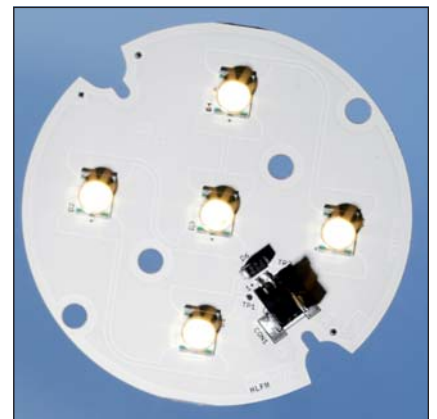
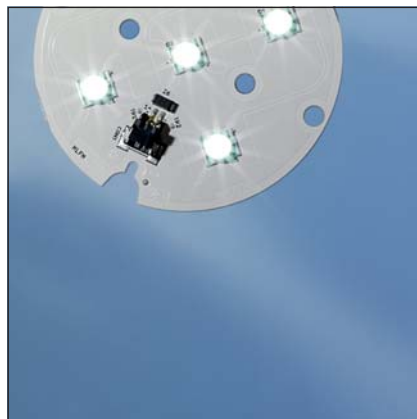
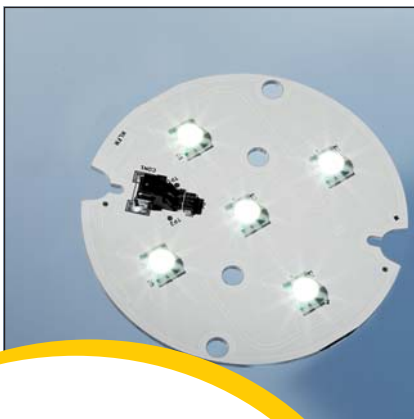




A New Lighting Experience



- long service lifetime due to optimal thermal management
- very high lumen output
- highly efficient (up to 95 lm/W)
- available in different CCTs
- easy connections due to pre-assembled connector
- attachment for lenses with different radiation angles
- lead-free soldered
- resistant against shock and vibrations

FiveLED – White/Warm white

WU-M-376-XR-E

Typical Applications

- Integration in luminaires
- Architectural illumination
- Marking of paths, stairs, etc.
- Furniture lighting
- Light advertising
- Entertainment, shop design

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FiveLED – White/Warm white

Technical Notes

- PCB diameter: 76.2 mm
- Pre-assembled connector on board
- Aluminum-PCB for optimum thermal management
- ESD protection class 2

Electrical Characteristics

at junction temperature $t_j = 25\text{ °C}$

Type	Ref. No.	Colour	Max. current mA	Max. voltage DC V	Max. power consumption W
WU-M-376-XRE-W	All types	White	1050	21.5	22.5
WU-M-376-XRE-WW	All types	Warm white	700	20.5	14.35

Use of external LED constant current driver with max. 1050 mA for White and 700 mA for Warm white required.

Maximum Ratings

Exceeding the maximum ratings can lead to reduction of lifetime or destruction of the module.

Type	Operation temperature range at t_c -point		Storage temperature range		Reverse voltage V
	°C min.	°C max.	°C min.	°C max.	
All types	-20	+85	-20	+85	5

Optical Characteristics

at junction temperature $t_j = 25\text{ °C}$

Type	Ref. No.	Colour	Correlated colour temperature K	Brightness bin**	Luminous flux (lm) at			Radiation angle* °
					350 mA ($P_{el} = 7\text{ W}$)	700 mA ($P_{el} = 14.5\text{ W}$)	1050 mA ($P_{el} = 21.5\text{ W}$)	
WU-M-376-XRE-W	539316	White	5650...6950	Q4	500.0...535.0	850.0...909.5	1100.0...1177.0	90
WU-M-376-XRE-W	539317	White	5650...6950	Q5	535.0...570.0	909.5...969.0	1177.0...1254.0	90
WU-M-376-XRE-WW	539318	Warm white	2720...3040	P2	336.0...369.5	571.0...628.0	not allowed	90
WU-M-376-XRE-WW	539319	Warm white	2720...3040	P3	369.5...403.0	628.0...686.0	not allowed	90
WU-M-376-XRE-WW	542760	Warm white	2720...3040	P4	403.0...437.0	686.0...773.0	not allowed	90

* On account of the complex manufacturing process of the modules the above values only represent statistical variables.

The values do not necessarily correspond exactly to the actual parameters of every single product which can vary from the typical specification.

