

# UV-Technology

---

UV-LED | UV-Modules | UV-sensors | UV-CCL

passion.experience.reliability.

## Neumüller Elektronik GmbH

### Essential criteria

As a long established and owner-operated company, we always act according to the features reliability and liability, honesty and transparency as well as flexibility and discretion. Customer satisfaction confidence and commercial added value are basis for successful cooperation.

### Reliable and strong partnership

We put the strength in working together exclusively with well-respected and leading manufacturers and suppliers. We achieve confidence and consistency in the market for more than 65 years. We do implement your demand on product quality and availability.

### All-over processes and significant quality

The certification according to DIN EN ISO 9001:2008 proves the continuous representation of our processes. All procedures and workflows are location and department-overall recorded. This guarantees you, as our valued customer a maximum of safety and transparency in the complete process chain.

### High advisory skills and solution

We confirm the confidence of our customers by fulfilling and exceeding their expectations. Our competence of individual consulting and target-oriented solutions are reflected in our custom-fit products. Have a look by yourself!

### Market knowledge from A to Z

Besides our specialized product portfolio we distinguish ourselves with profound branch knowledge. We use this know-how in order to give an optimum of product support. You can always rely on our extensive technical expertise from A like Acrich High Voltage Technology to Z like Zhaga LED modules. Our experts are always beyond one's nose and give you full support during your complete project realization and do also consider alternative solution approaches, if necessary.



ESD-conform stocking

**SOLUTION  
PARTNER**



Headquarters in  
Weisendorf  
near Nürnberg



Office North in  
Ahrensburg near Hamburg

## UV-Technology

### Powerful products & customized developments

In the ultraviolet range we offer you as a distributor a wide range of components and subsystems. Our product portfolio includes UV CCLs. UV LEDs. UV sensors. as well as customized UV module developments. Here we rely exclusively on products of carefully selected manufacturers. Our products cover a wide spectral range of 185nm - 450nm and can be used in a variety of applications. For special applications we also offer customized solutions. Please contact us for more information.

## Content

### UV-LED

UV-A 320nm-415nm.....	4
UV-B 280nm-320nm.....	9
UV-C 255nm-280nm.....	10
Chip-on-Board.....	12
Flip-Chip.....	13

### UV-CCL

Straight Type.....	14
Compact Type.....	15
UV Reaktoren.....	16

### Customized solutions

UV-LED-Modules .....	17
Multiwavelength LEDs.....	17
LEDs with Feedback Control.....	17

### UV-sensors

UV-Index-sensors.....	18
UVC-   UVB-   UVA-sensors .....	19

## Applications

### UV-Technology

Today, UV technology has found its way into many areas of industry and consumer applications. Below you will get an insight into the various fields of application of UV radiation sources.



Disinfektion



Curing



Light therapy



Analysis



Horticulture



Fluorescence



Oxidation



Ozone generation



Photochemistry



Solarsimulation



Deodorization

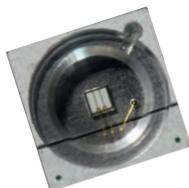


Research

# UV-A

**Wavelength: 320nm – 415nm**

UV-A (near UV) permeates glass and transparent polymers. it is also colloquially called "black light" designated. Applications of the UVA-LED are in particular the curing of paints, coatings, lacquer and adhesives as well as light therapy. In addition, UV LEDs in the UVA spectrum are used also for checking the authenticity of banknotes, documents, material testing and forensic purposes.



## AAP63

Dimensions: 6.3mm x 6.3mm x 1.4mm

Lifetime: up to 50.000h (L70)

Low thermal resistance

Part No.	Wavelength [nm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
CUD4AF1B	340	Flat	4.3	500	55	110
CUN6AF1B	365		3.8		850	
CUN7AF1B	375		3.6		710	
CUN8AF1B	385		3.6		950	
CUN9AF1B	395		3.5		900	
CUN0AF1B	405		3.5		900	



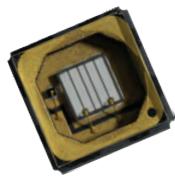
## AAP63-4

Dimensions: 6.3mm x 6.3mm x 1.4mm

Low thermal resistance

4 Chip LED

Part No.	Wavelength [nm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
CUN6AF4A	365	Flat	7.8	1.000	2.750	116
CUN8AF4A	385		7.4		3.750	
CUN9AF4A	395		7.2		3.750	



