

LED LINEAR ALLROUND 5050 GEN. 4 ADVANCED

2x6 FOR RECTANGULAR IP OPTICS



LED LINEAR ALLROUND 5050 GEN. 4 ADVANCED 2x6 FOR RECTANGULAR IP OPTICS

MSP SC 2R/Z19/5050 ADV G4

These modules were designed for built-in into luminaire casings. They enable a modular luminaire design.

The modules are available in 3 white colour tones.

Typical Applications (depending on the choice of optics)

- Integration in luminaires
- Street lighting, urban street lighting
- Tunnel lighting
- Flood and area lighting
- Indoor lighting
- Industrial lighting for:
 - Production halls
 - Warehouses
- Lighting for sports facilities

LED Linear Allround SMD 5050 Gen. 4 Advanced

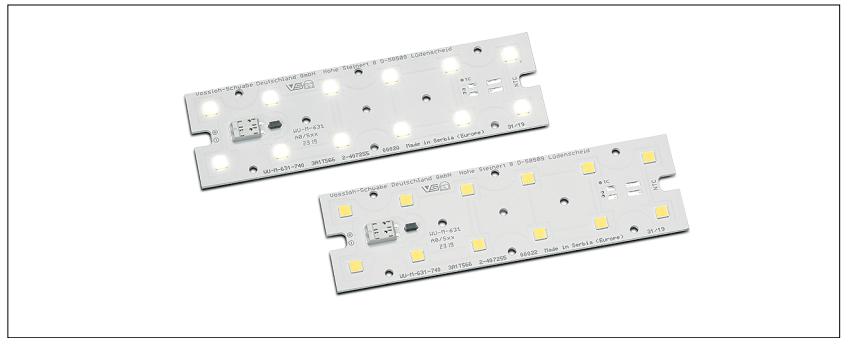
- **HIGHLY EFFICIENT: UP TO 224 LM/W**
AT $T_p = 65^\circ\text{C}$, $I_f = 350\text{ mA}$
- **FLEXIBLE LIGHT DISTRIBUTION BY VARIOUS ATTACHMENT OPTICS**
- **INITIAL COLOUR ACCURACY: 5 SDCM**
- **ON-BOARD SURGE PROTECTION UP TO 10 KV**
(IN COMBINATION WITH VS STREETLIGHT DRIVERS)
- **ENEC AND VDE APPROVED**



LED Linear Allround 5050 Gen. 4 Advanced

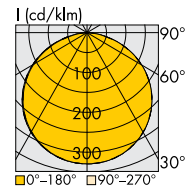
Technical Notes

- LED built-in module for integration into luminaires
- 12 high-efficiency High Power LEDs
- Dimensions (excl. optics) LxWxH
12 LEDs: 146x44.4x5 mm
- Driving currents: 350mA / 500mA / 700mA / 1050mA / 1200mA
- Push-in terminals for quick and simple wiring
- Design for optimum thermal management
- Degree of protection: IP00
- ESD protection class 2 (up to 4 kV)
- NTC resistor for external driver feedback on request



Typical Light Distribution Curve

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



Electrical Characteristics

at $t_p = 65^\circ\text{C}$

Type	No. of LEDs	Typ. voltage DC					Temperature coefficient mV/K	Typ. power consumption				
		350 mA	500 mA	700 mA	1050 mA	1200 mA		350 mA	500 mA	700 mA	1050 mA	1200 mA
		V	V	V	V	V		W	W	W	W	W

LED Linear Allround 5050 Gen. 4 Advanced

MSP SC 2R/Z19/5050 T/12/yz ADV G4	12	31.8	32.3	32.9	33.9	34.3	-11.81	11.1	16.1	23.0	35.6	41.1
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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 destruction of the module.

Type	Operation current mA	Operation temperature range at t_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	≤ 1050	-30	+85	-40	+85	2400
	≤ 1200	-30	+75	-40	+85	2400

Operating Life

Lumen degradation	Operating life in hours at stated t_c point temperature								
	$I_f \leq 350\text{ mA}$			$I_f 500\text{ mA}$			$I_f 700\text{ mA}$		
	60 $^\circ\text{C}$	70 $^\circ\text{C}$	80 $^\circ\text{C}$	60 $^\circ\text{C}$	70 $^\circ\text{C}$	80 $^\circ\text{C}$	60 $^\circ\text{C}$	70 $^\circ\text{C}$	80 $^\circ\text{C}$
L70/B10	>102.000	>102.000	>102.000	>102.000	>102.000	>102.000	>102.000	>102.000	>102.000
L80/B10	>102.000	>102.000	>102.000	>102.000	>102.000	>102.000	>102.000	>102.000	>102.000
L90/B10	>102.000	>102.000	>102.000	>102.000	>102.000	>102.000	>102.000	>98.000	>92.000

