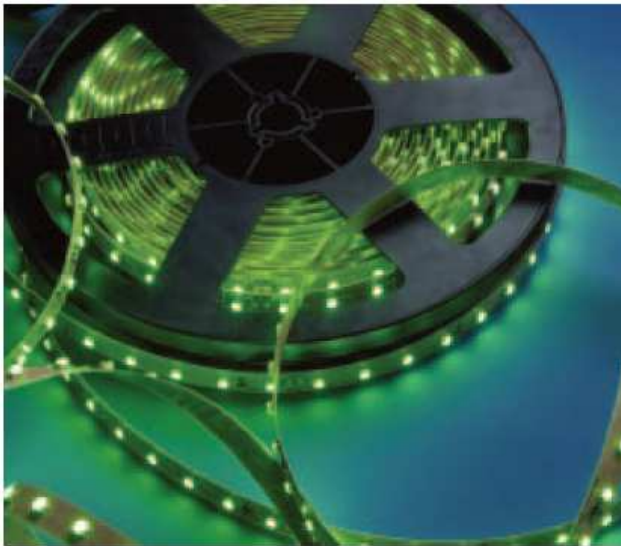


# LINEARlight FLEX TOPLED

## Flexible LED Strip



The OSRAM SYLVANIA LINEARlight FLEX provides new dimensions for innovative lighting.

LINEARlight FLEX modules offer exciting new possibilities for general illumination applications. They provide an alternative choice for linear applications such as cove lighting, refrigeration cases and pathway marking.

LINEARlight FLEX modules are ideal for edge lighting transparent and diffuse materials. They provide an optimal solution for precise backlighting of complex contours. They can also be used for lifesaving/rescue sign lights and commercial signs and for marking contours like escape routes, borders and stairs. They are mounted on self-adhesive tape and can be conveniently field-cut.

OPTOTRONIC® power supplies from OSRAM SYLVANIA are specially designed to operate the LINEARlight FLEX modules. A wide range of 24V power supplies are available.

- Long life: Up to 100,000 hours depending on color. New HOW2 white modules service life is up to 50,000 hours.
- OSRAM Power TOPLED® allows high luminous flux
- 120° viewing angle per LED
- Entire strip consists of 600 LEDs
- Size of entire module (L x W) 27.5 ft. x 0.4 in. (8.4m x 10mm)
- Conveniently field cut with regular scissors (smallest unit – 10 pcs/module)
- Size of smallest unit (L x W) 5.5 in. x 0.4 in. (140mm x 10mm)
- Linear LED strip on flexible printed circuit board with self-adhesive back – easy installation!
- Flexible three-dimensional assembly possible
- Available in various colors: red, true green, blue, yellow and white
- Optimal operation with OPTOTRONIC® OT 24V power supplies (Literature code ECS050)
- Minimal heat generation
- Extremely low profile (<3mm)

### Product Availability

Product	Color
LINEARFLEXTOP/617/OS/LM10A/A	Red
LINEARFLEXTOP/587/OS/LM10A/Y	Yellow
LINEARFLEXTOP/525/OS/LM10A/T	True Green
LINEARFLEXTOP/470/OS/LM10A/B	Blue
LINEARFLEXTOP/OS/LM10A/W	White
LINEARFLEXTOP/OS/LM10A/HOW2-847	White - 4700K
LINEARFLEXTOP/OS/LM10A/HOW2-854	White - 5400K
LINEARFLEXTOP/OS/LM10A/HOW2-865	White - 6500K

### Application Information

#### Applications

Cove lighting  
 Edge lighting transparent/diffuse materials  
 Border marking  
 Commercial signs  
 Emergency/Rescue signs  
 Path & contour marking  
 Backlighting complex contours  
 Refrigeration cases  
 Display shelves  
 Recessed lighting

#### Application Notes

1. Flexible
2. Small dimensions
3. Shock resistance
4. High color efficiency
5. Directional radiation characteristics
6. No UV or IR radiation
7. Power supplies for operation