## CA3535

Dimensions: 3.5mm x 3.5mm x 1.1mm

Low thermal resistance

Very high optical radiation power

Part No.	Wavelength [nm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
CUN6GF1A	365	Flat	3.7	1.000	1.300	115
CUN8GF1A	385		3.5			
CUN9GF1A	395		3.6		1.600	
CUN0GF1A	405		3.4			



## CA3535N

Dimensions: 3.5mm x 3.5mm x 2.5mm

Narrow View Angle von ca. 60°

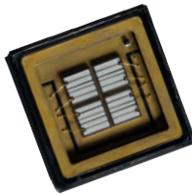
Low thermal resistance

Part No.	Wavelength [nm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
CUN6GB1A	365	Dome	3.7	1.000	1.300	62
CUN8GB1A	385		3.6			
CUN9GB1A	395		3.6		1.600	
CUN0GB1A	405		3.4			



UV drying and the development of new generations of paints, coatings, adhesives, coatings and inks can improve production and manufacturing processes. Low temperatures and UV light in the wavelength range from 275nm to 415nm allow for almost instant curing.

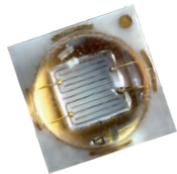
# UV-A



## CA6868

Dimensions: 6.8mm x 6.8mm x 1.0mm  
Optical radiation power up to 7 Watt  
Low thermal resistance

Part No.	Wavelength [nm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
CUN6HF4A	365	Flat	4.1	3.000	3.800	115
CUN8HF4A	385		3.5			
CUN9HF4A	395		3.4		5.300	
CUN0HF4A	405		3.4			



## Z5

Dimensions: 3.5mm x 3.5mm x 2.0mm  
Very high optical radiation power  
Excellent efficiency ( $\geq 50\%$ )

Part No.	Wavelength [nm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
CUN66A1B	365	Dome	3.6	500	900	120
CUN76A1A	375			350	230	130
CUN86A1B	385		3.4	500	1.160	120
CUN96A1B	395				1.100	
CUN06A1B	405		3.3		1.100	
CUN26A1B	420		3.6		970	