These values do not refer to the colour temperature. | Lxx/Byy (lumen maintenance at xx%, failure rate yy%)

Lumen degradation	Operating life in hours at stated t_c point temperature					
	$I_f 1050\text{ mA}$			$I_f 1200\text{ mA}$		
	60 $^\circ\text{C}$	70 $^\circ\text{C}$	80 $^\circ\text{C}$	60 $^\circ\text{C}$	70 $^\circ\text{C}$	80 $^\circ\text{C}$
L70/B10	>102.000	>102.000	>102.000	>102.000	>102.000	>102.000
L80/B10	>102.000	>102.000	>102.000	>102.000	>102.000	>102.000
L90/B10	>102.000	>98.000	>91.000	>102.000	>97.000	>91.000

These values do not refer to the colour temperature. | Lxx/Byy (lumen maintenance at xx%, failure rate yy%)

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

LED Linear Allround 5050 Gen. 4 Advanced – 2x6 for rectangular IP optics

Optical Characteristics

at $T_p = 65^\circ\text{C}$, $\text{CRI}^{**} \geq 70$

Type	Ref. No.	Colour	Correl. colour temp. K	Luminous flux* (lm) and typ. efficiency (lm/W)									
				350 mA		500 mA		700 mA		1050 mA		1200 mA	
				typ. lm	typ. lm/W	typ. lm	typ. lm/W	typ. lm	typ. lm/W	typ. lm	typ. lm/W	typ. lm	typ. lm/W

LED Linear Allround 5050 Gen. 4 Advanced - 12 LEDs

MSP SC 2R/Z19/5050 T/12/718 ADV G4	on req.	WW	1800	1675	150	2370	147	3270	142	4780	134	5405	131
MSP SC 2R/Z19/5050 T/12/722 ADV G4	on req.	WW	2200	2055	185	2910	180	4015	174	5870	165	6635	161
MSP SC 2R/Z19/5050 T/12/727 ADV G4	on req.	WW	2700	2255	203	3190	198	4405	191	6440	181	7285	177
MSP SC 2R/Z19/5050 T/12/730 ADV G4	on req.	WW	3000	2320	209	3290	204	4540	197	6635	187	7505	182
MSP SC 2R/Z19/5050 T/12/740 ADV G4	574684	NW	4000	2495	224	3530	219	4870	212	7125	200	8055	196
MSP SC 2R/Z19/5050 T/12/750 ADV G4	on req.	CW	5000	2420	217	3425	212	4725	205	6910	194	7815	190
MSP SC 2R/Z19/5050 T/12/757 ADV G4	574665	CW	5700	2385	214	3375	209	4660	202	6815	192	7705	187

1800, 2200, 2700 and 3000 K = warm white (WW), 4000 K = neutral white (NW), 5000 and 5700 K = cool white (CW)

* Colour tolerance: 5 MacAdam | ** Production tolerance of luminous flux and efficiency: $\pm 10\%$

Optical Characteristics

at $T_p = 65^\circ\text{C}$, $\text{CRI}^{**} \geq 80$

Type	Ref. No.	Colour	Correl. colour temp. K	Luminous flux* (lm) and typ. efficiency (lm/W)									
				350 mA		500 mA		700 mA		1050 mA		1200 mA	
				typ. lm	typ. lm/W	typ. lm	typ. lm/W	typ. lm	typ. lm/W	typ. lm	typ. lm/W	typ. lm	typ. lm/W

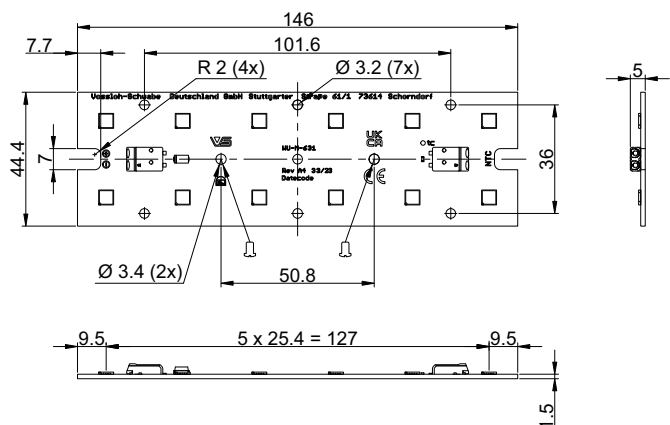
LED Linear Allround 5050 Gen. 4 Advanced - 12 LEDs

MSP SC 2R/Z19/5050 T/12/830 ADV G4	on req.	WW	3000	2115	190	2995	186	4135	180	6045	170	6835	166
MSP SC 2R/Z19/5050 T/12/840 ADV G4	on req.	NW	4000	2245	202	3175	197	4385	190	6410	180	7250	176

