

# Light is flourishing

## LEDs for horticulture lighting

The OSLON® family

Light is **OSRAM**

**OSRAM**  
Opto Semiconductors





## Grow your business

OSRAM Opto Semiconductors extends the Horticulture portfolio with new packages and upgraded efficiency by up to 20 %. Adding a 120° OSLON complements the 80° and 150° options for 450 nm (deep blue), 660 nm (hyper red) and 730 nm (far red). Together, these LEDs provide the perfect lighting for all types of plants and flowers, allowing the light to be exactly adapted to the needs of various crops.

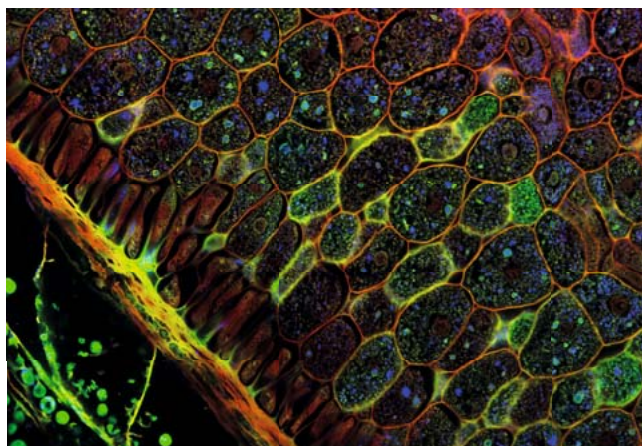
### Advantages

#### **One footprint for cost-effective and flexible design**

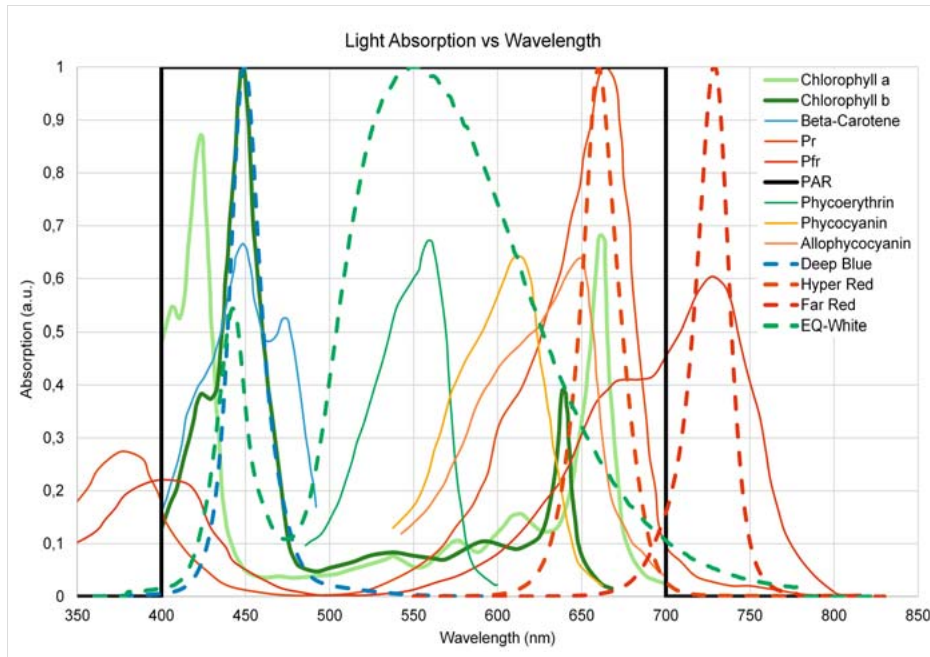
Different ratios between deep blue, hyper red and far red can be achieved simply by varying the number of the respective OSLON® family LEDs, without any change of the PCB or luminaire design. The 80°/120°/150° radiation characteristics save the costs for additional lenses for those applications in which focused light or a wide viewing angle is required. The small footprint of  $3.0 \times 3.0 \text{ mm}^2$  allows a very compact clustering of the LEDs, which enables an easy and efficient design of the optics. The ceramic package can withstand very high temperatures of up to  $T_{\text{max}} = 135^\circ\text{C}$  and makes the thermal design cost-effective and stress-free.