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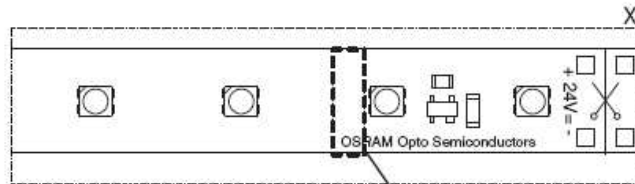
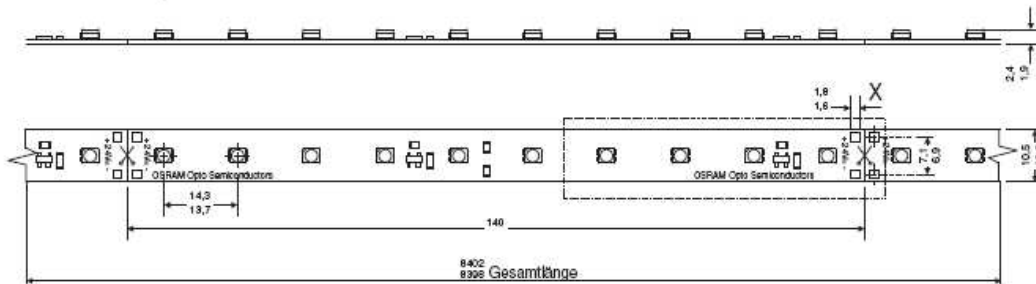
### Maximum Ratings

Parameter	Symbol	Values	Units
Operating Temperature*	$T_{op}$	-30... +75	°C
Storage Temperature Range	$T_{stg}$	-40... +85	°C
Voltage Range	$V_{max}$	23 - 25	V <sub>dc</sub>
Reverse Voltage	$V_R$	25	V <sub>dc</sub>

\* Temperature should be measured at the Tc point on the module. Operating temperature range for red and yellow modules is -30°C to +85°C.

### Dimensions

Dimensions on diagrams in mm.



	Length in. (mm)	Width in. (mm)
Entire PCB	330.70 (8400)	0.4 (10)
Smallest Unit	5.50 (140)	0.4 (10)
LED Spacing	0.55 (14)	

### Safety Information

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

The LED Module incorporates no protection against short circuits, overload or overheating. Therefore it is necessary to operate the modules with an electronically stabilized power supply offering protection against the above mentioned safety risks.

**OSRAM OPTOTRONIC power supplies are specifically designed with protection features for safe operation.**

When using power supplies other than OPTOTRONIC the following basic safety features should be verified in addition to any other application specific concerns and local safety codes:

- Short circuit protection
- Overload protection
- Overheat protection
- Correct output voltage, including consideration for ripple and spikes.

# LINEARlight FLEX TOPLED

## Flexible LED Strip

3. 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.
4. Correct electrical polarity needs to be observed. Wrong polarity will result in no light emission and may destroy the module.
5. Please ensure that the power supply is of adequate power rating to operate the total load. Follow appropriate NEC requirements.
6. When mounting on metallic or otherwise conductive surfaces, an electrical isolation is required at soldering points between the module and the mounting surface.
7. The maximum length of LINEARlight Flex OS-LM10A is 13.8 ft. with a power feed at one end (11.5 ft. for HOW2 modules). The complete module (27.5 ft.) can be operated with a power feed in the middle of the module or with power fed to both ends (23 ft. for HOW2 modules).
8. Pay attention to standard ESD precautions when installing the module.
9. 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.
10. 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.
11. For application involving exposure to humidity and dust the module must be protected by a fixture or housing with a suitable protection glass. 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  $15-30 \times 10^{-6} \text{ cm/cm/K}$
  - low permeability of steam for all climatic conditions
  - resistance against corrosive environment

The lacquer APL of the company Electrolube <http://www.electrolube.com> has met the conditions for LINEARlight Flex in our tests.

