- Stable brightness over lifetime
- High efficacy of typ. 110 lm/W @ 5000 K (DURIS® E 3) / typ. 110 lm/W @ 5000 K (DURIS® E 5)

Applications of all types

- Homes
- Shops
- Offices
- Industries, e.g. white goods
- Hospitality
- Signage, e.g. channel letters

DURIS® E 3

Type	CCT	Typ. CRI	Typ. Luminous Flux (20 mA)	Efficacy
LCW / LUW JNSH.EC	2700 K – 6500 K	85 @ 4000 K	7.6 lm @ 4000 K	129 lm/W @ 4000 K
LCW / LUW JNSH.PC	3000 K – 6500 K	72 @ 4000 K	8.4 lm @ 4000 K	142 lm/W @ 4000 K

DURIS® E 5

Type	CCT	Typ. CRI	Typ. Luminous Flux (120 mA)	Efficacy
LCW / LUW JDSH.EC	2700 K – 6500 K	85 @ 4000 K	47.0 lm @ 4000 K	126 lm/W @ 4000 K
GW JDSMS1.EC	2700 K – 6500 K	85 @ 4000 K	45.0 lm @ 4000 K	121 lm/W @ 4000 K
GW JDSMS1.PC	3000 K – 6500 K	72 @ 4000 K	48.0 lm @ 4000 K	129 lm/W @ 4000 K
GW JDSLS1.EC	2700 K – 6500 K	85 @ 4000 K	43.5 lm @ 4000 K	115 lm/W @ 4000 K

DURIS® P

DURIS® P 5 and P 5 colors are the new mid-power LED providing leading-edge technology for indoor and outdoor lighting. Both stand for top quality, established technology and high reliability. Only the color makes the difference.

Features DURIS® P 5

- Footprint of 2.6 mm × 2.2 mm
- Long lifetime also at high temperatures and high currents (L70/B50 > 50.000 h at T_j = 125 °C and I_f = 200 mA)
- High efficacy of up to 110 lm/W @ 3000 K
- Superior corrosion resistance for high-quality lighting solutions
- High maximum forward current of 200 mA

Features DURIS® P 5 color

- Excellent robustness
- High corrosion resistance
- Extreme stability for “deep blue”
- High maximum operating conditions
- Broad color portfolio (five different colors)
- Small footprint for clustering (2.6 mm × 2.2 mm)
- Compact light source in white SMT package
- 120° viewing angle at 50 % I_V (deep blue 105°)

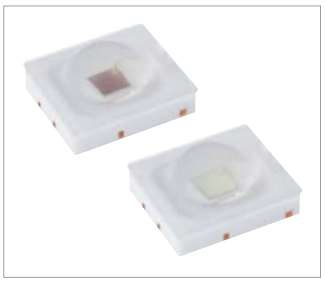
Applications

- Architectural lighting
- Accent and effect lighting
- Room lighting: ceiling light, cove lighting, chandeliers, pendants, sconces
- Channel letters
- Linear lights

DURIS® P 5

Type	Color	CCT	Min. CRI	Typ. Luminous Flux (100 mA)
GW DASPA1.EC	warm white	3000 K	80	29 lm
GW DASPA1.EC	neutral white	4000 K	80	30 lm
GW DASPA1.EC	neutral white	5000 K	80	32 lm

DURIS® P 5 color



Type	Color	Dominant Wavelength	Typ. Luminous/Radiant Flux (100 mA)
GD DASPA1.14	deep blue	439 nm – 461 nm	140 mW
GB DASPA1.13	blue	459 nm – 476 nm	8 lm
GT DASPA1.13	true green	513 nm – 543 nm	26 lm
GY DASPA1.23	yellow	583 nm – 595 nm	14 lm
GR DASPA1.23	red	612 nm – 630 nm	16 lm

Accent and effect lighting

Architectural lighting

Perfect monochrome color solutions

DURIS® S 5

DURIS® S 5 is a new compact mid-power LED with 3 mm × 3 mm footprint in three different luminous flux packages for indoor general lighting. It provides flexibility in forward voltage and luminous flux with high lifetime even at high temperatures.