## Z5N

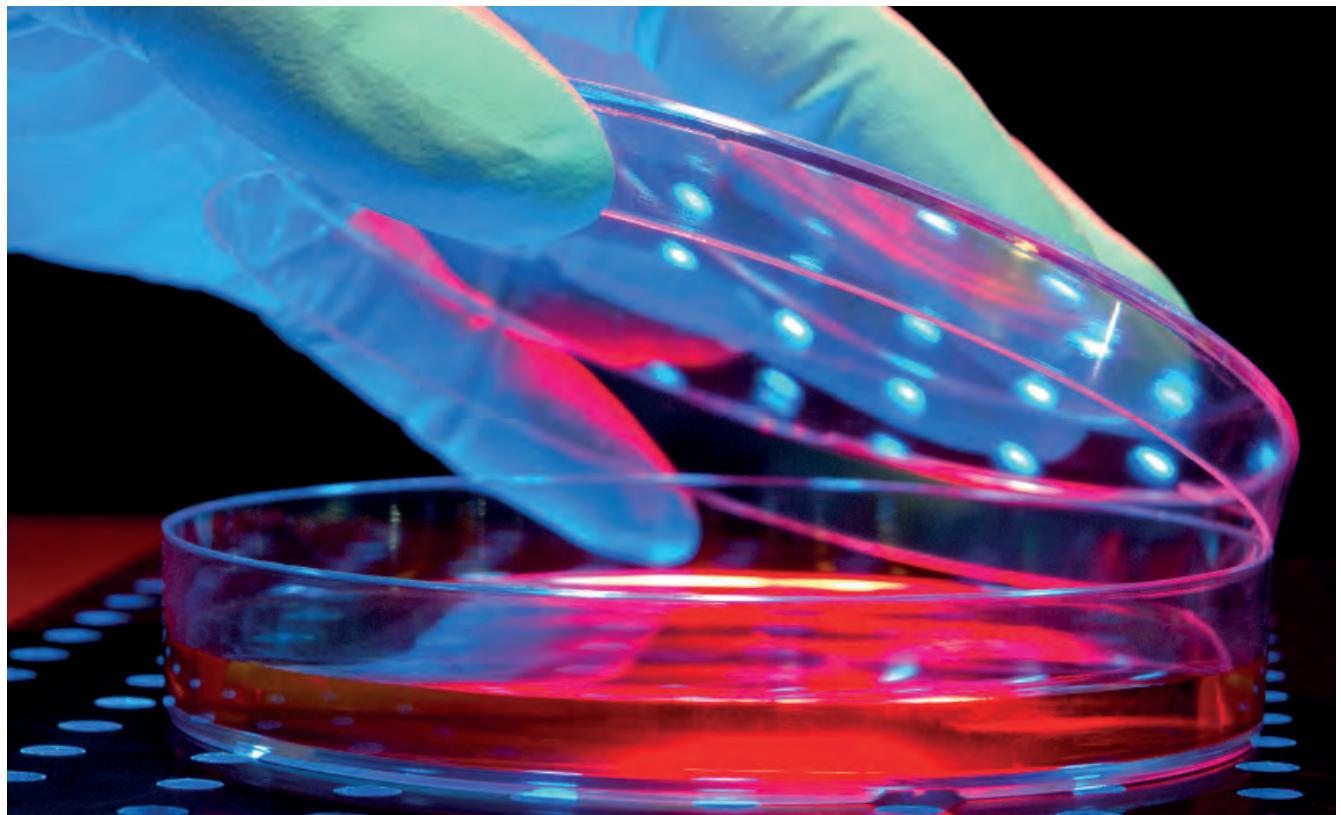


Dimensions: 3.5mm x 3.5mm x 2.8mm

Narrow View Angle 45°

Excellent efficiency ( $\geq 50\%$ )

Part No.	Wavelength [nm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
CUN66B1B	365	Dome	3.8	500	900	45
CUN86B1B	385		3.4		1.160	
CUN96B1B	395		3.4		1.100	
CUN06B1B	405		3.4		1.100	
CUN26B1B	420		3.6		970	



The illumination of a substance after exposure to energy is summarized by the term luminescence excitation. A part of the luminescence excitation is the irradiation of substances with UV light. If the substance only illuminates during the irradiation, it is called UV fluorescence excitation. If the light continues to light up, it is also called phosphorescence.

# UV-A



## 2016 UV A LED

Dimensions: 2.0 x 1.6 x 0.7 mm  
 High thermal conductivity ceramic body UV PKG  
 Low Thermal Resistance

Part No.	Wavelength [nm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
PU21S31-U0365	367	Flat	3.6	20	17	110



## 3535 UV A LED

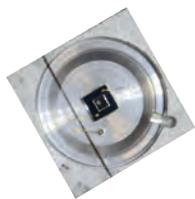
Dimensions: 3.5 x 3.5 x 2.1 mm  
 Very high optical radiation power  
 Low Thermal Resistance

Part No.	Wavelength [nm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
PU88S01-U0365	365	Dome	3.9	500	900	125
PU88S01-U0385	385	Dome			1,000	
PU88S01-U0395	395	Dome			1,050	
PU88S01-U0405	405	Dome				
PU88S04-U0395	395	Dome	3.2	350	540	125
PU88S04-U0400	400	Dome				
PU88S04-U0405	405	Dome				
PU88S11-U0365	365	Dome	3.6		480	

# UV-B

**Wavelength: 280nm – 320nm**

UV-B (medium UV) affects the human body and is used for example in phototherapy (dermatological treatment of skin diseases) and promotes the formation of vitamin D in the human body. Another field of application is the irradiation of plants. Here, the UV radiation of a certain wavelength contributes to the better development of the plant, as well as increase and quality of yields.



