LINEARlight Flex - LM11A

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

- Illuminated signs, corona effect
- Channel letters
- Accentlighting of curved outlines or columns

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]*
LM11A-W3-865	white	300	10	30,0	3	120	6500 K	1000
LM11A-W1-865**	white	300	10	30,0	3	120	6500 K	405
LM11A-W3-854	white	300	10	30,0	3	120	5400 K	1000
LM11A-W1-854**	white	300	10	30,0	3	120	5400 K	405
LM11A-W3-847	white	300	10	30,0	3	120	4700 K	1000
LM11A-W1-847**	white	300	10	30,0	3	120	4700 K	405
LM11A-A	red	300	10	15,0	1,5	120	615 nm	117
LM11A-Y1	yellow	300	10	22,5	2,25	120	587 nm	405
LM11A-T	green	300	10	30,0	3	120	528 nm	147
LM11A-B	blue	300	10	30,0	3	120	470 nm	37

*) 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

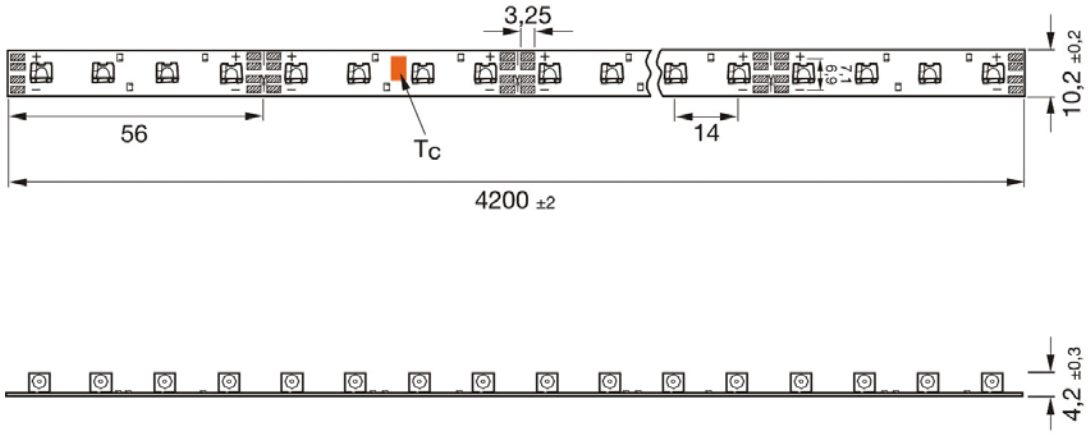
- One reel comes with one LED-band
- Light emission in parallel to the mounting surface
- Entire Module consists of 300 LEDs
- Size of printed circuit board (L x W x H): 4200 mm x 10 mm x 5 mm
- Size of smallest unit 4 LED (L x W): 56 mm x 10 mm
- Smallest unit of 4 LEDs can be cut out at regular intervals 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) with the electronic controller OT DIM
- Only parallel connection allowed
- Modules optimised for use with OSRAM OPTOTRONIC® power supplies

Minimum and Maximum Ratings

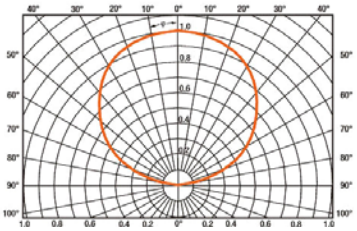
Product	Operating Temperature at Tc-Point [°C] *	Storage Temperature [°C] *	Voltage Range [V dc] *	Reverse Voltage [V dc] *
LM11A-W3-865	-30 ... 70	-40 ... 85	10 ... 11	0
LM11A-W1-865**	-30 ... 70	-40 ... 85	10 ... 11	11
LM11A-W3-854	-30 ... 70	-40 ... 85	10 ... 11	0
LM11A-W1-854**	-30 ... 70	-40 ... 85	10 ... 11	11
LM11A-W3-847	-30 ... 70	-40 ... 85	10 ... 11	0
LM11A-W1-847**	-30 ... 70	-40 ... 85	10 ... 11	11
LM11A-A	-30 ... 80	-40 ... 85	10 ... 11	11
LM11A-Y1	-30 ... 80	-40 ... 85	10 ... 11	11
LM11A-T	-30 ... 70	-40 ... 85	10 ... 11	11
LM11A-B	-30 ... 70	-40 ... 85	10 ... 11	11

*) 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)
$I_{rel} = f(\varphi)$; $T_A = 25$ °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 61347-2-13, EN 55015, IEC 61547 and IEC 61000-3-2 - ENEC: 61347-2-13 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 immediatelly! (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 LINEARlight Flex LM11A is 2100 mm for green, blue, white and yellow and 4200 mm for red with a two pole power feed at one end. The complete module 4200 mm can be operated with a two pole power feed in the middle of the module or from both ends.
- Maximum length of LM11A for red: 4,2 m (complete module) with power feed at one end.
- 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*10^-6 cm/cm/K
  - low permeability of steam for all climatic conditions
  - resistance against corrosive environment

Assembly Information

- Connection with soldering wires on unmounted module: Do not pretin the solderpads but pretin 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: Pretin 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 (56 mm- 4 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 adhesive backing. Once the module is appropriately positioned, press on the module with about 20N/cm² (refer to application techniques of 3M adhesive transfer tapes). Make sure the module has got a holohedral contact to the mounting surface.
- The minimum bending radius is 2 cm.
- The thermal length expansion coefficient of the modul is 17*10^-6cm/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	LM11A-W3-865	4008321187208	8
LINEARlight Flex	LM11A-W1-865**	4050300873879	8
LINEARlight Flex	LM11A-W3-854	4008321187185	8
LINEARlight Flex	LM11A-W1-854**	4050300817217	8
LINEARlight Flex	LM11A-W3-847	4008321187161	8
LINEARlight Flex	LM11A-W1-847**	4050300817194	8
LINEARlight Flex	LM11A-A	4008321086952	8
LINEARlight Flex	LM11A-Y1	4050300946016	8
LINEARlight Flex	LM11A-T	4008321086990	8
LINEARlight Flex	LM11A-B	4008321086976	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

➢ New creativity in lighting design LED Modules for illuminated signs	138 W002 GB
➢ A new approach to light	153 S006 GB www.osram.com/led-systems-downloads
➢ 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