Downlight and directional retrofit and LED luminaire solutions

Features

- Different luminous flux packages from one package family
- Small footprint (3 mm × 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
- Color: 2700 K – 6500 K (white)
- CRI: min. 80 (typ.)
- Lumen Maintenance: Results available

General lighting with linear retrofit solutions

Applications

- Indoor general lighting
- Industrial lighting
- Linear lights
- Professional downlights
- Retrofits – directional, omnidirectional and linear

DURIS® S 5

Type	Color	CCT	Min. CRI	Typ. Luminous Flux	Binning Current	Typ. Forward Voltage
GW PSLPS1.EC	white	2700 K – 6500 K	80	100 lm	150 mA	6.35 V
GW PSLMS1.EC	white	2700 K – 6500 K	80	24.5 lm	65 mA	2.90 V
GW PSLLS1.EC	white	2700 K – 6500 K	80	28.5 lm	80 mA	3.10 V

Compact mid-power LED
for longer lifetime and more efficiency

DURIS® S 8

OSRAM Opto Semiconductors is setting new standards once again: DURIS® S 8 is a revolutionary compact high-power LED for indoor illumination, including directional and omnidirectional retrofit lamps. With high luminous flux out of only one small LED package, high forward voltage and high color consistency it provides totally new opportunities for all indoor lighting and especially directional retrofit applications.

Features

- Different 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
- High operating temperatures up to 110 °C solder point temperature permitted
- Small footprint for clustering
- Higher lifetime than PPA packages
- Optimized driver efficiency and costs due to higher voltage option
- Compact light source in white SMT package, colored diffused silicone resin
- Viewing angle at 50 % I_V: 120°
- Color: 2700/3000/4000 K (white) – 3500/5000/5700/6500 K soon available
- Lumen Maintenance: Testing according to IESNA*

Applications

- Directional retrofits, such as MR16, PAR16, AR111
- Downlights
- Spot lights
- Omnidirectional retrofits

* LM80 in progress

Classical downlights and spot light applications

New high-quality and cost-efficient
LED luminaire design

DURIS® S 8 (typ. values at 3000 K)

Type	Color	CCT	Min. CRI	Operating Temperature	Typ. Luminous Flux	Typ. Forward Voltage	Typ. Efficacy
GW P9LMS1.EM	white	2700 K – 6500 K	80	-40 – 110 °C	390 lm	20.0 V	98 lm/W
GW P9LRS1.EM	white	2700 K – 6500 K	80	-40 – 110 °C	500 lm	26.6 V	94 lm/W

OSLON® SSL

These remarkably compact LEDs offer beam angles optimized for use with lenses and reflectors. This revolutionary feature, combined with a broad range of color temperatures and color rendering indexes, open up new possibilities for cost-effective and efficient lighting solutions – for any application.

Outdoor lighting

Indoor lighting

Architectural lighting

Features

- The first power LED with sophisticated beam angles (80°/150°)
- Ultra-compact footprint for high-density arrays saving space and simplifying color mixing (only 3 mm × 3 mm)
- Neutral to warm white, capable of high power up to 0.8 A, cool white and all colors up to 1 A
- Compact and symmetrical, allowing dense clustering for high-flux packages
- Thermal resistance of R_{thJS} (typ.) 7 K/W
- Lifetime of more than 50.000 hours, depending on application conditions
- Different versions (LCW.CC, LCW.EC, LCW.PC, LUW) for various application requirements
- Broad color portfolio: red, green, blue, and other colors
- Light recycling by reflective layer of the package, using every single lumen

Applications

Interior lighting
(Home, office, shop & hospitality)

- Retrofits & fixtures (e.g. fluorescent replacement)
- Spotlights
- Task lights
- Shelf lighting
- Downlights

Outdoor lighting

- Street
- Tunnels
- Parking lots
- Pedestrian areas

Architecture and entertainment

- Color changing fixtures (colored, white, decorative, etc.)
- Entertainment
- Stage and studio lighting