### Features

- 100 % footprint compatible with complete color and radiation angle options
- Deep blue (450 nm) and hyper red (660 nm) to provide the light for the photosynthesis
- 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
- .PC 5,000 K and .CC 5,700 K provide daylight spectra
- High energy efficacy in  $\mu\text{mol/J}$
- High maximum driving current up to 1 A
- Low thermal resistance of 3.8 – 6.0 K/W
- Different radiation angles – spot or wide illumination characteristic without additional optics: 80°, 120° and 150°
- High reliable ceramic package with superior lifetime and corrosion stability
- Robust even in humid environment



Confocal microscopy of  
living plant tissue


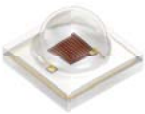
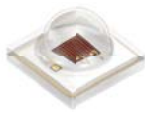




Each sort of plant needs its own tailored Spectral Power Distribution (SPD) to achieve the best results. Our OSLON® family Portfolio provides the perfect illumination for all kinds of plants and flowers.

### Applications

- Top lighting, inter lighting and multilayer cultivation
- Supplemental lighting and cultivation without natural daylight
- Photoperiodic lighting and photo-morphological control
- Urban farming and controlled environment farming
- Algae grow lights and agriculture lighting

### OSLON® family

LED Performance	Horticulture lighting colors									Horticulture lighting white					
															
LED Type	OSLON SSL			OSLON SSL			OSLON SSL			OSLON SSL/Square			OSLON Square		
Color	Deep blue			Hyper red			Far red			EQW			CRI 90 5,700 K		
Wavelength	450 nm			660 nm			730 nm			—			5,700 K		
Unit	mW	μmol/s	μmol/J	mW	μmol/s	μmol/J	mW	μmol/s	μmol/J	lm	μmol/s	μmol/J	lm	μmol/s	μmol/J
Radiation angle 80°	GD CS8PM1.14			GH CS8PM1.24			GF CS8PM2.24			LUW CR7P			—		
Performance	690	2.60	2.48	425	2.32	3.08	270	1.63	2.52	170	2.04	1.98	—	—	—
Radiation angle 120°	GD CSSPM1.14			GH CSSPM1.24			GF CSSPM1.24			LUW CQAR			GW CSSRM1.CC		
Performance	690	2.60	2.48	425	2.32	3.08	270	1.63	2.52	345	4.14	1.94	220	3.30	1.68
Radiation angle 150°	GD CSHPM1.14			GH CSHPM1.24			GF CSHPM2.24			LUW CRDP			—		
Performance	690	2.60	2.48	425	2.32	3.08	270	1.63	2.52	170	2.04	1.98	—	—	—

## Overview LED Portfolio

LED Portfolio	Horticulture lighting colors			Horticulture white		
						
LED Type	OSLON SSL	OSLON SSL	OSLON SSL	OSLON SSL/Square	OSLON Square	OSLON SSL
Color	Deep blue	Hyper red	Far red	EQW	CRI 90 5,700 K	CRI 70 5,000 K
Wavelength	450 nm	660 nm	730 nm	-	5,700K	5,000 K
Radiation angle 80°	GD CS8PM1.14	GH CS8PM1.24	GF CS8PM2.24	LUW CR7P		GW CS8PM1.PM
Radiation angle 120°	GD CSSPM1.14	GH CSSPM1.24	GF CSSPM1.24	LUW CQAR	GW CSSRM1.CC	GW CSSRM2.PM
Radiation angle 150°	GD CSHPM1.14	GH CSHPM1.24	GF CSHPM2.24	LUW CRDP	-	GW CSHPM1.PM

LED Portfolio	Other colors				
					
LED Type	OSLON SSL	OSLON SSL	OSLON SSL	OSLON SSL	OSLON SSL
Color	Blue	True green	Yellow	Amber	Red
Wavelength	470 nm	528 nm	590 nm	617 nm	623 nm
Radiation angle 80°	GB CS8PM1.13	GT CS8PM1.13	GY CS8PM1.23	GA CS8PM1.23	GR CS8PM1.23
Radiation angle 120°		GT CSSPM1.13		GA CSSPM1.23	
Radiation angle 150°	GB CSHPM1.13	GT CSHPM1.13	GY CSHPM1.23	GA CSHPM1.23	GR CSHPM1.23



**OSLON® family on the internet:**  
[www.osram-os.com/horticulturelighting](http://www.osram-os.com/horticulturelighting)

For further information on the available products please visit our product catalog at  
<http://catalog.osram-os.com>

More information about LED in General Lighting:

**LED Light Site**  
[ledlight.osram-os.com](http://ledlight.osram-os.com)

**LED Light for you Network**  
[www.ledlightforyou.com](http://www.ledlightforyou.com)

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