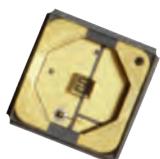
**AAP63**

Dimensions: 6.3mm x 6.3mm x 1.4mm

Durable aluminum housing

Low thermal resistance

Part No.	Wavelength [nm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
CUD1AF1C	310	Flat	5.5	20	1.3	135
CUD1AF4C				80	4.5	125
CUD1AF4D				600	20	120



**CA3535**

Dimensions: 3.5mm x 3.5mm x 1.1mm

Low thermal resistance

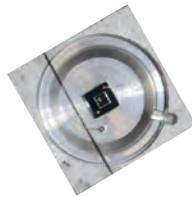
Very high optical radiation power

Part No.	Wavelength	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
CUD8GF1A	285	Flat	6	20	1.5	120
CUD8GF1B			6	100	10	
CUD9GF1A			6	20	1.5	
CUD1GF1A	310		5.5		1.3	

# UV-C

**Wavelength: 255nm – 280nm**

UV-C (far UV) is very shortwave and energetic and is used for air and water disinfection. inter alia. in medical and other. especially against germs and bacteria. areas worthy of protection. UV-C light effectively destroys the DNA of microorganisms and is highly bactericidal. UV-C light with wavelengths below 100 nm is referred to as extreme ultra violet radiation (XUV radiation).



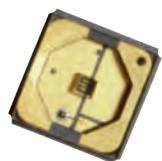
## AAP63

Dimensions: 6.3mm x 6.3mm x 1.4mm

Durable aluminum housing

Low thermal resistance

Part No.	Wavelength [nm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
CUD8AF1C	275nm	Flat	6.5	20	3.3	135
CUD8AF4C				120	13	125
CUD8AF1D			6.0	200	19	120
CUD8AF4D				600	50	



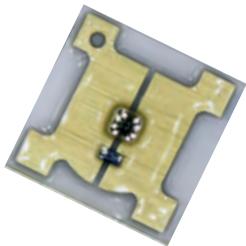
## CA3535

Dimensions: 3.5 x 3.5 x 1.1mm

Low thermal resistance

Very high optical radiation power

Part No.	Wavelength [nm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
CUD7GF1A	275	Flat	6	20	1.8	120
CUD7GF1B				150	11.5	125
CUD5GF1B				20	0.5	120



### 3535 UV C LED

Dimensions: 3.5 x 3.5 x 2.1 mm  
Very high optical radiation power  
Low Thermal Resistance

Part No.	Wavelength [nm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]	View Angle [deg.]
PU88S31-U0270	275		6.0	20	3.5	140
PU88S31-U0280	285		6.0	20	3.5	140



Worldwide, about two thirds of the world's population is at least one month a year is not enough water available. Up to 2.9 billion people suffer from four to six months a year from water scarcity. Half a billion people suffer from water shortage all year round. UV water disinfection offers a solution here.

# Chip-on-Board

**Wavelength: 275nm – 405nm**

Our COB UV LED solutions (Chip On Board) in the UV range are convincing due to their very high optical performance in a small area. UV LED chips are bonded directly to a good heat-conducting carrier material and protected by a window cover. Our chips on board solutions are available in the wavelengths 275nm - 405nm.



## Chip-on-Board

Dimensions: 45mm x 45mm

Lens type: Flat

Also available with other wavelengths (on request)

Part No.	Wavelength [nm]	Dimensions [mm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]
CUD1KFMA	310	45 x 45	Flat	48	160	70
CUD1TFMA				50	640	280



## NCOB

Dimensions: 25mm x 25mm x 4mm

Lens type: Flat

„Plug and Play“-Solution

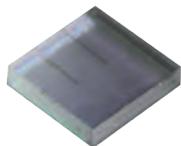
Part No.	Wavelength [nm]	Dimensions [mm]	Lens type	Vf typ. [V]	If typ. [mA]	Po typ. [mW]
CUN6MF9A	365	25 x 25 x 4	Flat	3.8	9,000	12,500
CUN8MF9A	385			3.6		16,500
CUN9MF9A	395			3.6		16,500
CUN0MF9A	405			3.6		16,500

further Wavelength available

# Flip-Chip

**Never again chip bonding**

With innovative chip scale technology it is possible to equip UV LED flip chips without wire bonding. The flip chips can be reflow soldered like SMD LEDs. This technology is particularly suitable in the printing industry where high light output is required. Currently the flip chips are available in the wavelengths 385nm, 395nm and 405nm.



