

# LED LIGHT PANEL SMD

WU-M-554-G (270X270)



## LED LIGHT PANEL SMD – LED MODULES FOR OFFICE LIGHTING

### WU-M-554-G

#### Typical Applications

Built-in luminaires/general illumination

- Office lighting, especially grid luminaires 600x600 mm
- Retail lighting
- T5/T8 replacement as built-in module
- Furniture lighting
- Backlighting for advertising

#### LED Light Panel SMD

■ **LONG SERVICE LIFE TIME: 60,000 H (L80, B10)**

■ **HIGHLY EFFICIENT:  
UP TO 184 LM/W AT T<sub>p</sub> = 50 °C**

## LED Light Panel SMD

### Technical Notes

- LED built-in module for integration into luminaires
- Dimensions: 270x270 mm
- Driving current: 60 mA / 87.5 mA
- On-board push-in terminals
- Colour tolerance: 3-step MacAdam



### Electrical Characteristics

at  $t_p = 50\text{ °C}$

Type	No. of LEDs	Voltage DC* (V)			87.5 mA			Temperature coefficient mV/K	Power consumption* (W)			87.5 mA		
		60 mA												
		min.	typ.	max.	min.	typ.	max.		min.	typ.	max.	min.	typ.	max.
All types	42	109.5	117.1	130.5	114.3	121.9	135.3	-139.67	6.6	7.0	7.8	10.0	10.7	11.8

**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	Operation temperature range at $t_c$ point		Storage temperature range		Max. allowed repetitive peak current mA
	°C min.	°C max.	°C min.	°C max.	
All types	-20	+70	-20	+85	177

### Optical Characteristics

at  $t_p = 50\text{ °C}$

Type	Ref. No.	Colour	Correlated colour temperature K	Luminous flux* (lm) and efficiency (lm/W) at						CRI*		Beam angle* °	Photometric code
				60 mA		87.5 mA							
				min.	typ.	typ.	min.	typ.	typ.	min.	typ.		
				lm	lm	lm/W	lm	lm	lm/W	$R_a$	$R_a$		

**Dimensions: 270x270 mm**

WU-M-554-G-830	<b>563291</b>	warm white	3000 <sup>-80/+130</sup>	1085	1200	171	1550	1715	161	80	85	120	830/349
WU-M-554-G-840	<b>563292</b>	neutral white	4000 <sup>-160/+115</sup>	1130	1260	179	1615	1800	169	80	85	120	840/349
WU-M-554-G-850	<b>563293</b>	neutral white	5000 <sup>-125/+155</sup>	1230	1290	184	1760	1850	173	80	85	120	850/349
WU-M-554-G-865	<b>563294</b>	cool white	6500 <sup>-165/+220</sup>	1130	1275	181	1615	1820	171	80	85	120	865/349

\* Measurement tolerance:  $\pm 7\%$

**Minimum order quantity (packaging unit): 80 pcs.**

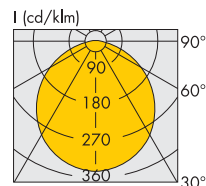
### Operating Life

L80/B10

Temperature	$I_f$ 60 mA	$I_f$ 87.5 mA
at $t_p = 50\text{ °C}$	> 60,000 hrs.	> 60,000 hrs.
at $t_p = 70\text{ °C}$	> 60,000 hrs.	> 60,000 hrs.

### Typical Light Distribution Curve

Data are available in .ldf format for download under [www.vossloh-schwabe.com](http://www.vossloh-schwabe.com).

