LED LINE SMD LIGHTBAR

WU-M-594

LED LINE SMD – LIGHTBAR

WU-M-594

Typical Applications

Built-in luminaires/general illumination:

- Office lighting
- Retail lighting
- T5/T8 replacement as built-in module
- Furniture lighting

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- **LONG SERVICE LIFE TIME: > 50,000 H (L70, B10)**
- **HIGHLY EFFICIENT: UP TO 144 LM/W AT T_P = 50 °C**
- **VERY LOW COLOUR TOLERANCE: 3-STEP MacAdam**
- **HOMOGENEOUS ILLUMINATION**

LIGHTING SOLUTIONS

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Technical Notes

- LED built-in module for integration into luminaires
- Dimensions: 520x20 mm
- Driving current: 275 / 300 / 325 / 350 mA
- On-board push-in terminals
- Colour tolerance: 3-step MacAdam
- Typ. beam angle: 145°
- Number of LEDs: 8 pcs.

Electrical Characteristics

at t_p = 50 °C

Type	Typ. voltage DC*				Typ. power consumption*			
	275 mA	300 mA	325 mA	350 mA	275 mA	300 mA	325 mA	350 mA
	V	V	V	V	W	W	W	W
WU-M-594	24.8	25.1	25.4	25.7	6.8	7.5	8.3	9

Voltage and power tolerance: ±10 %

Use of external LED constant current driver required.

Maximum Ratings

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

Type	Operating current	Operation temperature range at t_c point		Storage temperature range		Max. allowed repetitive peak current
	mA	°C min.	°C max.	°C min.	°C max.	mA
WU-M-594	350	–10	+75	–20	+45	400

Optical Characteristics

at t_p = 50 °C

Type	**Ref. No.**	Colour	Correlated colour temperature*	Typ. luminous flux** (lm) and efficiency** (lm/W) at								Min. CRI	Photometric code
				275 mA		300 mA		325 mA		350 mA			
			K	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	R_a	
WU-M-594-830	**566324**	warm white	3000	900	132	965	128	1030	125	1095	122	80	830/349
WU-M-594-840	**566325**	neutral white	4000	965	141	1035	137	1105	134	1175	131	80	840/349
WU-M-594-850	**566326**	cool white	5000	980	144	1050	139	1120	136	1190	133	80	850/349
WU-M-594-865	**566327**	cool white	6500	930	136	1000	133	1065	129	1130	126	80	865/349

* Colour tolerance: 3 MacAdam | ** Production tolerance of luminous flux and efficiency: ± 10%

Minimum order quantity (packaging unit): 150 pcs.

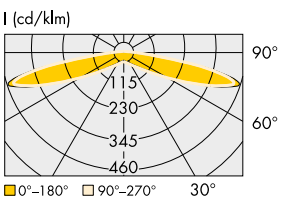
Operating Life

at t_p = 40 °C / 50 °C / 75 °C

Lumen maintenance	I_F 275 mA hrs.	I_F 300 mA hrs.	I_F 325 mA hrs.	I_F 350 mA hrs.
L70/B10	> 50,000	> 50,000	> 50,000	> 50,000

Typical Light Distribution Curve

Data are available in .ldt format for download under www.vossloh-schwabe.com.



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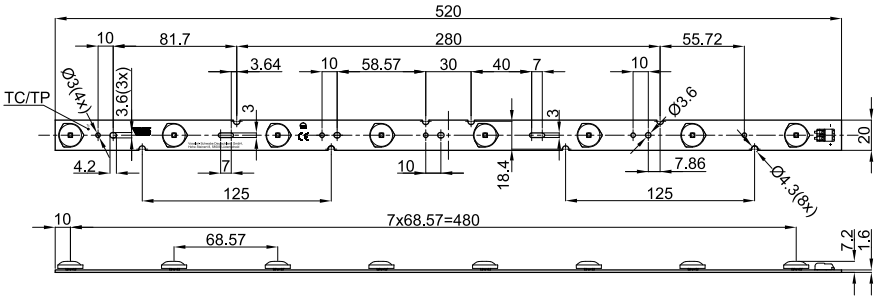
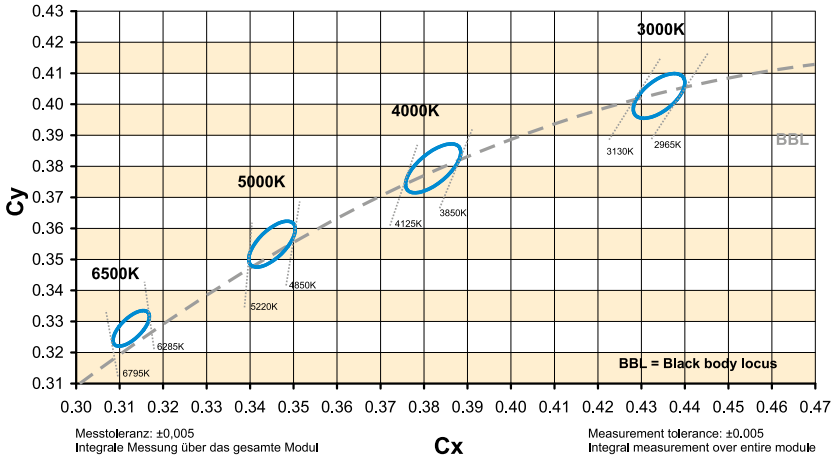
- The number of modules that can be connected in series depends on the available output voltage of the LED driver.
- The clearance and creepage distances are designed for working voltages up to 450 V DC (basic insulation) and 250 V DC (reinforced insulation).
- In case of assembly of the LED modules in profiles (e.g. aluminium) where the profile touches the top edge of the PCB the clearence and creepage distances are reduced to 200 V DC (basic insulation) and 120 V DC (reinforced insulation)
- Max. diameter of screw head (M3): Ø 6 mm (for central holes)
  Max. diameter of screw head (M4): Ø 8 mm (for holes on module edges)