### Assembly Information

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1. Solder connections should only be performed on designated solder pads (marked "24V +/-"). During soldering, do not exceed the maximum soldering time of 10 seconds and the maximum soldering temperature of 260°C.
2. The smallest unit (5.5" – 10 LEDs) can be removed by cutting with scissors between the designated solder pads.
3. 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 particles. 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/cm<sup>2</sup> (refer to application techniques of 3M adhesive transfer tapes).
4. 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. Such bends should be made only once and fixed in position to avoid cyclic fatigue.
5. The thermal expansion coefficient along the length of the module is  $17 \times 10^{-6} \text{ cm/cm/K}$ . 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.

# LINEARlight FLEX TOPLED

## Flexible LED Strip

### Ordering and Specification Information\*

Item Number	Ordering Abbreviation	Color	Watts	Volts (V DC)	Current (Amps)	Viewing Angle (°)	Number of LEDs	Wave Length (nm) or Color Temp (K)	Luminous FLUX (lm)
70061	LINEARFLEXTOP/587/OS/LM10A/Y1	Yellow	72.0	24	3.0	120	600	587 nm	1290
70062	LINEARFLEXTOP/617/OS/LM10A/A	Red	72.0	24	3.0	120	600	617 nm	930
70063	LINEARFLEXTOP/525/OS/LM10A/T1	True Green	72.0	24	3.0	120	600	525 nm	675
70064	LINEARFLEXTOP/470/OS/LM10A/B1	Blue	72.0	24	3.0	120	600	469 nm	170
70065	LINEARFLEXTOP/OS/LM10A/W	White	57.6	24	2.4	120	600	x = 0.32; y = 0.31	540
70105**	LINEARFLEXTOP/OS/LM10A/H0W2-847	White	86.4	24	3.6	120	600	4700K	1290
70089	LINEARFLEXTOP/OS/LM10A/H0W2-854	White	86.4	24	3.6	120	600	5400K	1290
70104**	LINEARFLEXTOP/OS/LM10A/H0W2-865	White	86.4	24	3.6	120	600	6500K	1290

\*All information relates to entire module with 600 LEDs. Modules may be subdivided into 60 coupons of 10 LEDs each.

Data reflects statistical mean values. Actual data may differ depending on variances in the manufacturing process.

\*\*New product. Contact OSRAM SYLVANIA for availability.

### Power Supply Ordering Information

LED Item Number	Color	OPTOTRONIC® 6W (51501)		OPTOTRONIC 20W (51512)		OPTOTRONIC 75W (51513, 51514)	
		No. of Coupons*	Max. Length (ft)	No. of Coupons*	Max. Length (ft)	No. of reels***	Max. Length (ft)**
70061	Yellow	5	2.3	16	7.35	1	27.55
70062	Red	5	2.3	16	7.35	1	27.55
70063	True Green	5	2.3	16	7.35	1	27.55
70064	Blue	5	2.3	16	7.35	1	27.55
70065	White	6	2.75	20	9.2	1.3	35.9
70105	White	4	1.8	13	6.0	0.87	23.9
70089	White	4	1.8	13	6.0	0.87	23.9
70104	White	4	1.8	13	6.0	0.87	23.9

\* A coupon is a sub-section of 10 LINEARlight FLEX TOPLEDs with a length of 5.5".

\*\*Maximum length that can be powered from one end is 13.8 ft. To power entire length of 1 reel connect power feed to the center or to both ends of the reel.

\*\*\* For dimming LINEARlight FLEX TOPLEDs with OT DIM or OT RGB 1CH DIM, allow for an additional power consumption of 3 watts for a 70 watt LED load.

### Ordering Guide

<b>LM</b>	/	<b>617</b>	/	<b>OS</b>	/	<b>LM10A</b>	/	<b>A</b>
LINEARlight Module		Wavelength 617nm		Opto Semiconductor		ID No.		Color Code A = Red (Amber)