** The reference numbers represent a single brightness group. In order to ensure availability please contact your sales prior to order.

Operating Life

50,000 hrs. (lumen maintenance at 70 %, $t_c = 75\text{ °C}$, $I_f = 700\text{ mA}$)

This value does not refer to the colour temperature.

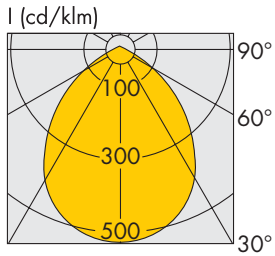
Thermal Characteristics

Type	Thermal resistance, p-n junction to t_c point (K/W)	Thermal resistance, p-n-junction to bottom of PCB (K/W)
All types	2	2.2

VS recommends an additional cooling element for improved thermal management.

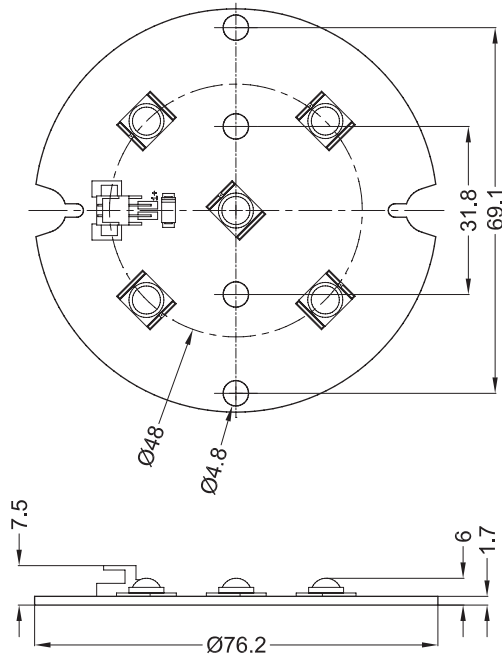
FiveLED – White/Warm white

Light Distribution Curve



FiveLED modules are designed for attachment optics by company Carclo. Please find further information at www.carclo-optics.com.

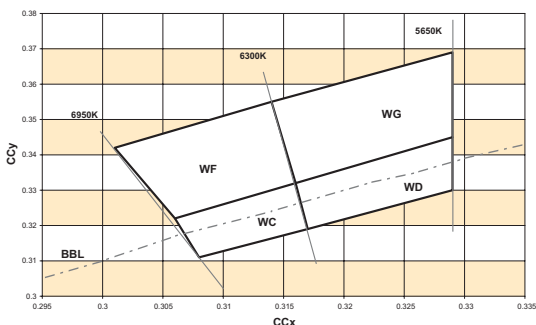
Mechanical Dimensions



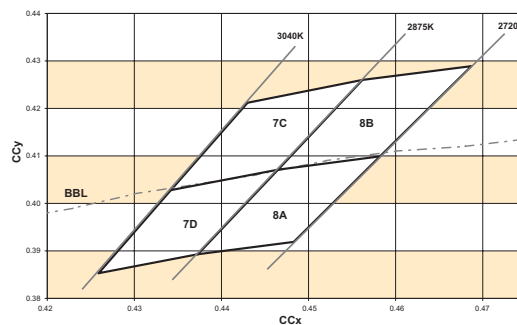
Bins

The standard shipping format regarding the reference numbers on page 2 includes all chromaticity coordinate groups. The concrete delivered group is marked on each product packing. Reduction of orderable groups is possible only project-based.

White



Warm white



The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification. Please find further detailed information at www.vssloh-schwabe.com.

FiveLED – White/Warm white

Assembly and Safety Information

- LED modules and all PCB components must not be subjected to undue mechanical stress:
 - LED modules must not be handled as bulk cargo
 - Shear and pressure stress must be avoided on LEDs during assembly and handling
- The circuit path must not be damaged or interrupted.
- Fixing holes are integrated in the PCB for easy assembly. Please use only plastic bolts for assembly to avoid short circuits or damage.
- Safe operation is only possible with an external constant current source.
- Operation is dependent on constant current drivers that should provide the following protective measures:
 - short-circuit protection
 - overload protection
 - overheating protection
 - SELV equiv. (Safety Extra Low Voltage)
- A connector socket on the PCB is used to ensure the electrical connection of the modules. Connection cables in a length of 300mm (Ref. No.: 533318) and 700mm (Ref. No.: 534095) are available. Please find detailed information at www.vs-optoelectronic.com.
- Safe operation is dependent on ensuring that the t_c temperature of 85 °C are not exceeded (measurement in accordance with EN 60598-1). Depending on the ambient temperature and type of application, additional cooling surfaces and heat-conductive paste or tape (Ref. No.: 539625) must be used to avoid heat accumulation in the module.
- Please observe the manufacturer's technical data provided at www.3M.com/converter. Products equipped with adhesive transfer tape must only be applied to dry and clean surfaces that are free from grease, oil, silicone or other soiling. It is therefore recommended to clean the substrate with isopropyl alcohol (IPA). Please ensure a full-surface bond over the entire contact area when sticking the module to the substrate.

