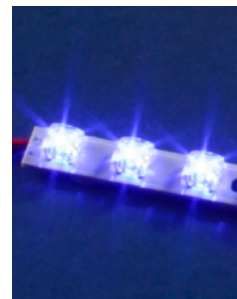
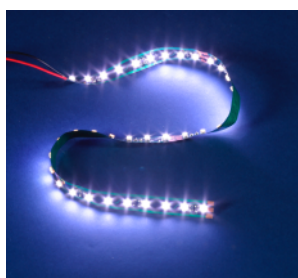


PRODUCT DATASHEET FOR

WHITE LED LIGHT STRIP RANGE**CONTENTS**

- **SURFACE EMITTING FLEXIBLE LED LIGHT STRIP**
- **SIDE EMITTING FLEXIBLE LED LIGHT STRIP**
- **ELLIPTICAL LED RIGID LIGHT STRIP**
- **SUPERFLUX LED RIGID LIGHT STRIP**
- **HIGH POWER 350MA WHITE LIGHT STRIP**



SURFACE EMITTING FLEXIBLE LED LIGHT STRIP

FEATURES

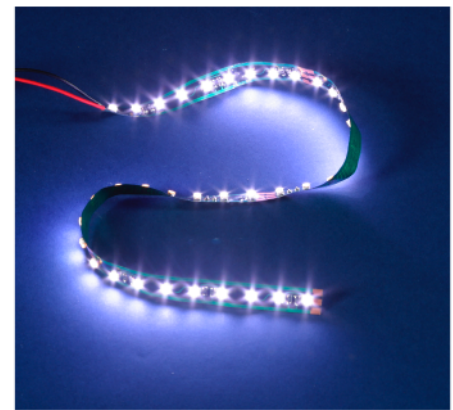
- SIMPLE 12V DC OPERATION
- ULTRA FLEXIBLE CIRCUIT BOARD
- ON-BOARD CURRENT LIMITING
- CAN BE CUT AND LINKED
- REMOVES THE NEED FOR COSTLY PCB DESIGNS WHEN ADDING LED ILLUMINATION TO ANY PRODUCT OR APPLICATION

TYPICAL APPLICATIONS

- ILLUMINATED PRODUCTS
- LED LIGHT BOX ILLUMINATION
- TASK LIGHTING
- SHELF LIGHTING
- LED BACK LIGHTING

Physical information

- Strip Length 400mm
- Strip Width 10.5mm
- Strip Height 2.1mm
- 36 LEDs per strip
- Cut point every 100mm



PRODUCT DATA

Strip characteristics at 12V DC applied, Ta = 25 C

Part Number: HLLSPLFW3-012

Colour: White

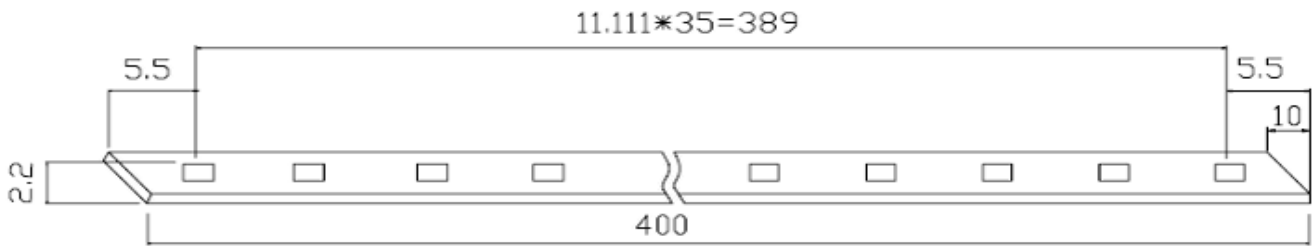
Luminous Intensity per strip (cd) : Min 11.8 Typ. 19.8

Forward Current (mA) : Min 180 Typ 240

Chromaticity coordinates: X = 0.29, Y = 0.30

Beam angle: $2\theta_{1/2} = 120^\circ$

Drawing of product dimensions



All dimensions are in mm. Tolerance ± 0.25 mm unless otherwise noted.