## VICOP

Dimensions: 1.1mm x 1.1mm x 0.25mm

Highest design flexibility

Excellent W / € ratio

Part No.	Dimensions [mm <sup>2</sup> ]	Wavelength [nm]	Radiant Flux typ. [mW]	Voltage typ. [V]	LED Current [mA]	
NM-UW1111-EB-385	1.1 x 1.1 x 0.25	385	710	3.5	500	
NM-V1111-EB-395		395	900	3.4		
NM-V1111-EB-405		405				



In some applications, minimal space and the requirement of high UV light output meet each other. High Power Vicop LEDs offer a solution for this. Vicop LEDs with dimensions of just 1.1mm x 1.1mm can be processed like SMD components and are available in 385nm, 395nm and 405nm. In the dental field, they are e.g. used in devices for curing fillings or for the detection of caries (see diagram).

# UV-CCL

## Ultracompact UV cold cathode lamps

Compared to conventional UV-HCL's (gas discharge lamps) UV-CCL's have a significantly longer lifetime. Depending on the wavelength, our cold cathode lamps reach up to 50.000 hours (L50). These are resistant to vibration compared to conventional lamps and insensitive to frequent switching on and off. Due to their very compact dimensions, the UV CCLs are particularly suitable for space-critical applications.



### UC Series – Straight Type

Lifetime up to 50.000h (L50)  
High design flexibility due to small design  
Vibration resistant

Part No.	Wavelength [nm]	Lengths [mm]	Lamp Current [mAmps]	UV Radiant Flux @254nm [W]	Power consumption [W]	Life time [h]
UC/4F70/Z	254	70	10	0.2	1.4	30,000
UC/4F150/Z	254	150	15	0.6	3.1	50,000
UC/4F240/Z	254	240	15	1.1	4.7	50,000



### UC-Serie – Straight Type Assy's

Lifetime up to 50.000h (L50)  
Pre-assembled with cable and plug  
Vibration resistant

Part No.	Wavelength [nm]	Lengths [mm]	Dimensions [mm]	Lamp Current [mAmps]	UV Radiant Flux @254nm [W]	Power consumption [W]	Life time [h]
UC/4F85/3	254	70	86	10	0.2	1.4	30,000
UC/4F165/3	254	150	166	15	0.6	3.1	50,000
UC/4F255/3	254	240	256	15	1.1	3.1	50,000



### UC-Series – Straight Type Assy's with glass

Lifetime up to 50.000h (L50)

Pre-assembled with cable, plug and quartz glass

Vibration resistant

Part No.	Wavelength [nm]	Lengths [mm]	Dimensions [mm]	Lamp Current [mAmps]	UV Radiant Flux @254nm [W]	Power consumption [W]	Life time [h]
UW/9F89/9	254	70	89	10	0.2	1.4	30,000
UW/9F169/9	254	150	169	15	0.6	3.1	50,000
UW/9F259/9	254	240	259	15	1.1	3.1	50,000



### UC Series – Compact Type

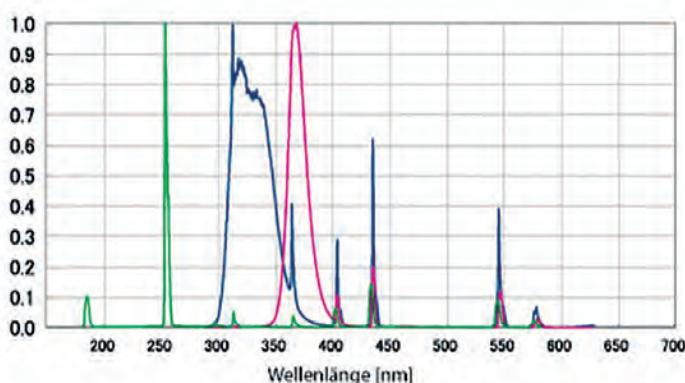
Lifetime up to 50.000h (L50)

High design flexibility due to small design

Vibration resistant

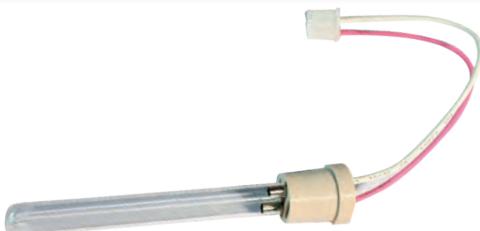
Part No.	Wavelength [nm]	Lengths [mm]	Lamp Current [mAmps]	UV Radiant Flux @254nm [W]	Power consumption [W]	Life time [h]
UC/4F35V/Z	254	33	10	0.2	1.6	30,000
UC/4F75V/Z	254	73	15	0.6	3.5	30,000
UC/4F120V/Z	254	118	15	1.1	5.4	30,000

### Spectra of UV cold cathode lamps



Like conventional HCL's. our cold cathode lamps have a peak wavelength of 254nm which has established itself as the industry standard for disinfection.

