

LED LINE SMD COMFORT-B 3R GEN. 3



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MLC SC 3R/FB G3

Typical Applications

Built-in luminaires/general illumination

- Office lighting
- Retail, corridor and shelf lighting
- T5/T8 replacement as built-in module
- Furniture lighting
- Backlighting for advertising
- Industrial lighting
- Indoor lighting

LED Line SMD Comfort-B 3R Gen. 3

- **LONG SERVICE LIFE TIME: 93.000 H (L80, B10)**
- **HIGHLY EFFICIENT: UP TO 209 LM/W AT T_p = 50 °C**
- **LENGTH: 493 MM**
- **FLEXIBLE LIGHT DISTRIBUTION
BY DIFFERENT OPTICS**

LED Line SMD
Comfort-B
3R Gen. 3

Technical Notes

- LED built-in module for integration into luminaires

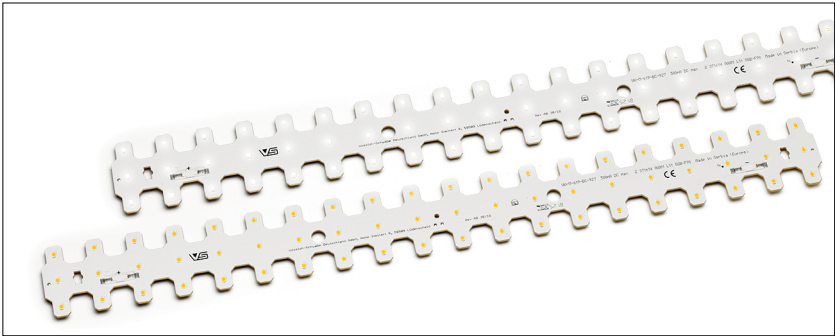


- Dimensions:

MLC SC 3R/FB G3:

493 x 49 x 6.4 mm

- Driving current: 150 mA / 200 mA / 250 mA / 350 mA / 500 mA / 600 mA
- On-board push terminal system



Typical Light Distribution Curve

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

Please visit our homepage for details for suitable optics:

- www.vossloh-schwabe.com/en/products/optics-reflectors/linear-optics/linear-optics-3r-for-smd-comfort-b/

Electrical Characteristics

at $t_p = 50\text{ }^{\circ}\text{C}$

Type	No. of LEDs	Typ. voltage DC						Temperature coefficient [mV/K]	Typ. Power consumption					
		150 mA	200 mA	250 mA	350 mA	500 mA	600 mA		150 mA	200 mA	250 mA	350 mA	500 mA	600 mA
		V	V	V	V				W	W	W	W		

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All types	60	52.3	52.8	53.3	54.2	55.5	56.2	-20.17	7.8	10.6	13.3	19.0	27.7	33.7
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Voltage and power consumption tolerance: $\pm 10\%$

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 (mA)	Operation temperature range at I_c point		Storage temperature range		Max. allowed repetitive peak current mA
		$^{\circ}\text{C min.}$	$^{\circ}\text{C max.}$	$^{\circ}\text{C min.}$	$^{\circ}\text{C max.}$	
All types	600	-20	+80	-20	+75	1440

Operating Life

L80/B10

in hours at measured temperature at t_p point

Type	150 mA			200 mA			250 mA			350 mA			500 mA			600 mA		
	50 $^{\circ}\text{C}$	60 $^{\circ}\text{C}$	80 $^{\circ}\text{C}$	50 $^{\circ}\text{C}$	60 $^{\circ}\text{C}$	80 $^{\circ}\text{C}$	50 $^{\circ}\text{C}$	60 $^{\circ}\text{C}$	80 $^{\circ}\text{C}$	50 $^{\circ}\text{C}$	60 $^{\circ}\text{C}$	80 $^{\circ}\text{C}$	50 $^{\circ}\text{C}$	60 $^{\circ}\text{C}$	80 $^{\circ}\text{C}$	50 $^{\circ}\text{C}$	60 $^{\circ}\text{C}$	80 $^{\circ}\text{C}$
All types	>93.000	>93.000	>93.000	>93.000	>93.000	>93.000	>93.000	>93.000	>93.000	>93.000	>93.000	>93.000	>93.000	>93.000	>93.000	>93.000	>93.000	>89.000

