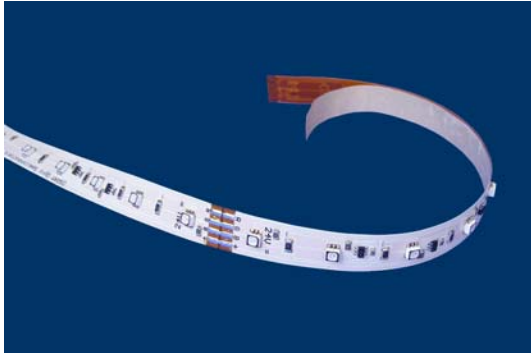


LINEARlight Colormix Flex - LM10L

Data Sheet



Benefits

- Flexible self-adhesive module for special coloreffects and moods
- Each LED contains red, green and blue emitters: optimum colormixing

Applications

- Light boxes / back lighting
- Edge-coupling of transparent or diffused materials
- Path illumination, contour accentuation

Technical Operating Data

Product	Color	Number of LEDs	Voltage [V DC]*	Power [W]*	Current [A]*	Radiance Angle [°]*	Wavelength [nm] Color Temp [K]*	Lum. Flux [lm]*
LM10L-RGB2-B6	red	200	24	8,5	0,35	120	625 nm	385
LM10L-RGB2-B6	green	200	24	24,0	1	120	525 nm	770
LM10L-RGB2-B6	blue	200	24	8,5	0,35	120	465 nm	130
LM10L-RGB2-B7	red	200	24	8,5	0,35	120	625 nm	385
LM10L-RGB2-B7	green	200	24	24,0	1	120	525 nm	770
LM10L-RGB2-B7	blue	200	24	8,5	0,35	120	469 nm	130
LM10L-RGB-B7	red	200	24	12,0	0,5	120	617 nm	213
LM10L-RGB-B7	green	200	24	24,0	1	120	525 nm	336
LM10L-RGB-B7	blue	200	24	19,2	0,8	120	467 nm	54

*) All Data are related to the entire module

Due to the special conditions of the manufacturing processes of LED the typical data of technical parameters can only reflect statistical figures and do not necessarily correspond to the actual parameters of each single product which could differ from the typical data. This product was not optimized for white light illumination.

+) Preliminary Data

Technical Features

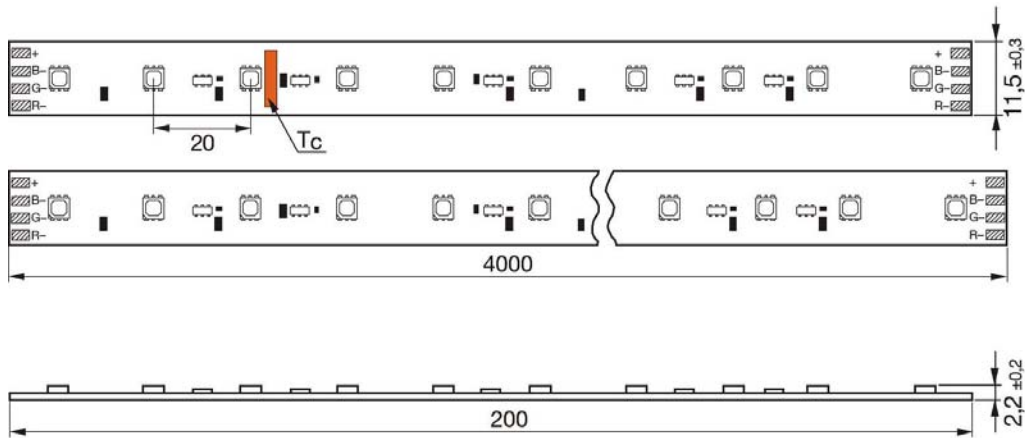
- Total power of the flexible LED strip:
LM10L-RGB/RGB2: 55,2 / 41 W
- Total brightness (@Tc=25°C):
-LM10L-RGB/RGB2: 600/1285 lm
- Smallest unit of 10 LEDs can be cut out at regular intervals without damaging the rest of the module
- Size of printed circuit board with 200 LED (L x W x H): 4000 mm x 11,5 mm x 2,2 mm
- Easy connection with optional CONNECTsystem
LM-xx Flex: Feeder LM-4PIN Flex, connector LM-CONN-10 Flex and LM-CONN-150 Flex.
- Easy mounting by adhesive tape on isolated backside
- Dimmable by pulse width modulation (PWM)
- Depending on product and operational mode up to 50,000 h lifetime

