

# Light is concentrated power

## The IR OSOLON<sup>®</sup> Black family

Compact arrangements with outstanding optical power.

Light is OSRAM

**OSRAM**  
Opto Semiconductors

## Great power, small size

The IR OSOLON® Black of OSRAM Opto Semiconductors is a small infrared LED with integrated optical lens and more than one watt of optical power. The small package with integrated lens allows superior compact arrangements of very high power density. The IR OSOLON® Black is perfect for applications like CCTV, machine vision, night vision or number plate recognition systems.



Lifetime of up to 50,000 hours



Biometrics for access control and identification

## Benefits

### Stacked power

With the IR OSLON® Black, OSRAM Opto Semiconductors expands its position in the field of infrared illumination and complements its range of products with an additional power class. By using the Nano-stack chip technology, the typical optical power reaches 2,000 mW at an operating current of 1.5A.

### Compact package

Thanks to its adapted outcoupling lens with  $\pm 40^\circ$ ,  $\pm 45^\circ$  or  $\pm 75^\circ$  emission angle, the temperature-stable, small package allows compact arrangements for a very high power density.

### Long lifetime

The IR OSLON® Black is the perfect combination of the latest chip technology and an excellent package. Lifetimes of up to 50,000 hours are easily obtainable, even at high drive currents.

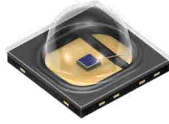
## Applications

- Surveillance systems, CCTV
- Machine vision systems
- Traffic: number plate recognition, toll systems
- Biometrics for access control and identification
- Drowsy Driver Monitoring
- And wherever a high power IR lightsource is required

## Features

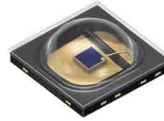
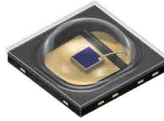
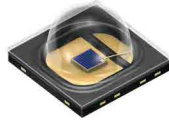
- IR lightsource with high efficiency
- Very compact SMT package with integrated lens ( $3.85 \times 3.85 \times 2.29 \text{ mm}^3$  or  $3.85 \times 3.85 \times 1.51 \text{ mm}^3$ ), for dense clustering
- Low thermal resistance
- Suitable wavelength for CMOS/CCD camera solutions
- Superior corrosion robustness
- Available with Nanostack technology (SFH 4715AS, SFH 4725S, SFH 4716AS and SFH 4726S)
- $\pm 40^\circ$ ,  $\pm 45^\circ$  and  $\pm 75^\circ$  viewing angle available

### IR OSOLON® Black family – low power



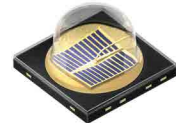
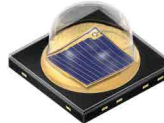
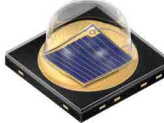
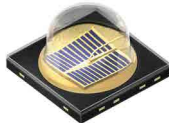
	<b>SFH 4711A</b>
SMT package size (w × l × h)	3.85 × 3.85 × 2.29 mm <sup>3</sup>
Max. forward current I <sub>F</sub> (DC mode)	0.5 A
Thermal resistance	Typ. 30 K/W
Radiant intensity @I <sub>F</sub>	Typ. 145 mW/sr
Total radiant flux @I <sub>F</sub>	300 mW
Forward voltage @I <sub>F</sub>	1.75 V
Viewing angle	± 45°
Wavelength	850 nm
I <sub>F</sub> /t <sub>p</sub>	I <sub>F</sub> = 500 mA, t <sub>p</sub> = 10 ms

### IR OSOLON® Black family – mid power



	<b>SFH 4703AS</b>	<b>SFH 4713A</b>	<b>SFH 4714A</b>
SMT package size (w × l × h)	3.85 × 3.85 × 2.29 mm <sup>3</sup>	3.85 × 3.85 × 2.29 mm <sup>3</sup>	3.85 × 3.85 × 1.51 mm <sup>3</sup>
Max. forward current I <sub>F</sub> (DC mode)	1 A	1 A	1 A
Thermal resistance	Typ. 16 K/W	Typ. 16 K/W	Typ. 16 K/W
Radiant intensity @I <sub>F</sub>	Typ. 630 mW/sr	Typ. 420 mW/sr	Typ. 165 mW/sr
Total radiant flux @I <sub>F</sub>	1,000 mW	775 mW	745 mW
Forward voltage @I <sub>F</sub>	3.55 V	1.75 V	1.75 V
Viewing angle	±40°	±40°	± 75°
Wavelength	810 nm	850 nm	850 nm
I <sub>F</sub> /t <sub>p</sub>	I <sub>F</sub> = 1 A, t <sub>p</sub> = 10 ms	I <sub>F</sub> = 1 A, t <sub>p</sub> = 10 ms	I <sub>F</sub> = 1 A, t <sub>p</sub> = 10 ms