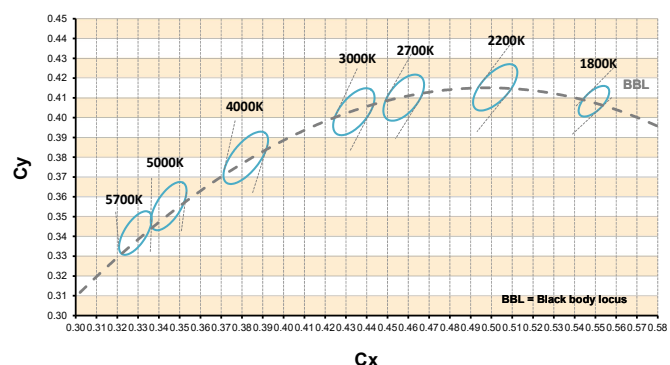
3000 K = warm white (WW), 4000 K = neutral white (NW)

* Colour tolerance: 5 MacAdam | ** Production tolerance of luminous flux and efficiency: $\pm 10\%$

Mechanical Dimensions



Bins



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Nomenclature example

MSP SC 2R/Z19/5050 T/12/740 ADV G4

Generation

Advanced

CCT

18 = 1800 K

22 = 2200 K

27 = 2700 K

30 = 3000 K

40 = 4000 K

50 = 5000 K

57 = 5700 K

CRI

7 = 70 CRI minimum

8 = 80 CRI minimum

Number of LEDs

Connection

T = Top

Type of LED

Shape

Check drawing

Technology

SC = SMD Constant Current

Product Line

P = Prime

Product Area & Shape

MS = Module Street

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. Safety regulations acc. to EN 60598 has to be observed. Installation must be carried out in a voltage-free state (i.e. disconnection from the mains).

- LED built-in modules must not be subjected to any undue mechanical stress, e. g.:
 - handle LED modules carefully
 - avoid shear and compressive forces onto the optics during handling and installation
 - avoid vibrations of more than 2 kHz, 40 G
- The module must be fixed onto a thermally conductive surface with 2 to 3 M3 screws (respectively M4). Max. allowed torque for M3: 0.5 Nm and M4: 1.2 Nm
- The wiring can be done by solid or stranded wires having a cross section of 0.2–0.75 mm²; stripped length of lead ends of 7–9 mm. For inserting/removing stranded wires press lightly on the push button.
- When installing/screwing the module into a luminaire, please ensure that the cables are not squeezed between luminaire/heat sink and LED module. Also ensure that the mounting surface is clean and flat. For a reliable thermal attachment, we recommend the mounting surface flatness of ≤ 0.2 mm.
- Safe operation only possible by the use of external constant current sources (I_{max} , see table "Electrical Characteristics").
- Operation is dependent on constant current drivers that should provide the following protective measures:
 - short-circuit protection
 - overload protection
 - overheating protection
- 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.
- 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.
- The clearance and creepage distances of LED modules MSP SC 2R/Z19/5050 T/12/yz ADV G4 are designed for working voltages up to 500 V DC (basic insulation) acc. to EN 62031/EN 60598.
- If a system consists of multiple LED Linear Allround modules connected to a single driver, only one module will be monitored by the NTC. That means that one module is in "master" mode operated and the rest are operated in "slave" mode.
- Please ensure standard ESD (electrostatic discharge) protection measures are employed when handling and installing LED modules. Electrostatic discharge can damage LEDs.

- To ensure problem-free operation, the specified maximum temperature at the t_c and t_p point (see "Operating Life") must be observed (measured in accordance with EN 60598-1). To satisfy this point, it is necessary to put measures in place to ensure any heat is dissipated from the LED module to the environment.
- To ensure good thermal contact, it is recommended to use proper thermal interface material (e.g. thermal paste, phase change or thermal pads).
- When mounting LED Linear Allround modules directly on the luminaire housing, we recommend to use aluminum of at least 3 mm thickness. Thicker material will improve the heatflow through the luminaire, resulting in a lower t_p temperature on the module itself.
- Use anodised or painted surfaces rather than blank surfaces to enhance the heat-transfer via thermal radiation.
- To ensure problem-free operation, the specified maximum temperature at the t_c and 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.
- Try to limit as far as possible the number of thermal interfaces in the primary heat path towards ambient air. For the primary heat path use solely materials with high thermal conductivity (e.g. aluminum).
- The LED Linear Allround modules are built-in modules and have no IP-classification (IP00). They are not designed for operation in "open air". 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.
- A parallel connection of the modules is not allowed.
- 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. Rating in accordance with IEC / TR 62778: risk group 1
As long as subsequent table is fulfilled:

Type	Max. operating current mA	Max. color temperature K	Limit illuminance (E_{thr}) for higher operating currents to be risk group 2 lx
All types	1200	5700	1014.3

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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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