Minimum and Maximum Ratings

Product	Operating Temperature at Tc-Point [°C] *	Storage Temperature [°C] *	Voltage Range [V dc] *	Reverse Voltage [V dc] *
LM10L-RGB2-B6	-30 ... 75	-40 ... 85	23 ... 25	25
LM10L-RGB2-B7	-30 ... 75	-40 ... 85	23 ... 25	25
LM10L-RGB-B7	-30 ... 75	-40 ... 85	23 ... 25	25

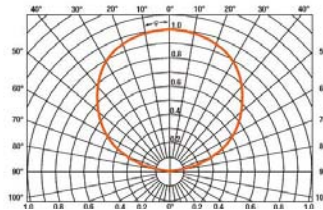
*) Exceeding maximum ratings for operating and storage temperature will reduce expected life time or destroy the LED Module.
 Exceeding maximum ratings for operating voltage will cause hazardous overload and will likely destroy the LED Module.
 The temperature of the LED module must be measured at the Tc-point according to EN60598-1 in a thermally constant status with a temperature sensor or a temperature sensitive label. Drive all channels on 100% to determine the temperature. For exact location of the Tc-point see drawing below.

Drawings



Abstrahlcharakteristik (Einzel-LED) Radiation Characteristic (Single-LED)

$$I_{rel} = f(\varphi); T_A = 25 \text{ °C}$$



Alle Angaben in mm
 All values in mm

Safety Information

- The LED module itself and all its components must not be mechanically stressed.
- Assembly must not damage or destroy conducting paths on the circuit board.

In order to drive OSRAM LED-Modules safely, it is absolutely necessary to operate them with an electronically stabilised power supply protecting against short circuits, overload and overheating.

To also ease the luminaire/installation approval, electronic control gear for LED or LED modules should carry the CE mark and be ENEC certified. In Europe the declarations of conformity must include the following standards:

CE: EC 61374-2-13, EN 55015, IEC 61547 and IEC 61000-3-2 - ENEC: 61374-2-13 and IEC/EN 62384.

Also check for the mark of an independent authorized certification institute.

Please see the relevant brochure for more detailed information (see "Related and Further Information")

OSRAM OPTOTRONIC® electronic control gear complies to all relevant standards and guarantees safe operation.

- Installation of LED modules (with power supplies) needs to be made with regard to all applicable electrical and safety standards. Only qualified personnel should be allowed to perform installations.
- Observe correct polarity!
Depending on the product incorrect polarity will lead to emission of red or no light. The module can be destroyed! Correct polarity immediately! (see "reverse voltage", page 2)
- Parallel connection is highly recommended as safe electrical operation mode.
Serial connection is not recommended. Unbalanced voltage drop can cause hazardous overload and damage the LED module.
- Please ensure that the power supply is of adequate power to operate the total load.
- When mounting on metallic or otherwise conductive surfaces, there needs to be an electrical isolation at soldering points between module and the mounting surface.
- The maximum run length of LINEARlight Colormix Flex LM10L from any power feed should be limited to 4000 mm.
- Pay attention to standard ESD precautions when installing the module.
- Damage by corrosion will not be honored as a materials defect claim. It is the user's responsibility to provide suitable protection against corrosive agents such as moisture and condensation and other harmful elements.
- For applications involving exposure to humidity and dust the module must be protected by a fixture or housing with a suitable protection class. The module can be protected against condensation water by treatment with an appropriate circuit board grade conformal coating. The conformal coating should have the following features:
 - Optical transparency
 - UV-resistance
 - thermal expansion matching the thermal expansion of the module $15-30 \cdot 10^{-6} \text{ cm/cm/K}$
 - low permeability of steam for all climatic conditions
 - resistance against corrosive environmentThe lacquer APL of the company Electrolube <http://www.electrolube.com> met the conditions for the LINEARlight Flex in our tests.
- Dimming/ colorcontrolling is only possible with PWM.
- The LINEARlight Colormix Flex is driven ideally by OSRAM OPTOTRONIC power supplies and controllgear. Controllgear is available with 1..10V, DALI or DMX interface. Please see our brochure "The new dimension of Light" or "Just as colorful as nature".
- Please refer to the maximum currents of the controllgear when calculating the whole installation (OT DIM: 5A, Oti DIM: 5A, OT DMX, 3-Channel DIM or Sequencer: 2A per channel). Please read our OPTOTRONIC technical installation guide for more detailed information about calculation and wiring diagrams.

