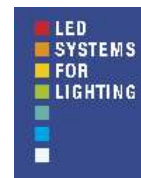


BACKlight 2G

BL02



Benefits

- One reel comes with two LED chains
- For any shape of channel letter
- Outstanding uniformity
- Easy and fast installation
- One reel for one OT 50W

Applications

- Illuminated signs
- Channel letters

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]* |
|-----------------|-----------|----------------|-----------------|------------|--------------|---------------------|---------------------------------|-----------------|
| BL02S-W2-865-PB | white | 240 | 10 | 38,0 | 3,6 | 120 | 6500 K | 520 |
| BL02S-W2-854-PB | white | 240 | 10 | 38,0 | 3,6 | 120 | 5400 K | 520 |
| BL02S-S1-PB | super red | 240 | 10 | 38,0 | 3,6 | 120 | 633 nm | 490 |
| BL02L-A1-PB | red | 240 | 10 | 38,0 | 3,6 | 120 | 617 nm | 780 |
| BL02S-A1-PB | red | 240 | 10 | 38,0 | 3,6 | 120 | 617 nm | 780 |
| BL02S-O1-PB | orange | 240 | 10 | 38,0 | 3,6 | 120 | 606 nm | 980 |
| BL02S-Y2-PB | yellow | 240 | 10 | 38,0 | 3,6 | 120 | 587 nm | 980 |
| BL02S-T2-PB | green | 240 | 10 | 32,0 | 3 | 120 | 525 nm | 430 |
| BL02S-B1-PB | blue | 240 | 10 | 32,0 | 3 | 120 | 470 nm | 100 |

*) 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.

Technical Features

- One reel comes with two LED-chains
- Two LED per single printed circuit board
- Total length for BL02S-version is max. 2 x 4,8 m = 9,60 m
- Total length for BL02L-version is max. 2 x 7,2 m = 14,40 m
- Separable into operable subunits at regular intervals for white, blue and green
- One chain consists of 60 LED coupons connected with flexible cables
- Mounting hole (Ø 4 mm) allows easy installation with screws or standard circuit board support hardware
- Parallel connection up to two LED chains with power feed in the centre of one OT 50W
- Only parallel connection allowed
- Conformal coating protects against condensation water

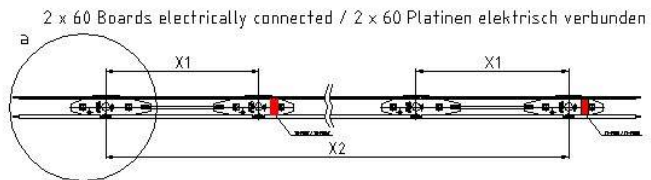
Minimum and Maximum Ratings

| Product | Operating Temperature at Tc-Point [°C] * | Storage Temperature [°C] * | Voltage Range [V dc] * | Reverse Voltage [V dc] * |
|-----------------|--|------------------------------|--------------------------|----------------------------|
| BL02S-W2-865-PB | -20 ... 85 | -20 ... 85 | 10 ... 11 | 11 |
| BL02S-W2-854-PB | -20 ... 85 | -20 ... 85 | 10 ... 11 | 11 |
| BL02S-S1-PB | -20 ... 85 | -20 ... 85 | 10 ... 11 | 11 |
| BL02L-A1-PB | -20 ... 85 | -20 ... 85 | 10 ... 11 | 11 |
| BL02S-A1-PB | -20 ... 85 | -20 ... 85 | 10 ... 11 | 11 |
| BL02S-O1-PB | -20 ... 85 | -20 ... 85 | 10 ... 11 | 11 |
| BL02S-Y2-PB | -20 ... 85 | -20 ... 85 | 10 ... 11 | 11 |
| BL02S-T2-PB | -20 ... 75 | -20 ... 85 | 10 ... 11 | 11 |
| BL02S-B1-PB | -20 ... 75 | -20 ... 85 | 10 ... 11 | 11 |