Absolute Maximum Ratings per LED at $T_a=25^\circ\text{C}$

Quantity	Rating
Reverse Voltage	5V
Operating Temperature Range	-35°C to $+75^\circ\text{C}$
Temperature Range in Storage	-35°C to $+100^\circ\text{C}$
Forward DC Current	20mA

Application Notes:

- Please ensure that when connecting to supply, the correct polarity printed on strip is observed.
- Use of a regulated 12V DC supply is recommended.
- To prevent voltage drop, a power feed at each end is recommended for chains longer than 5 strips in length. For very long lengths it is recommended to connect a power feed after every 10 400mm strips.
- Cut only at designated cut-points, which are positioned every quarter-strip.

SIDE EMITTING FLEXIBLE LED LIGHT STRIP

FEATURES

- SIMPLE 12V DC OPERATION
- ULTRA FLEXIBLE CIRCUIT BOARD
- ON-BOARD CURRENT LIMITING
- DIRECTIONAL, ELLIPTICAL BEAM OUTPUT
- CAN BE CUT AND LINKED
- REMOVES THE NEED FOR COSTLY PCB DESIGNS WHEN ADDING LED ILLUMINATION TO ANY PRODUCT OR APPLICATION

TYPICAL APPLICATIONS

- ILLUMINATED PRODUCTS
- HALO ILLUMINATION
- TASK LIGHTING
- ILLUMINATED LETTERING
- SIGNALLING

Physical information

- Strip Length 612mm
- Strip Width 12.5mm
- LED Height 5.5mm
- 48 LEDs per complete strip
- Cut point every 3 LEDs



PRODUCT DATA

Strip characteristics at 12V DC applied, Ta = 25 C

Part Number: HLLS5RSFW1-012

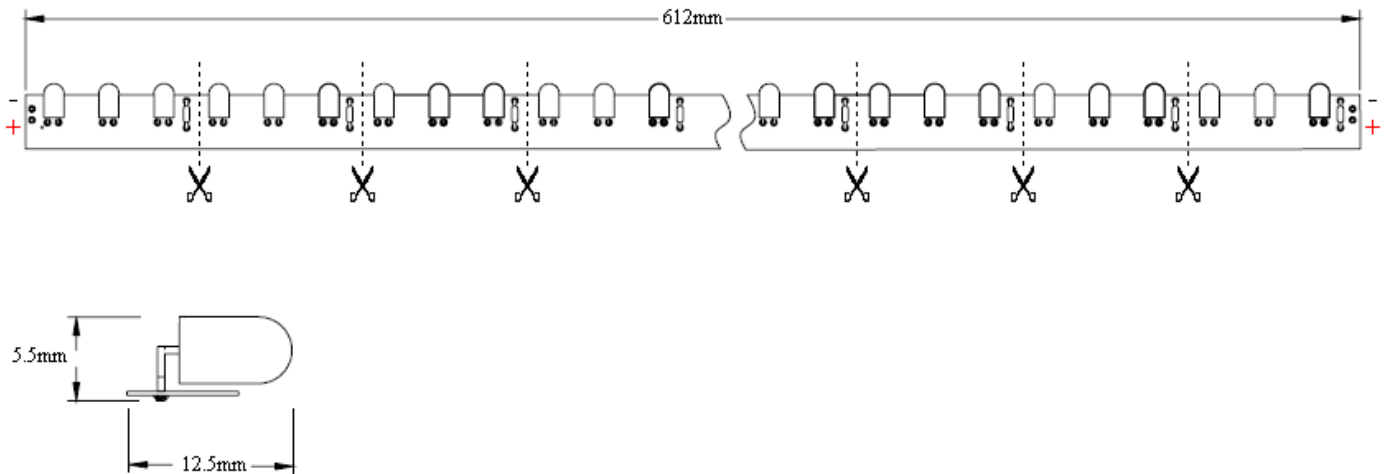
Colour: White

Luminous Intensity per LED (mcd) : Min 1400 Typ. 2500

Forward Current (mA) : Min 256 Typ 368

Beam shape: Elliptical

Drawing of product dimensions



Absolute Maximum Ratings per LED at Ta=25°C

Quantity	Rating
Operating Temperature Range	-35°C to +75°C
Temperature Range in Storage	-35°C to +100°C
Forward DC Current	20mA

Application Notes:

- Please ensure that when connecting to supply, the correct polarity printed on strip is observed.
- Use of a regulated 12V DC supply is recommended.
- To prevent voltage drop, a power feed at each end is recommended for chains longer than 5 strips in length. For very long lengths it is recommended to connect a power feed after every 10 strips.
- Cut only at designated cut-points, which are positioned after each resistor as shown in the drawing.