# UV-CCL



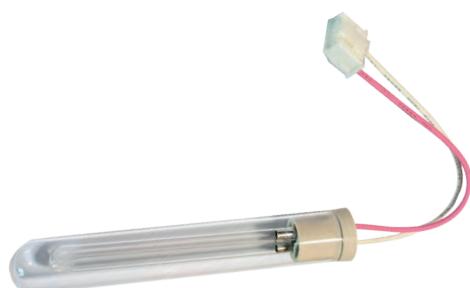
## UC-Serie – Compact Type Assy's

Lifetime up to 50.000h (L50)

Pre-assembled with cable and plug

Vibration resistant

Part No.	Wavelength* [nm]	Lengths [mm]	Dimensions [mm]	Lamp Current [mAmps]	UV Radiant Flux @254nm [W]	Power consumption [W]	Life time [h]
UC/4F44V/3	254	33	42	10	0.2	1.6	30,000
UC/4F84V/3	254	73	82	15	0.6	3.5	30,000
UC/4F129V/3	254	118	127	15	1.1	5.4	30,000



## UC-Serie – Compact Type Assy's with glass

Lifetime up to 50.000h (L50)

Pre-assembled with cable, plug and quartz glass

Vibration resistant

Part No.	Wavelength* [nm]	Lengths [mm]	Dimensions [mm]	Lamp Current [mAmps]	UV Radiant Flux @254nm [W]	Power consumption [W]	Life time [h]
UW15F52V/9	254	33	54	10	0.2	1.6	30,000
UW/15F82V/9	254	73	94	15	0.6	3.5	30,000
UW/15F137V/9	254	118	139	15	1.1	5.4	30,000



## UV reactors

Stanley Electric UV reactors impress with their form factor and longevity. The lifetime of UV-CCL's is up to 50.000h (L50) significantly higher than conventional HCL technology, which reduces lamp replacement intervals and thus saves follow-up costs. Our UV reactors are available with 254nm.m. Our reactors are available in various performance classes and can also be used in very space-critical applications. You may contact us for more information.

# Customized Solutions

## Professional UV application development

Just as no one person is the same as another, so it is with our customers. Each customer has his own ideas and criteria that are particularly important to him. To meet such requirements, we offer you customized UV applications based on your individual needs. Particularly in the UV area, solutions are often sought in addition to the standard in order to optimize processes and to be one step ahead of its competitors. Whether it is the adaptation of a standard product or a complete new development, we support you from the idea through to the production of your own product - all Made in Germany.



## UV-LED-Modules

Wavelength from 230 nm – 405 nm

Everything exactly matched to your requirements

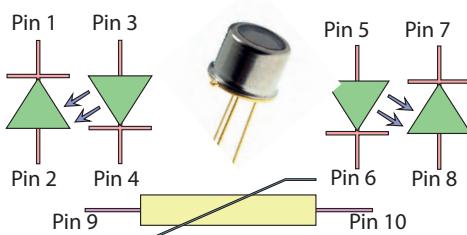
Pattern and series production



## Multiwavelength-LEDs

Sensor Electronic Technology, Inc offers multi-wavelength (UV, UV-Vis & UV-Vis-IR) or multi-chip LEDs, transmitter and receiver (Feedback Control LEDs) in the same housing and much more ...

Monolithic LED/PIN #1



Monolithic LED/PIN #2

## LEDs with integrated Feedback

UV LEDs with one or more wavelengths, including immediate power and temperature control.