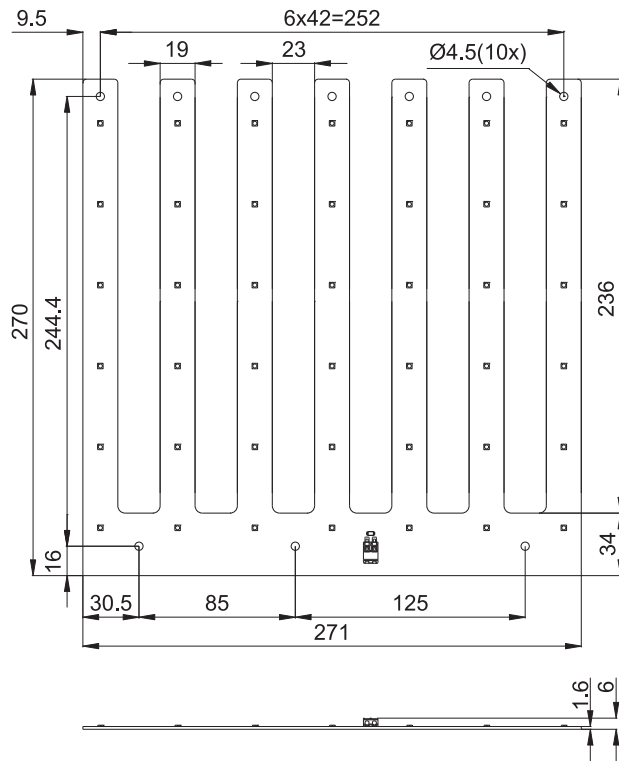


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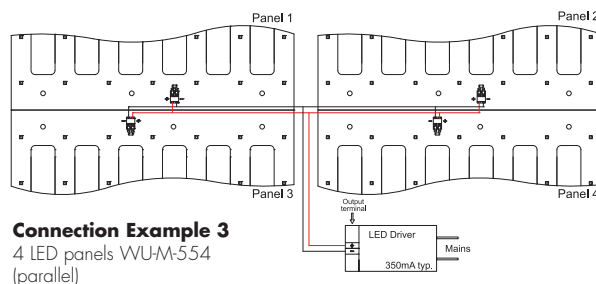
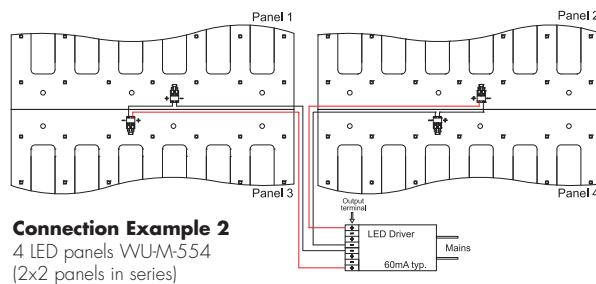
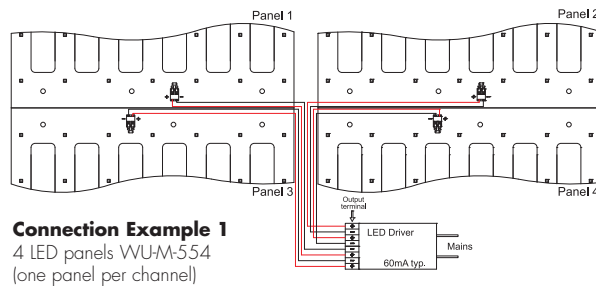
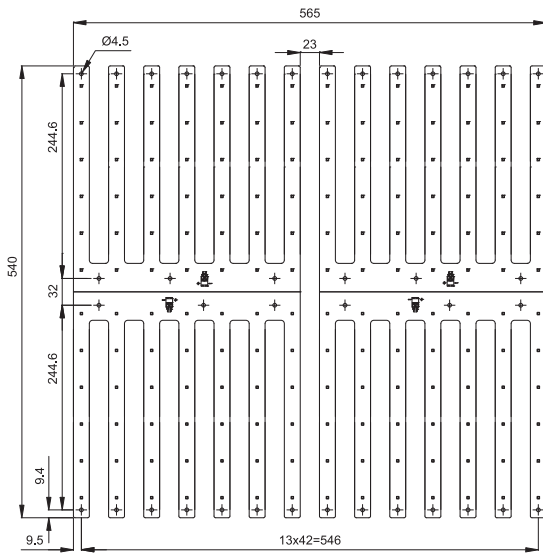
## LED Light Panel SMD

- Max. number of modules that can be connected in series: 2 pcs.
- The clearance and creepage distances are designed for working voltages up to 500 V DC (basic insulation) and 250 V DC (reinforced insulation).
- Max. diameter of screw head (M4):  $\varnothing$  8 mm
- For reliable operation all fixing holes of the module must be used for mounting.