Assembly Information

- The module can be connected easily and without any tools with the optional connect system LM-xx Flex. Please note the ampacity (s. Datasheet "LM-xx Flex or application note "CONNECTsystem Flex" www.osram.de/led-systeme-downloads)
- Connection with soldering wires on unmounted module: Do not pre-tin the solderpads (marked "24V +/-RGB") but pre-tin the wires and solder for max 4 s at 300 °C. Allow solderpoints to completely cool down before the next soldering. Prevent shear- or peel forces.
- Soldering of wires with the module mounted on a heatsink: Pre-tin solderpads and wires and solder for max 3 s at 350 °C. Allow solderpoints to completely cool down before the next soldering. Prevent shear- or peel forces.
- The mounting of the module is facilitated by means of the double-sided adhesive on the back-surface of the module. Care must be taken to provide a clean and dry mounting surface, free of oils or silicone coatings as well as dirt particle. The mounting substrate must have sufficient structural integrity. Take care to completely remove the protective film. Once the module is appropriately positioned, press on the module with about 20N/cm² (refer to application techniques of 3M adhesive transfer tapes).
- The minimum bending radius is 2 cm. The module may be bent over a smaller radius but only in regions of the circuit board containing no electronic components and such bends should be made once and fixed in position to avoid cyclic fatigue.
- The thermal length expansion coefficient of the modul is $17 \cdot 10^{-6} \text{cm/cm/K}$. When installing in environments with large variations in temperature (e.g. outdoor applications) and operating length of more than 2 m, the use of metallic mounting surfaces is necessary. Otherwise it is advisable to use an additional thicker adhesive tape to absorb the stress of any mismatch in expansion coefficients.

Ordering Guide

Productgroup	Productname	EAN *	S-Unit *
LINEARlight Colormix Flex	LM10L-RGB2-B6	4008321288714	8
LINEARlight Colormix Flex	LM10L-RGB2-B7	4008321285317	8
LINEARlight Colormix Flex	LM10L-RGB-B7	4008321008824	8

*) EAN: Ordering number per single module
S-Unit: Modules per shipping unit

Note: Typical performance data are subject to change without any further notice, particularly as LED technology evolves.

Sales and Technical Support

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Sales and technical support is given by the local OSRAM subsidiaries.
On our world wide homepage all OSRAM subsidiaries are listed with complete address and phone numbers.

Related and Further Information

- The new dimension of light [153 S006 GB
www.osram.com/led-systems-downloads](http://www.osram.com/led-systems-downloads)
- Just as colorful as nature [160 W002 GB
www.osram.com/led-systems-downloads](http://www.osram.com/led-systems-downloads)
- OPTOTRONIC® Technical Guide [130 T008 GB
www.osram.com/ecg-downloads](http://www.osram.com/ecg-downloads)
- OSRAM LED systems www.osram.com/led-systems
- Application Note: ESD www.osram.com/led-systems-downloads
- New standards for LED control gear [130 W011 GB
www.osram.com/ecg-download](http://www.osram.com/ecg-download)