### IR OSOLON® Black family – high power



	<b>SFH 4715</b>	<b>SFH 4715A</b>	<b>SFH 4715AS</b>	<b>SFH 4715S</b>
SMT package size (w × l × h)	3.85 × 3.85 × 2.29 mm <sup>3</sup>	3.85 × 3.85 × 2.29 mm <sup>3</sup>	3.85 × 3.85 × 2.29 mm <sup>3</sup>	3.85 × 3.85 × 2.29 mm <sup>3</sup>
Max. forward current I <sub>F</sub> (DC mode)	1 A	2 A	1.5 A	1 A
Thermal resistance	Typ. 11 K/W	Typ. 10 K/W	Typ. 9 K/W	Typ. 11 K/W
Radiant intensity @I <sub>F</sub>	Typ. 270 mW/sr	Typ. 780 mW/sr	Typ. 1,160 mW/sr	Typ. 440 mW/sr
Total radiant flux @I <sub>F</sub>	630 mW	1,450 mW	2,000 mW	1,030 mW
Forward voltage @I <sub>F</sub>	1.5 V	1.9 V	3.35 V	2.9 V
Viewing angle	± 45°	± 45°	± 45°	± 45°
Wavelength	850 nm	850 nm	850 nm	850 nm
I <sub>F</sub> /t <sub>p</sub>	I <sub>F</sub> = 1 A, t <sub>p</sub> = 10 ms	I <sub>F</sub> = 2 A, t <sub>p</sub> = 100 μs	I <sub>F</sub> = 1.5 A, t <sub>p</sub> = 100 μs	I <sub>F</sub> = 1 A, t <sub>p</sub> = 10 ms



Machine vision systems



Toll systems



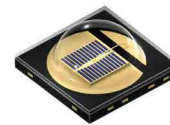
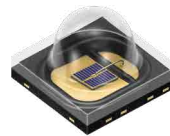
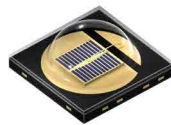
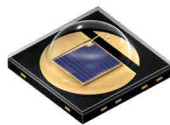
Ideal for applications like CCTV or night vision

### Advantages

#### Small IR LED in the one-watt-class: IR OSOLON® SFH 4715AS

IR OSOLON® Black are very cost-effective high-performance infrared emitters with 810 nm, 850 nm or 940 nm for high camera sensitivity and 940 nm for reduced reddish glow for security and interior applications (semi covert). The devices combine very high total optical flux of up to 2,000 mW and very small packages with a footprint of only 3.85 × 3.85 mm<sup>2</sup> for very dense packing. Further benefits include very high total radiant flux at 2A DC, low thermal resistance for operation at elevation ambient temperature and high current DC operation. A special series of IR OSOLON® Black are qualified according to automotive standards (AEC Q101; „AS“)

The record-breaking high-performance IR OSOLON® SFH 4715AS LED typically provides 2,000 mW optical power at an operating current of 1.5A, offers a typical thermal resistance of only 9 K/W and features an integrated lens with an emission angle of ± 45°. For short distance applications a wider beam angle is often desired. For those requirements SFH 4716AS with a beam angle of ± 75° offers a good solution. 3D cameras in particular benefit from the improved power of IR OSOLON® Black since the IR LED can be modulated up to operating currents of 3A in the range of 10 MHz.



SFH 4716A	SFH 4716AS	SFH 4716S	SFH 4725S	SFH 4726S
3.85 × 3.85 × 1.51 mm <sup>3</sup>	3.85 × 3.85 × 1.51 mm <sup>3</sup>	3.85 × 3.85 × 1.51 mm <sup>3</sup>	3.85 × 3.85 × 2.29 mm <sup>3</sup>	3.85 × 3.85 × 1.51 mm <sup>3</sup>
2A	1.5A	1A	1A	1A
Typ. 10 K/W	Typ. 9 K/W	Typ. 11 K/W	Typ. 11 K/W	Typ. 11 K/W
Typ. 280 mW/sr	Typ. 450 mW/sr	Typ. 225 mW/sr	Typ. 425 mW/sr	Typ. 215 mW/sr
1,400 mW	1,900 mW	1,030 mW	990 mW	970 mW
1.9V	3.35V	2.9V	2.75V	2.75V
± 75°	± 75°	± 75°	± 45°	± 75°
850 nm	850 nm	850 nm	940 nm	940 nm
I <sub>F</sub> =2A, t <sub>p</sub> =100 μs	I <sub>F</sub> =1.5A, t <sub>p</sub> =100 μs	I <sub>F</sub> =1A, t <sub>p</sub> =10 ms	I <sub>F</sub> =1A, t <sub>p</sub> =10 ms	I <sub>F</sub> =1A, t <sub>p</sub> =10 ms

**IR OSOLON® Black on the internet:**

[https://www.osram.com/os/products/product-promotions/infrared-products/ir\\_oslon\\_black\\_family.jsp](https://www.osram.com/os/products/product-promotions/infrared-products/ir_oslon_black_family.jsp)

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

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