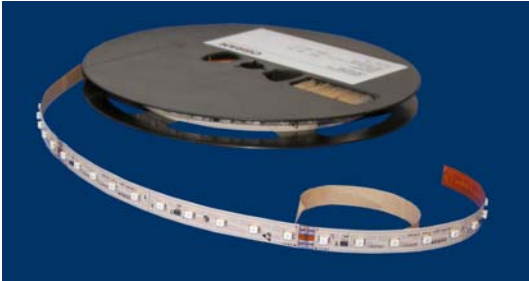


LINEARlight Flex

Data Sheet



Benefits

- Linear separable LED strip on flexible printed circuit board with self-adhesive back
- Low profile
- Available in various colors
- Minimal heat generation

Applications

- Edge-coupling of transparent or diffused materials
- Path illumination, contour accentuation
- Illuminated signs
- Walkways

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]*
LM10A-W2-865	white	600	24	55,0	2,3	120	6500 K	1290
LM10A-W3F-854	white	600	24	86,4	3,6	120	5400 K	2000
LM10A-W2-854	white	600	24	55,0	2,3	120	5400 K	1290
LM10A-W2-847	white	600	24	55,0	2,3	120	4700 K	1290
LM10A-W3F-840	white	600	24	72,0	3	120	4000 K	2350
LM10A-W3F-830	white	600	24	72,0	3	120	3000 K	2350
LM10A-W3F-827	white	600	24	72,0	3	120	2700 K	1850
LM10A-A1	red	600	24	72,0	3	120	617 nm	1620
LM10A-Y1	yellow	600	24	72,0	3	120	587 nm	1290
LM10A-T2	green	600	24	72,0	3	120	525 nm	1200
LM10A-B2	blue	600	24	48,0	2	120	470 nm	460

*) 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.

+) Preliminary Data

**) Discontinued

Technical Features

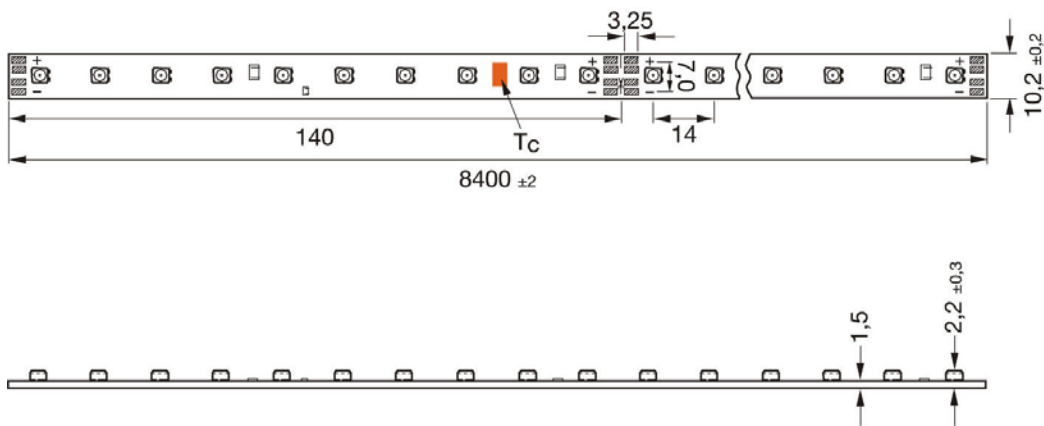
- One reel comes with one LED-band
- Light emission vertical to the mounting surface
- Entire Module consists of 600 LEDs
- Size of printed circuit board (L x W x H): 8400 mm x 10 mm x 3 mm
- Size of smallest unit 10 LED (L x W): 140 mm x 10 mm
- Smallest unit of 10 LEDs can be cut out at regular intervals without damaging the rest of the module
- Easy mounting by adhesive tape on isolated backside
- Easy connection with optional CONNECTsystem LM-xx Flex: Feeder LM-2PIN Flex, connector LM-CONN-10 Flex and LM-CONN-150 Flex.
- Dimmable by pulse width modulation (PWM)
- Only parallel connection allowed
- 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] *
LM10A-W2-865	-30 ... 75	-40 ... 85	23 ... 25	25
LM10A-W3F-854	-30 ... 75	-40 ... 85	23 ... 25	0
LM10A-W2-854	-30 ... 75	-40 ... 85	23 ... 25	25
LM10A-W2-847	-30 ... 75	-40 ... 85	23 ... 25	25
LM10A-W3F-840	-30 ... 75	-40 ... 85	23 ... 25	0
LM10A-W3F-830	-30 ... 75	-40 ... 85	23 ... 25	0
LM10A-W3F-827	-30 ... 75	-40 ... 85	23 ... 25	0
LM10A-A1	-30 ... 85	-40 ... 85	23 ... 25	25
LM10A-Y1	-30 ... 85	-40 ... 85	23 ... 25	25
LM10A-T2	-30 ... 75	-40 ... 85	23 ... 25	25
LM10A-B2	-30 ... 75	-40 ... 85	23 ... 25	25

