



Light is nature
LEDs for horticulture lighting

Light is OSRAM

OSRAM
Opto Semiconductors



Improve nature

To ensure food supply in the future, choose horticulture LED components from our cutting edge OSLON® family offering a spectrum of infinite possibilities. They stimulate photosyntheses and increase in height or width with different wavelengths, so you can breed systematically. All because of our decades of lighting experience. We are here to help you improve nature. Start something bright.

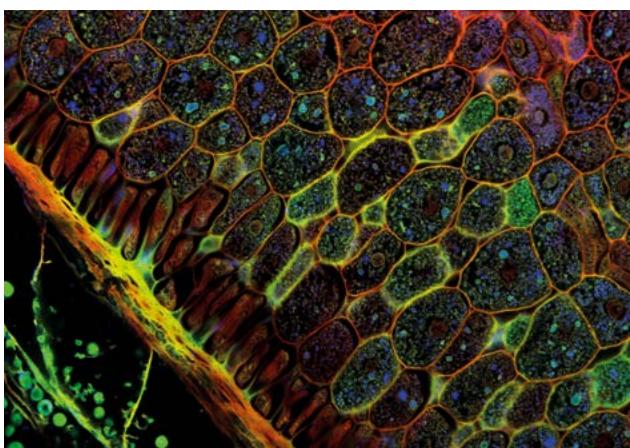
Advantages

One footprint and outstanding performance for flexible and cost-effective design

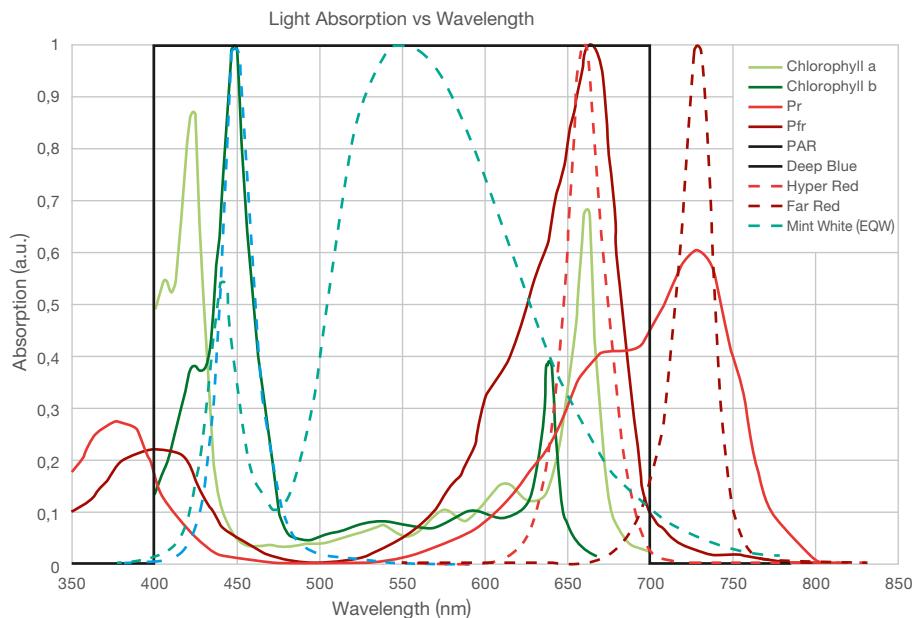
Different ratios between deep blue, hyper red and far red can be achieved simply by varying the number of the respective OSLON® family LEDs, without any change of the PCB or luminaire design. The radiation characteristics save the costs for additional lenses for those applications in which focused light 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 $T_{\max} = 135 \text{ }^{\circ}\text{C}$ 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
- Mint White (EQW) to add green content
- Mint White (EQW) to provide a human friendly working environment
- High energy efficacy in $\mu\text{mol}/\text{J}$
- High maximum driving current up to 1 A
- Low thermal resistance of 3.8 – 6 K/W
- Different radiation angles – spot or wide illumination 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



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

Each sort of plant needs it's own tailored Spectral Power Distribution (SPD) to achieve the best results. Our OSLON® family portfolio provides the perfect illumination for all kind of plants and flowers.

OSLON® family

LED Type	Horticulture Lighting Colors												Horticulture White		
LED Type	OSLON® SSL			OSLON® SSL			OSLON® SSL			OSLON® Square			OSLON® Square		OSLON® SSL/Square
Color	Deep Blue			Hyper Red			Far Red			Deep Blue			Hyper Red		Mint White (EQW)
Wavelength (nm)	450 nm			660 nm			730 nm			450 nm			660 nm		
Unit	mW	μmol/s	μmol/J	mW	μmol/s	μmol/J	mW	μmol/s	μmol/J	mW	μmol/s	μmol/J	mW	μmol/s	μmol/J
Radiation Angle 80°	GD CS8PM1.14			GH CS8PM1.24			GF CS8PM2.24								
Performance	690	2.60	2.48	425	2.32	3.08	270	1.63	2.52						
Radiation Angle 120°	GD CSSPM1.14			GH CSSPM1.24			GF CSSPM1.24			LD CQAR			GH CSSRM2.24*		LUW CQAR
Performance	690	2.60	2.48	425	2.32	3.08	270	1.63	2.52	1350	5.00	2.43	905	4.97	3.23
Radiation Angle 150°	GD CSHPM1.14			GH CSHPM1.24			GF CSHPM2.24								
Performance	690	2.60	2.48	425	2.32	3.08	270	1.63	2.52						

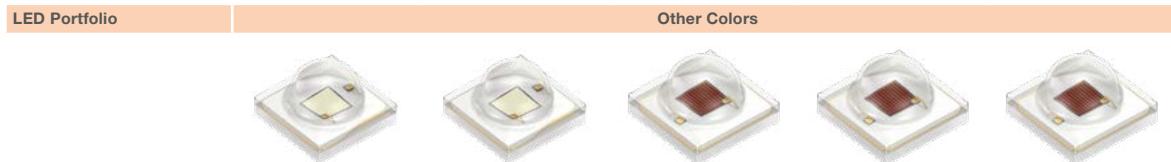
* upcoming product

Overview LED Portfolio



LED Type	OSLON® SSL	OSLON® SSL	OSLON® SSL	OSLON® Square	OSLON® Square	OSLON® SSL/Square
Color	Deep Blue	Hyper Red	Far Red	Deep Blue	Hyper Red	Mint White (EQW)
Wavelength (nm)	450	660	730	450	660	
Radiation Angle 80°	GD CS8PM1.14	GH CS8PM1.24	GF CS8PM2.24			LUW CR7P
Radiation Angle 120°	GD CSSPM1.14	GH CSSPM1.24	GF CSSPM1.24	LD CQAR	GH CSSRM2.24*	LUW CQAR
Radiation Angle 150°	GD CSHPM1.14	GH CSHPM1.24	GF CSHPM2.24			LUW CRDP

* upcoming product



LED Type	OSLON® SSL				
Color	Blue	True Green	Yellow	Amber	Red
Wavelength (nm)	470	528	590	617	623
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

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 for you Network
www.ledlightforyou.com



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