The following substances are regarded as critical for creating an adhesive bond:

- Polyefins (polyethylene, polypropylene)
- Rubber
- Powder-coated materials
- Silicone rubber
- Teflon

Owing to the varying application options and different types of surface as well as ambient conditions, VS accepts no liability for the quality of the adhesive bond achieved when mounting these products. Prior to sticking a VS product, care must be taken to check whether the material in question is actually suitable for the intended purpose under consideration of all possible application-relevant influences. Supplementary holders must be used if necessary.

- Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- The maximum output of the power supply must be observed.
- Please ensure standard ESD (electrostatic discharge) protection measures are employed when handling and installing LED modules. Electrostatic discharge can damage LEDs.
- The modules are not protected against dust or moisture. When LED modules are operated in unduly moist or dusty environments, care must be taken to ensure each module is built into a protective casing in compliance with the correct IP classification or provided with corrosion protection. Damage caused by moisture and/or corrosion will not be recognised as a material or manufacturing defect.
- For the optimal degree of utilization of the attached regulated current source the FiveLED module may be used in series connection, whereby the number of modules is limited by the sum of the forward voltages along with the power of the used regulated current source. A parallel connection of the modules is not permitted.

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification. Please find further detailed information at www.vs-optoelectronic.com.

FiveLED – White/Warm white

Assembly and Safety Information

- FiveLED modules are designed for attachment optics by company Carclo. Optics of the 20mm series can be used (diameter holder + optic = 20mm). The 20mm series comprises the following types:

- optic holders: 10205; 10206; 10207
- optics: 10199; 10200; 10201; 10202; 10203; 10204; 10210; 10211

Further information on Carclo optics and on attaching/gluing these optics can be found at www.carclo-optics.com. If using an adhesive, please observe the manufacturer's notes on usage.

- Please ensure to use adhesive only on dry and clean surfaces that are free of grease, oil, silicone and dirt particles. Due to the variety of possible application options, surface finishes as well as ambient conditions, VS accepts no liability for the results obtained when sticking the optics. Prior to sticking a VS product, care must be taken to check whether product is suitable for the intended purpose under consideration of all possible application-relevant influences.

As a special service, Vossloh-Schwabe can provide customer-specific contract assembly of the optics. Please contact your local sales office to find out more.

- Tests have shown the following chemicals to be harmful to LEDs used on the modules. It is recommended not to use the under-mentioned chemicals anywhere in an LED system.

The fumes from even small amounts of these chemicals may damage the LEDs.

- Chemicals that might outgas aromatic hydrocarbons (e.g., toluene, benzene, xylene)
- Methyl acetate or ethyl acetate (i.e., nail polish remover)
- Cyanoacrylates (i.e., "Superglue")
- Glycol ethers (including Radio Shack®, Precision Electronics Cleaner – dipropylene glycol monomethyl ether)
- Formaldehyde or butadiene (including Ashland PLIOBOND® adhesive)
- Dymax 984-LVUF conformal coating
- Loctite Sumo glue

- Gorilla glue
- Clorox bleach
- Clorox Clean-Up cleaner spray
- Loctite 384 adhesive
- Loctite 7387 activator
- Loctite 242 threadlocker

Detailed information of handling of Cree LEDs can be found on www.cree.com.

- The photobiological safety of the LED modules must be classified into risk groups in accordance with EN 62471: 2008.
 - general lighting exempt group:
 - WU-M-376 white, warm white
 - other applications risk group 2:
 - WU-M-376 white, warm white
- Use of Carclo optics does not affect the need to classify LED modules into the above mentioned risk groups.

Applied Standards

EN 62031
LED modules for general lighting – Safety specifications

EN 62471
Photobiological safety of lamps and lamp systems; German version EN 62471:2008