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LED Line SMD Comfort-B 3R Gen. 3

Optical Characteristics

at $t_p = 50^\circ\text{C}$

CRI Ra > 80

Type	Ref. No.	Colour	Correlated colour temperature* K	Luminous flux** (lm) and efficiency (lm/W) at												Photo- metric code
				150 mA		200 mA		250 mA		350 mA		500 mA		600 mA		
				typ.	typ.	typ.	typ.	typ.	typ.	typ.	typ.	typ.	typ.	typ.	typ.	
				lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	

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MLC SC 3R/FB B/60/827 G3	on request	WW	2700	1535	196	2025	192	2500	188	3430	181	4780	172	5645	167	827/359
MLC SC 3R/FB B/60/830 G3	573923	WW	3000	1535	196	2025	192	2500	188	3430	181	4780	172	5645	167	830/359
MLC SC 3R/FB B/60/835 G3	on request	NW	3500	1640	209	2165	205	2675	201	3665	193	5110	184	6035	179	835/359
MLC SC 3R/FB B/60/840 G3	573924	NW	4000	1640	209	2165	205	2675	201	3665	193	5110	184	6035	179	840/359
MLC SC 3R/FB B/60/850 G3	573925	CW	5000	1640	209	2165	205	2675	201	3665	193	5110	184	6035	179	850/359
MLC SC 3R/FB B/60/865 G3	573926	CW	6500	1640	209	2165	205	2675	201	3665	193	5110	184	6035	179	865/359

2700 K and 3000 K = warm white (WW), 3500 K and 4000 K = neutral white (NW), 5000 K and 6500 K = cool white (CW)

* Colour tolerance: 3 MacAdams | ** Production tolerance of luminous flux and efficiency: $\pm 10\%$

Minimum order quantity (packaging unit): 100 pcs.

Optical Characteristics

at $t_p = 50^\circ\text{C}$

CRI Ra > 90

Type	Ref. No.	Colour	Correlated colour temperature* K	Luminous flux** (lm) and efficiency (lm/W) at												Photo- metric code
				150 mA		200 mA		250 mA		350 mA		500 mA		600 mA		
				typ.	typ.	typ.	typ.	typ.	typ.	typ.	typ.	typ.	typ.	typ.	typ.	
				lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	

LED Line SMD Comfort-B 3R Gen. 3

MLC SC 3R/FB B/60/927 G3	on request	WW	2700	1220	155	1605	152	1985	149	2720	143	3790	137	4480	133	927/359
MLC SC 3R/FB B/60/930 G3	573927	WW	3000	1325	169	1745	165	2155	162	2960	156	4120	149	4865	144	930/359
MLC SC 3R/FB B/60/935 G3	on request	NW	3500	1325	169	1745	165	2155	162	2960	156	4120	149	4865	144	935/359
MLC SC 3R/FB B/60/940 G3	573928	NW	4000	1430	182	1885	179	2330	175	3195	168	4450	160	5255	156	940/359
MLC SC 3R/FB B/60/950 G3	573929	CW	5000	1430	182	1885	179	2330	175	3195	168	4450	160	5255	156	950/359
MLC SC 3R/FB B/60/965 G3	573930	CW	6500	1430	182	1885	179	2330	175	3195	168	4450	160	5255	156	965/359

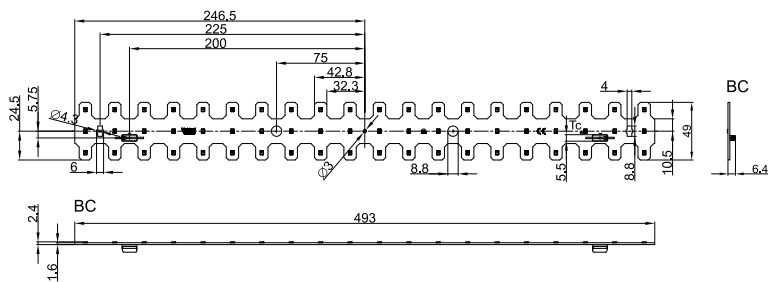
2700 K and 3000 K = warm white (WW), 3500 K and 4000 K = neutral white (NW), 5000 K and 6500 K = cool white (CW)

* Colour tolerance: 3 MacAdams | ** Production tolerance of luminous flux and efficiency: $\pm 10\%$

Minimum order quantity (packaging unit): 100 pcs.