OSLON® SSL

Type 80	Type 150	Color	CRI	CCT/Wavelength	Typ. Luminous Flux (350 mA)
LCW CQ7P.CC	LCW CQDP.CC	warm / neutral white	95 (typ.)	2700 K – 4000 K	74 lm @ 3000 K
LCW CR7P.EC	LCW CRDP.EC	warm / neutral white	80 (min.)	2400 K – 5000 K	111 lm @ 4000 K
LCW CR7P.PC	LCW CRDP.PC	neutral white	70 (min.)	4000 K – 5700 K	136 lm @ 5000 K
LUW CR7P	LUW CRDP	street white	70 (typ.)	5700 K – 6500 K	144 lm @ 6000 K
LD CQ7P	LD CQDP	deep blue	–	455 nm	515 mW
LB CP7P	LB CPDP	blue	–	465 nm	28 lm
LT CP7P	LT CPDP	true green	–	528 nm	93 lm
LY CP7P	LY CPDP	yellow	–	590 nm	56 lm
LA CP7P	LA CPDP	amber	–	617 nm	80 lm
LR CP7P	LR CPDP	red	–	625 nm	58 lm
LH CP7P	LH CPDP	hyper red	–	645 nm	355 mW

OSLON® Square

The new generation of the well-established OSLON® Square platform offers the same footprint and viewing angle, along with better performance and specs. For example, the key parameters are binned at high temperature, closer to the real application conditions. Luminaire manufacturers and other suppliers can benefit from very stable light output at different temperatures, very low thermal resistance, and improved lifetime in existing designs. Further important benefits are increased maximum junction temperature, increased maximum forward current and increased maximum de-rating limits.

Perfect light choice for modern architecture and interiors

Presenting new attractive museum lighting opportunities

Features

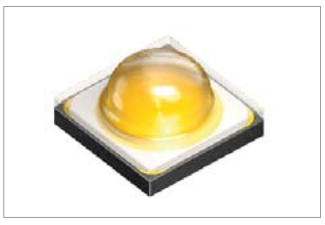
- Different luminous flux packages from one package family
- High luminous efficacy at high currents
- Superior corrosion robustness
- Binned at 85 °C
- 135 °C T_j max., 1.8 A I_f max.
- Package: SMT ceramic package with silicone resin and silicone lens
- Full CCT range available: 2400 K – 5000 K (warm and neutral white)
- CRI: min. 80 (typ. 82)
- Viewing angle at 50 % I_V: 120°
- Luminous Flux: typ. 202 lm @ 3000 K, 85 °C
- Luminous efficacy: typ. 100 lm/W @ 3000 K, 85 °C
- Lumen Maintenance: Test results according to IESNA LM-80 available

Applications

- Professional indoor and outdoor luminaires
- Directional retrofit lamps and fixtures
- Spotlights
- Accent and effect lighting
- Museum lighting
- Shop lighting

OSLON® Square

Type	Color	CCT	Min. CRI	Typ. Luminous Flux	Binning Current	Typ. Forward Voltage
GW CSSRM1.EC	white	2400 K – 5000 K	80	202 lm	700 mA	2.90 V
GW CSSRM1.PC	white	3000 K – 6500 K	70	272 lm	700 mA	2.90 V



SOLERIQ® P 9

SOLERIQ® P 9 complements OSRAM Opto Semiconductors' innovative SOLERIQ® range. The new LEDs are optimized for cd/W driven applications, easy to use with Chip-on-Board design and no SMT assembly required. A very small light emitting surface (LES) enables easy optics design, sharp shadows and sparkle appearance.

General Features

- High luminous flux out of the single LED package
- Higher lm/$ 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 mounting without SMD soldering: gluing, screws or brackets
- Easy to install with off-the-shelf solderless connectors and lenses
- Stable brightness over lifetime
- High energy efficacy

Features SOLERIQ® P 9

- Viewing angle at 50 % I_v: 120°
- Package size of 15 mm × 15 mm × 1.5 mm
- Light emitting surface of (LES): ∅ 9.0 mm
- Excellent color reproduction with CRI min. 90 and CRI min. 80
- Full range of color temperatures: 2700 K – 4000 K (CRI min. 90) and 2700 K – 5000 K (CRI min. 80)
- Luminous flux: typ. 1600 lm @ 3000K, 85° C (CRI min. 90)
- Luminous efficacy: typ. 80 lm/W @ 3000 K, 85° C (CRI min. 90)
- Luminous flux: typ. 2000 lm @ 3000 K, 85° C (CRI min. 80)
- Luminous efficacy: typ. 100 lm/W @ 3000 K, 85° C (CRI min. 80)

Applications

Designed for cd/W driven applications, SOLERIQ® P 9 is perfectly suitable for indoor general lighting and especially spotlight solutions – in commercial, but also residential applications.