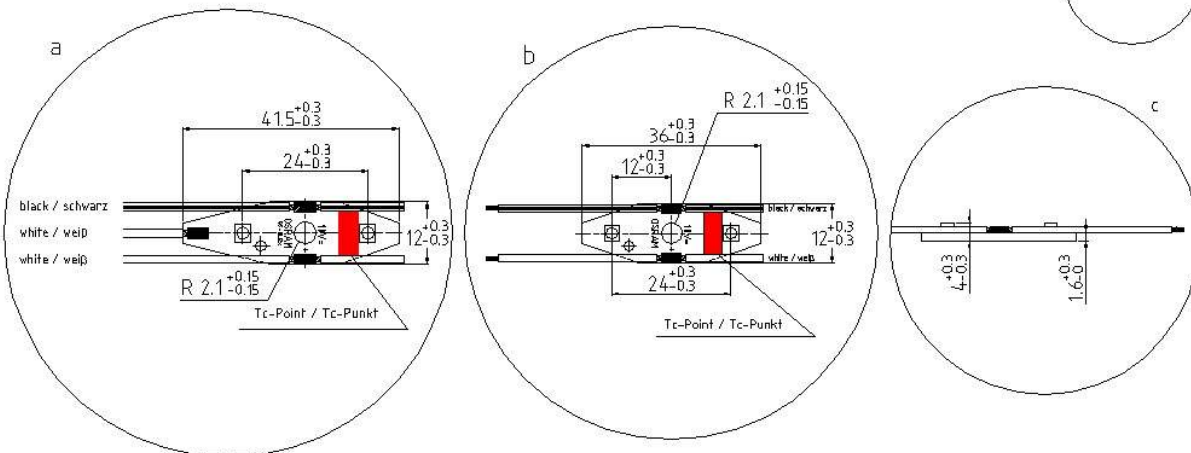
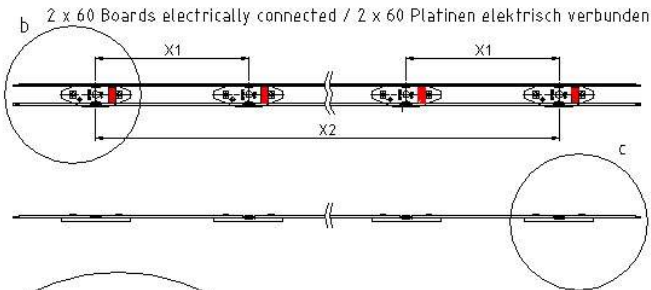
*) Exceeding maximum ratings for operation and storage temperature will reduce expected life time or destroy the LED Module.
 Exceeding maximum ratings for operation voltage will cause hazardous overload and will likely destroy the LED Module.
 The temperature of the LED module needs to be measured at the Tc-point according to EN60598-1 in a thermally constant status with a temperature sensor or a temperature sensitive label (available e.g. at RS-Components). For exact location of the Tc-point see drawing below.

Drawing

| PRODUCT | X1 [mm] | X2 [mm] | TYPE |
|------------|---------|---------|------|
| BL02L - A1 | 120 | 14400 | a |
| BL02S - A1 | 80 | 9600 | a |
| BL02S - O1 | 80 | 9600 | a |
| BL02S - S1 | 80 | 9600 | a |
| BL02S - Y2 | 80 | 9600 | a |



| | | | |
|------------------|----|------|---|
| BL02S - B1 | 80 | 9600 | b |
| BL02S - T2 | 80 | 9600 | b |
| BL02S - W1 - 865 | 80 | 9600 | b |
| BL02S - W1 - 854 | 80 | 9600 | b |
| BL02S - W2 - 865 | 80 | 9600 | b |
| BL02S - W2 - 854 | 80 | 9600 | b |



Safety Information

- The LED module itself and all its components may not be mechanically stressed.
- Assembly must not damage or destroy conducting paths on the circuit board.
- To avoid mechanical damage to the connecting cables, the boards should be attached securely to the intended substrate. Heavy vibration should be avoided.