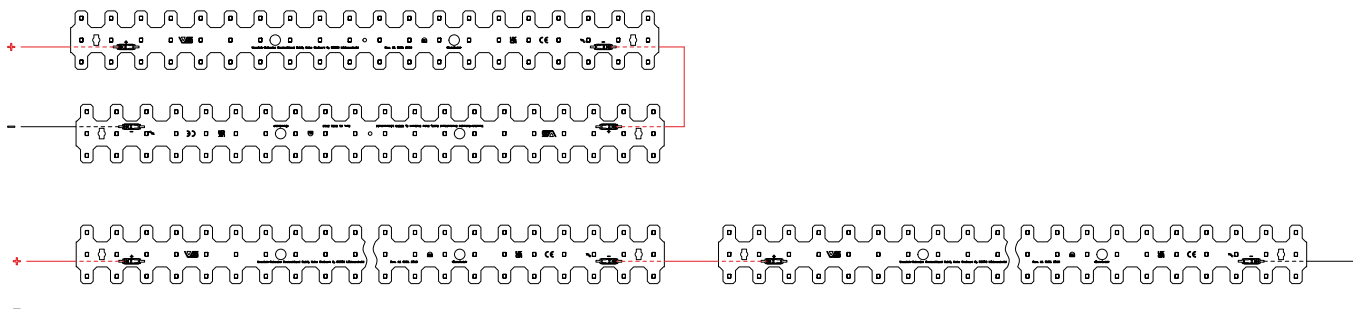
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Mechanical Dimensions SMD Board

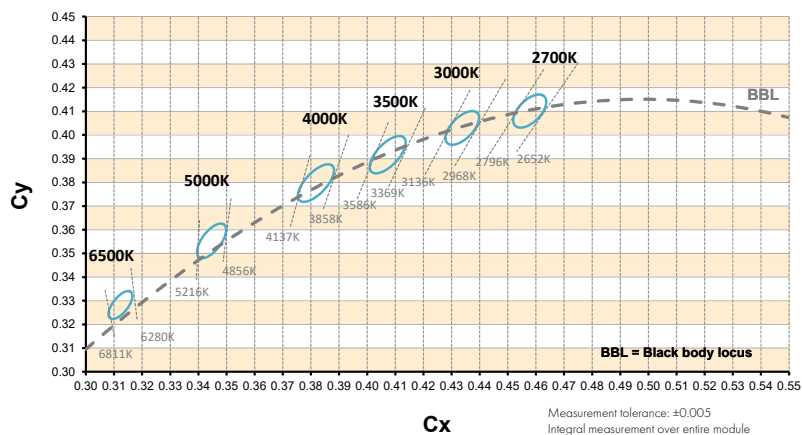


Connection Example

- 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 400 V DC (basic insulation) and 250 V DC (reinforced insulation).
- Max. diameter of screw head (M4): 8 mm
- The modules are connected in series in both wiring examples.



Bins



Linear LED Constant Current Drivers

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

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Nomenclature example

MLC SC 3R/FB B/60/840 G3

Generation

CCT

27 = 2700 K

30 = 3000 K

35 = 3500 K

40 = 4000 K

50 = 5000 K

65 = 6500 K

CRI

8 = 80 CRI minimum

9 = 90 CRI minimum

Number of LEDs

Connection

B = Bottom

Shape

Check drawing

Technology

SC = SMD Constant Current

Product Line

C = Comfort

Product Area & Shape

ML = Module Linear

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 luminair design, especially when the operating LED driver is not galvanic isolated.
 - In mode of operation regard to sufficient isolation.
 - Live parts must not be touched in operation mode.

Danger of death!!!



- 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.
- 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
- The module can be fixed with M4 screws. Fixation only with flat or cylinder head screws (M4) /countersunk screws)
Max. torque: 1.2 Nm (M4)
Additional plastic washers (M5) have to be used in combination with M4 screws for fixation without optics.
- For interconnection the LED modules is equipped with push-in terminals (WAGO 2070)
- Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- 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.

- 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
Rating in accordance with IEC / TR 62778: risk group 1 within the complete range of allowed operating current per LED module.

Applied Standards

EN 62031

LED modules for general lighting – Safety specifications



EN 62471

Photobiological safety of lamps and lamp systems

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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