Mechanical Dimensions

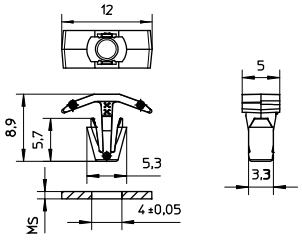


Bins



Fixing Clip

For fastening LED PCBs to luminaire sheets without needing screws
PCB hole dia.: 4.3–4.7 mm
Vibration resistant version
Material: PC, white (UL-94 V2)
Weight: 0.2 g, Packaging unit: 1000 pcs. (.11 = 10,000 pcs.)



Type	**Ref. No.**	For luminaire sheet thickness (MS) mm
98050	**562870**	0.5–1.0*

* PCB thickness: 1.6 mm

LED Constant Current Drivers

Please visit our homepage for details for suitable LED constant current drivers: www.vossloh-schwabe.com

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Assembly and Safety Information

Installation must be carried out under observation of the relevant regulations and standards. The LED modules are designed for operation within a casing or luminaire. Installation must be carried out in a voltage-free state (i.e. disconnection from the mains). The following advice must be observed; non-observance can result in the destruction of the LED assembly modules, fire and/or other hazards.

- Consider safety regulations acc. EN 60598 in the luminaire design, especially when the operating LED driver is not galvanic isolated (not SELV).
  - In mode of operation regard to sufficient isolation.
  - Live parts must not be touched in operation mode. Danger in life!!!

- ESD (electrostatic discharge) protection measures must be observed when handling and installing the LED modules. See VS's application notes on ESD protection.
- Adequate anti-static electricity measures, including the use of conductive shoes, ionizers, work bench grounding, wrist straps, flooring and stools sould be used.
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- LED assembly modules must not be subjected to any undue mechanical stress, e. g.:
  - do not treat as bulk cargo
  - avoid shear and compressive forces during handling and installation
  - do not damage circuit paths
  - avoid any pressure on the light emitting surface
- Safe operation only possible by the use of external constant current sources ($I_{max.}$ see table "Electrical Characteristics").
- Operation only with power supply units that feature the following protection:
  - Short-circuit protection
  - Overload protection
  - Overheating protection
- Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- For interconnection the LED modules is equipped with push-in terminals (WAGO 2060).
- Safety regulations acc. to EN 60598 (or further standards) has to be observed if the maximum output voltage exceed the permitted touchable value.
- The following points must be observed when connecting LED modules in parallel:
  - All LED strings that are wired in parallel must contain the same number of LEDs (symmetrical loading).
  - Owing to differing forward biases, there can be a difference of up to 10% in brightness between modules connected in parallel.
- To ensure problem-free operation, the specified maximum temperature at the tp point (see "Operating Life") must be observed (and measured in accordance with EN 60598-1). To satisfy this point, it may be necessary to put measures in place to ensure any heat is dissipated from the PCB to the environment.
- 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.
- In the event of outdoor applications or applications in damp locations, care must be taken to protect LED assembly modules against humidity, splashes and jets of water. Any corrosion damage resulting from humidity or contact with condensation will not be recognised as a defect or manufacturing fault. LED assembly modules are not specially protected against foreign bodies or dust. Depending on the type of application, further protection must be ensured to prevent dust and foreign bodies from entering.
- Due to the manufacturing process, the PCBs of the LED assembly modules can have sharp edges and corners. Care must therefore be taken during handling and installation to avoid injury.
- For optimal load of used constant current driver the modules can only be connected in series. The quantity of LED modules is limited by the sum of forward voltage and the capacity of used constant current driver. Safety regulations acc. to EN 60598 has to be observed if the sum of forward voltage exceed the permitted touchable value.
- Operating LED modules in the presence of certain chemical substances or in chemically enriched (aggressive) environments can impair module functionality or even cause total module failure. Detailed information can be found in our "Chemical Incompatibility" PDF on our website www.vossloh-schwabe.com
- The photobiological safety of the LED modules must be classified into risk groups in accordance with EN 62471: 2008
  Assessment of risk groups in acc. with IEC/TR 62778: risk group 1

CCT K	Max. operating current for risk group 1 mA	E threshold for higher operating currents to be risk group 1 lx
≤ 4000	282	1130
5000	179	657
6000	174	545

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Applied Standards

EN 62031
LED modules for general lighting – Safety specifications

EN 62471
Photobiological safety of lamps and lamp system

Product Guarantee

- 5 years
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage (www.vossloh-schwabe.com). We will be happy to send you these conditions upon request.

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