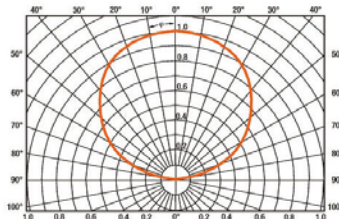
*) Exceeding maximum ratings for operating and storage temperature will reduce expected life time or destroy the LED Module.
 Exceeding maximum ratings for operating voltage will cause hazardous overload and will likely destroy the LED Module.
 The temperature of the LED module must be measured at the Tc-point according to EN60598-1 in a thermally constant status with a temperature sensor or a temperature sensitive label. 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 a electrical isolation at soldering points between module and the mounting surface.
- The maximum length of a coherently operable unit is different depending upon color:
A1, Y1, T2 (72 W): 4,2 m
B2 (48 W): 6 m
W2 (55 W): 5 m
W3F (86,4W): 3,5m
By two-pole feed in the middle or from both ends the length can be doubled in each case.
- Pay attention to standard ESD precautions when installing the module.
- The module, as manufactured, has no conformal coating and therefore offers no inherent protection against corrosion. The ability to customize the length of the module by cutting at specifically marked points is a key feature of the product and hence the reason for no factory installed conformal coating. For these reasons, it is recommended that the user complete all module modifications first (cutting, wiring) and then apply a conformal coating in the final stages of installation.
- 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.

Assembly Information

- Connection with soldering wires on unmounted module: Do not pre-tin the solderpads 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 smallest unit (140 mm- 10 LEDs) can be removed by cutting with scissors between the designated solder pads.
- 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 backing. Once the module is appropriately positioned, press on the module with about 20N/cm² (refer to application techniques of 3M adhesive transfer tapes). In difficult cases the use of a primer may help.
- 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 Flex	LM10A-W2-865	4050300887265	8
LINEARlight Flex	LM10A-W3F-854	4008321214065	8
LINEARlight Flex	LM10A-W2-854	4050300887289	8
LINEARlight Flex	LM10A-W2-847	4008321040145	8
LINEARlight Flex	LM10A-W3F-840	4008321342102	8
LINEARlight Flex	LM10A-W3F-830	4008321342874	8
LINEARlight Flex	LM10A-W3F-827	4008321940490	8
LINEARlight Flex	LM10A-A1	4008321040060	8
LINEARlight Flex	LM10A-Y1	4050300946030	8
LINEARlight Flex	LM10A-T2	4008321168832	8
LINEARlight Flex	LM10A-B2	4008321168818	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
- New creativity in lighting design
LED Modules for illuminated signs 138 W002 GB
- OPTOTRONIC® Technical Guide 130 T008 GB www.osram.com/ecg-downloads
- OPTOTRONIC® Data Sheets <http://catalog.myosram.com>
- OSRAM LED systems www.osram.com/led-systems
- Datasheet CONNECTsystem LM-xx Flex www.osram.com/led-systems-downloads