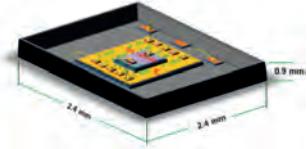
# UV-sensors

## Monitoring the radiation intensity

In applications where ultraviolet radiation is used, it is usually necessary to monitor the corresponding radiation intensity using UV sensors. This serves on the one hand the process security and on the other hand the protection of the person coming into contact with such applications. Examples of such applications are the curing of printing inks, the disinfection of drinking water or the measurement of gases. The ultraviolet sensors from our manufacturer Seoul Viosys are available in the complete wavelength range of 200nm-400nm. In addition to the intensity of the radiation can be issued by our special UV index sensors and the complete UV index of 0-15. As an SMD or THT component our sensors are easy to handle and secure your process reliably.



### UV-Index-sensors



0.0 to 15.0 UV Index output values

I<sup>2</sup>C interface (400kHz)

Supply voltage: 3.3V (typ.)

Operating temperature range: -40° C ~ +80° C

	Part No.	Supply voltage [V]	UV-Index values	Interface	Package
UV-Index sensors	Suvisen320	3.3	0.0 – 15.0	I <sup>2</sup> C (400kHz)	DFN



UV sensors are used in a large number of industrial applications. As an example, they are used in luminescence scanners to query specific features during a production. Depending on the feature and required wavelength, UV sensors with different spectral ranges are used.

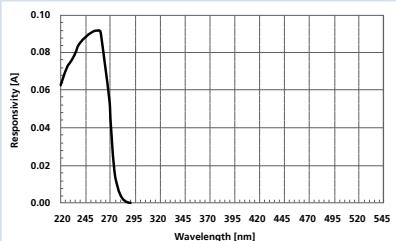


## UVC- | UVB- | UVA-sensors

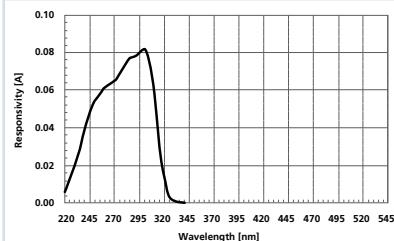
Supply voltage: 3.3V (typ.)  
Operating temperature range: -40° C ~ +80° C

	Part No.	Wavelength Range [nm]	Peak-Wavelength Lambda P [nm]	Active Area [mm <sup>2</sup> ]	Sensitivity [A/W]	Dark Current [nA]	
UVA sensors	SUVA-CS-S3535	200 – 375	345	0.121	0.11	< 1	
	SUVA-CS-S3528				0.08		
	SUVA-CS-T18				0.11		
	SPUVA-CS-S3528-A	200 – 400	355	0.998	0.2		
	SPUVA-CS-C3535-A						
	SPUVA-CS-T18-A						
	SPUVA-CL-C3535-A	200 – 375	345	0.998	0.11		
	SPUVA-CL-T18-A						
	SUVA-CL-C3535-A						
UVB sensors	SUVB-CS-S2016	225 – 325	305	0.121	0.11	< 1	
	SUVB-CS-S3020						
	SUVB-CS-S3528						
	SUVB-CS-S3535	200 – 325	305	0.998	0.15		
	SUVB-CL-C3535-A						
	SUVB-CL-T18-A						
UVC sensors	SUVC-CS-S3535	200 – 280	265	0.121	0.07	< 1	
	SUVC-CS-T18						
	SUVC-CL-C3535-A	200 – 280	265	0.998			
	SUVC-CL-T18-A						

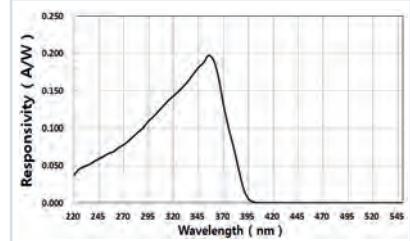
UVC



UVB



UVA





Gewerbegebiet Ost 7  
91085 Weisendorf  
Tel.: +49 9135 73666-0  
Fax: +49 9135 73666-60  
E-Mail: [info@neumueller.com](mailto:info@neumueller.com)  
[www.neumueller.com](http://www.neumueller.com)

**Office North**  
Beimoorkamp 3  
22926 Ahrensburg  
Tel.: +49 4102 66601-0  
Fax: +49 4102 66601-66  
E-Mail: [info@neumueller.com](mailto:info@neumueller.com)  
[www.neumueller.com](http://www.neumueller.com)