- Spot lights
- Shop lighting
- Museum lighting

SOLERIQ® P 9

Type	Color	CCT	Typ. CRI	Typ. Luminous Flux @ 700 mA & T_s = 25° C	Typ. Luminous Flux @ 700 mA & T_s = 85° C
GW MAFJB1.CM	warm white	2700 K	95	1650	1570
GW MAFJB1.CM	warm white	3000 K	95	1830	1730
GW MAFJB1.CM	warm white	3500 K	95	1890	1790
GW MAFJB1.CM	neutral white	4000 K	95	1960	1850
GW MAFJB1.EM	warm white	2700 K	82	2050	1940
GW MAFJB1.EM	warm white	3000 K	82	2150	2040
GW MAFJB1.EM	warm white	3500 K	82	2300	2170
GW MAFJB1.EM	neutral white	4000 K	82	2430	2300
GW MAFJB1.EM	neutral white	5000 K	82	2410	2280

SOLERIQ® S

SOLERIQ® S is the latest addition to OSRAM Opto Semiconductors' state-of-the-art easy to use SOLERIQ® LED family. These new innovative LEDs offer Chip-on-Board design, high luminous efficacy and are specifically designed for spotlight applications.

Elegant professional indoor lighting

Aesthetic LED lighting

General Features

- High luminous flux out of the single LED package
- Higher lm/$ 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 mounting without SMD soldering: gluing, screws or holders
- Easy to install with off-the-shelf solderless connectors and lenses
- Stable brightness over lifetime
- Viewing angle at 50 % I_v: 120°
- High energy efficacy

Features SOLERIQ® S 13

- Package size of 18.0 mm × 18.0 mm × 1.55 mm
- Light emitting surface of (LES): ∅ 13.5 mm
- Excellent color reproduction with CRI min. 80
- Full range of color temperatures: 2700 K – 6500 K (white)
- Luminous flux: typ. 1625 lm @ 4000 K, 25 °C
- Luminous efficacy: typ. 98 lm/W @ 4000 K, 25 °C

Features SOLERIQ® S 19

- Package size of 24.0 mm × 24.0 mm × 1.33 mm
- Light emitting surface of (LES): ∅ 19.0 mm
- Excellent color reproduction with CRI min. 80
- Full range of color temperatures: 2700 K – 4000 K (white)
- Luminous flux: typ. 3950 lm @ 4000 K, 85 °C
- Luminous efficacy: typ. 120 lm/W @ 4000 K, 85 °C

Applications

SOLERIQ® S are specifically designed for applications requiring large flux packages out of a compact area. The SOLERIQ® S is perfectly suitable for indoor general lighting and especially spotlight solutions – in commercial application fields, but also for residential use.

- Hospitality
- Restaurants
- Shops
- Homes
- Spot lights
- Ambient lighting
- Indoor general lighting

SOLERIQ® S 13

Type	Color	CCT	Typ. Luminous Flux @ 500 mA & T_s = 25 °C	Typ. Luminous Flux @ 500 mA & T_s = 85 °C
GW KAGHB1.EM	warm white	2700 K	1525	1375
GW KAGHB1.EM	warm white	3000 K	1575	1420
GW KAGHB1.EM	warm white	3500 K	1600	1440
GW KAGHB1.EM	neutral white	4000 K	1625	1460
GW KAGHB1.EM	neutral white	5000 K	1650	1485
GW KAGHB1.EM	cool white	5700 K	1650	1485
GW KAGHB1.EM	cool white	6500 K	1650	1485

SOLERIQ® S 19

Type	Color	CCT	Typ. Luminous Flux @ 700 mA & T_s = 25°C	Typ. Luminous Flux @ 700 mA & T_s = 85°C
GW KAHLB1.EM	warm white	2700 K	3825	3475
GW KAHLB1.EM	warm white	3000 K	4000	3625
GW KAHLB1.EM	warm white	3500 K	4200	3800
GW KAHLB1.EM	neutral white	4000 K	4350	3950