### Mechanical Dimensions

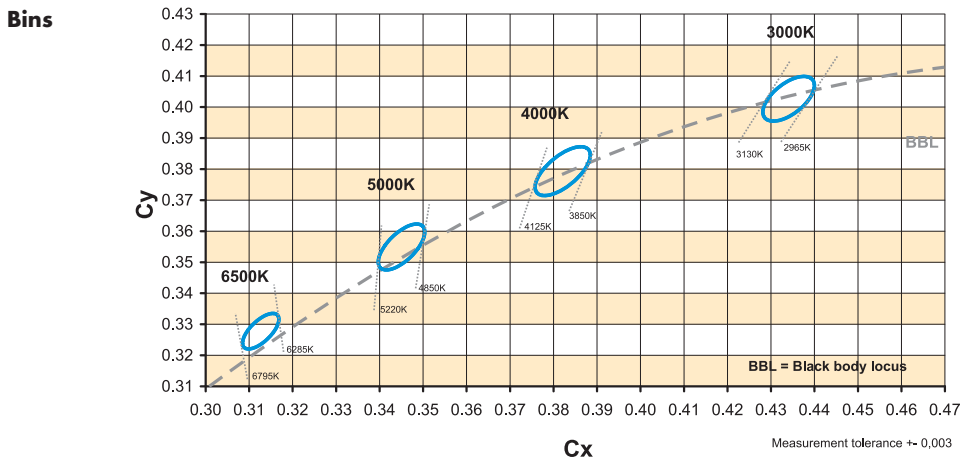


### Connection Examples



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## LED Light Panel SMD



### Fixing Clip

For fastening LED PCBs to luminaire sheets without needing screws

PCB hole dia.: 4.3–4.7 mm

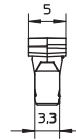
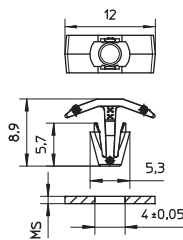
Vibration resistant version

Material: PC, white (UL-94 V2)

Weight: 0.2 g, Packaging unit: 1000 pcs.

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

\* PCB thickness: 1.6 mm



### 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 could 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").

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## LED Light Panel SMD

### Assembly and Safety Information

- 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  $t_p$  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
  - TeflonOwing 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](http://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

### 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](http://www.vossloh-schwabe.com)). We will be happy to send you these conditions upon request.

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## LED Light Panel SMD – ComfortLine LED Drivers

### 4x60 mA / max. 4x9 W

The linear LED constant-current drivers are designed for use in office and retail lighting.

### Electrical characteristics

Secondary side switching of LED modules is not allowed.

Power factor at full load: > 0.96

### Connection details

Mains voltage: 220–240 V ±10%

Mains frequency: 50–60 Hz

Push-in terminals: 0.2–1.5 mm<sup>2</sup>

### Safety features

Electronic short-circuit protection

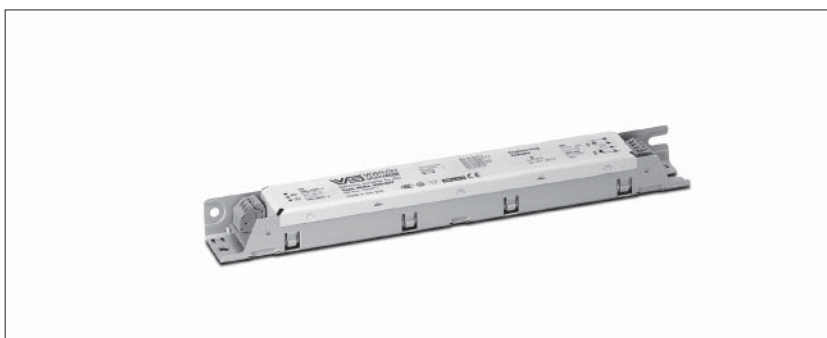
Overload protection

Protection against "no load" operation

Degree of protection: IP20

Protection class I

Product guarantee: 5 years

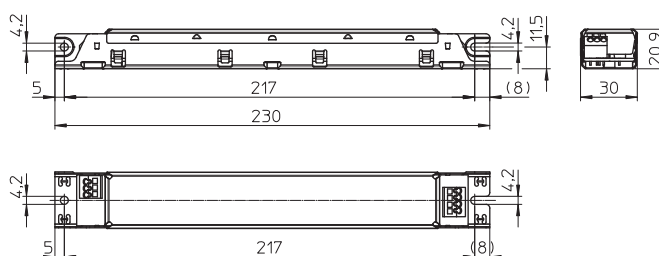


### Expected service life time

at operation temperatures at  $t_c$  point

Operation current	Ref. No. all types	
	70 °C	60 °C
hrs.	50,000	100,000

### M6.1



Max. output W	Type	Ref. No.	Mains voltage 0 Hz, 50–60 Hz V	Mains current mA	Current output DC mA	Voltage output DC V	Max. voltage without load DC V	Efficiency at full load % (230 V)	Ambient temperature $t_a$ °C	Casing temperature $t_c$ °C	Weight g
4x9	ECXe 460.061	<b>186305</b>	— 220–240	— 180–165	4x60 ±5%	110–150	450	> 88	–20 to 60	70	156

### M6.1 – Dimensions: 230x30x20.9 mm

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