The LED Module incorporates no protection against short circuits, overload or overheating. Therefore it is absolutely necessary to operate the modules with a electronically stabilised power supply offering protection against the above mentioned safety risks. For dimming applications attention should be paid to specific references in "OPTOTRONIC® Technical Guide".

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 are required, in addition to any other application specific concerns and local safety codes:

- Short circuit protection
 - Overload protection
 - Overheat protection
-
- 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.
 - Correct electrical polarity needs to be observed. Wrong polarity will result in no light emission.
 - 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.
 - Detach each circuit board unit of the LED-chain exclusively by cutting the connecting cables. For colors green, blue and white can be cut at any interval between printed circuit boards (see drawing b).
 - Detach each circuit board unit of the LED-chain exclusively by cutting the connecting cables. For colors super red, red, orange and yellow only cut where there are 2 cables leaving the printed circuit board. Cutting is prohibited where 3 cables leave the printed circuit board.
 - Electrical contact is achieved with the contact cables. A maximum of one LED-chain can be installed with power feed from one end. Operation with more than one consecutive LED-chain, power feed from one end only, will reduce photometric performance and exceed the current carrying capacity of the LED-chains.
 - Installation with more than one LED-chain on one OPTOTRONIC® 50W has to be realised by either feeding the power to the centre or by splitting the power feed to contact groups of single LED-chains.
 - When using power supplies other than OPTOTRONIC® the maximum number of LED-chains on one 50 W power supply is: 2 for super red, red, orange, yellow and white W2; 3 for white W1 and 2,4 for blue and green. Otherwise overloading may occur.
 - The LED-chain can typically survive transient current levels of up to 3 Amperes. As a general design precaution, if the maximum output current of the power supply is more than 3 Amperes, fast-blow fuses should be incorporated into the wiring plan.
 - If BL02 and OPTOTRONIC® class 1 power supply (e.g. OT50E) is being assembled on a metal grounded plane, use plastic screws or plastic connectors to fix BL02. Otherwise the LED-system doesn't fulfil SELV requirements.
 - The module itself is protected against condensation water with a polymeric conformal coating. Supplementary soldering on any solder pad will destroy the conformal coating and with it protection against condensation water.
 - If the IP rating of the fixture or channel letter system should be higher than IP22 the design of the housing should be according to the IP standards. Operation in or under water is not allowed.

Assembly Information

- Mounting of the LED-chain may be performed with screws or snap-in spacer (e.g. from Richco www.richco-int.com) by using Ø 4 mm holes in the circuit board.
- The mounting of the LED-chain is carried out by attaching it at the mounting holes. Mounting screws should be treated with synthetic washers to prevent circuit board damage and possible short circuiting.
- To connect the LED-chain with each other or with OPTOTRONIC® Power Supply we recommend standard clamps. (e.g. WAGO 243-214 or 224-201)

Ordering Guide

| Productgroup | Productname | EAN * | S-Unit * |
|--------------|-----------------|---------------|----------|
| BACKlight 2G | BL02S-W2-865-PB | 4008321083937 | 5 |
| BACKlight 2G | BL02S-W2-854-PB | 4008321084132 | 5 |
| BACKlight 2G | BL02S-S1-PB | 4008321083951 | 5 |
| BACKlight 2G | BL02L-A1-PB | 4008321084019 | 5 |
| BACKlight 2G | BL02S-A1-PB | 4008321083715 | 5 |
| BACKlight 2G | BL02S-O1-PB | 4008321083975 | 5 |
| BACKlight 2G | BL02S-Y2-PB | 4008321084033 | 5 |
| BACKlight 2G | BL02S-T2-PB | 4008321084057 | 5 |
| BACKlight 2G | BL02S-B1-PB | 4008321084071 | 5 |

*) 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

- OPTOTRONIC® Data Sheets www.osram.com/products/led-systems
- OPTOTRONIC® Technical Guide 130 T008 GB
- New creativity in lighting design
LED Modules for illuminated signs 138 W002 GB