Lens Partner	Lens Part Number	OSRAM LED	LED part number	Distribution @ 50 % Angle* (θ) Full viewing angle(FWHM)
Showin				
SHOWIN	FL-37	OSLON Square	Lx CQAR	18
	FL-60	OSLON Square	Lx CQAR	157 × 70 × 50 (asymmetric)
	FL-86	OSLON SSL 150	Lx CQDP / CRDP	10
	FL-38	OSLON SSL 150	Lx CQDP / CRDP	23
	FL-81	OSLON SSL 80	Lx CQ7P / CR7P	130 × 45 (asymmetric)
Baikang				
BICOM	BK-LED-ST009-137	OSLON Square	Lx CQAR	137 × 41 (symetric)
	BK-LED-219XA	OSLON Square	Lx CQAR	10.1
	BK-LED-256B	OSLON SSL 150	Lx CQDP / CRDP	32
	BK-LED-097C15	OSLON SSL 150	Lx CQDP / CRDP	14.8
	BK-LED-082B	OSLON SSL 80	Lx CQ7P / CR7P	209.7
Zenka				
Zenka 圳佳科技	ZJ010S-AD20L-MX	OSLON Square	Lx CQAR	20.2
	ZJ010S-EK40L	OSLON Square	Lx CQAR	29.5
	ZJ010S-AO40L	OSLON SSL 150	Lx CQDP / CRDP	45.2
	ZJ010S-EC15L	OSLON SSL 150	Lx CQDP / CRDP	9.7
	ZJ010S-EC08L	OSLON SSL 80	Lx CQ7P / CR7P	8
Gaggione				
ledNlight by GAGGIONE	LLC02S	OSLON SSL 150	Lx CQDP / CRDP	41.8
	LLC02E	OSLON SSL 150	Lx CQDP/ CRDP	19.8 × 34.4
	LLC12W	OSLON SSL 80	Lx CQ7P / CR7P	36
	LLC05N	OSLON SSL 80	Lx CQ7P / CR7P	5.4
Ledil				
LEDIL	Emily Smooth Spot	OSLON SSL 80	Lx CQ7P / CR7P	10
	Emily Oval	OSLON SSL 80	Lx CQ7P / CR7P	44 × 10
	Strada-T-DN-OSL	OSLON SSL 80	Lx CQ7P / CR7P	110, asymmetrical street light

Find more information:
LED Light for you Network

www.ledlightforyou.com/Services/en-Optical-Selection-Tool.php

	DURIS® E	DURIS® P	DURIS® P 5 color	DURIS® S 5	DURIS® S 8	OSLON SSL	OSLON® Square	SOLERIQ® P 9	SOLERIQ® S
Retrofit									
Omnidirectional	✓	✓		✓	✓	✓	✓		✓
Directional				✓	✓	✓	✓	✓	✓
Linear	✓	✓		✓					
Home									
Pendant lighting			✓	✓	✓	✓	✓		✓
Strip lights	✓			✓			✓	✓	
Spotlight				✓	✓	✓		✓	✓
Shop									
Shop spot lighting				✓	✓	✓	✓	✓	✓
Shop downlights	✓			✓	✓	✓	✓		✓
Shop linear lighting	✓	✓	✓	✓		✓			
Freezer/display	✓	✓		✓	✓	✓	✓		
Shelf lighting	✓	✓	✓	✓	✓	✓	✓		✓
Office									
Office downlights	✓			✓	✓	✓	✓		✓
Office linear/area lights	✓	✓		✓		✓	✓		
Architainment/Hospitality									
Accent/mood lighting	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cove lighting	✓	✓	✓	✓		✓	✓		✓
Strip lights	✓	✓	✓	✓					
Stage lighting						✓	✓	✓	✓
Wall washer		✓	✓			✓	✓	✓	✓
Industrial									
Portable lighting					✓	✓	✓	✓	✓
Emergency lighting		✓		✓		✓	✓		
High/low bay				✓	✓	✓	✓	✓	✓
Linear lighting	✓	✓	✓	✓		✓			
Horticultural lighting		✓	✓			✓	✓		
Outdoor									
Street		✓				✓	✓	✓	
Tunnel		✓				✓	✓	✓	
Parking		✓				✓	✓	✓	
Path lighting		✓				✓	✓	✓	
Effect/landscape lighting		✓	✓			✓	✓	✓	
Find at	**Page 10**	**Page 12**	**Page 12**	**Page 14**	**Page 16**	**Page 18**	**Page 20**	**Page 22**	**Page 24**

Solid State Lighting on the Internet:
www.osram-os.com

For further **information on the available products** please visit our product catalog at
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More information about LED in General Lighting:

LED Light Site
www.ledlight.osram-os.com

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