ELLIPTICAL LED RIGID LIGHT STRIP

FEATURES

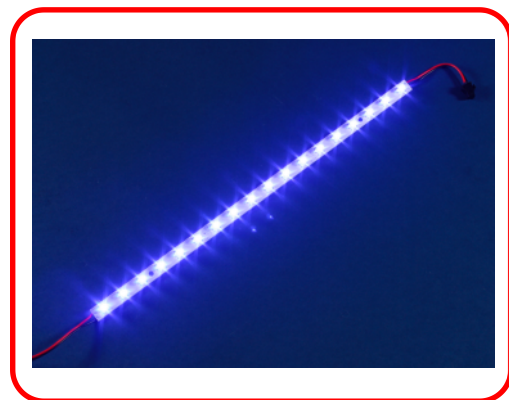
- SIMPLE 12V DC OPERATION
- SCREW HOLES FOR EASE OF MOUNTING
- ON-BOARD CURRENT LIMITING
- HIGH FLUX, ELLIPTICAL BEAM
- PLUG & SOCKET LINKABLE

TYPICAL APPLICATIONS

- LIGHTING PANELS
- EDGE-ILLUMINATION
- LIGHT BOXES
- ILLUMINATED TRIMS
- SIGNS AND DISPLAYS
- STRIP LIGHTING

Physical Information:

- ◆ Strip Length 300mm
- ◆ Strip Width 10mm
- ◆ LED Height 12mm
- ◆ 18 LEDs per complete strip



PRODUCT DATA

Strip characteristics at 12V DC applied, Ta = 25 C

Part Number: HLLS5RHW3-012

Colour: White

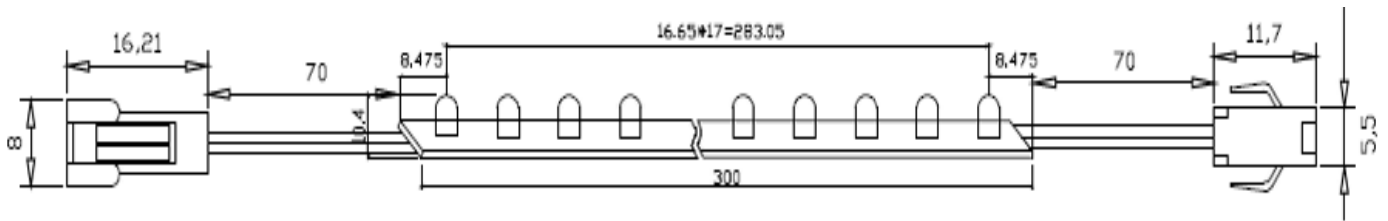
Forward Voltage (V DC): 12

Forward Current (mA) : Typ 140

Power consumption: Typ 1.7W

Beam shape: Elliptical

Drawing of product dimensions



All dimensions are in mm. Tolerance ± 0.25 mm unless otherwise noted.

Absolute Maximum Ratings per LED at $T_a=25^\circ\text{C}$

Quantity	Rating
Reverse Voltage	5V
Operating Temperature Range	-35°C to $+75^\circ\text{C}$
Temperature Range in Storage	-35°C to $+100^\circ\text{C}$
Forward DC Current	20mA

Application Notes:

- Please observe correct polarity when connecting to supply.
- Use of a regulated 12V DC supply is recommended.
- To prevent voltage drop, a power feed at each end is recommended for chains longer than 5 strips in length. For very long lengths it is recommended to connect a power feed after every 10 strips.

SUPERFLUX LED RIGID LIGHT STRIP

FEATURES

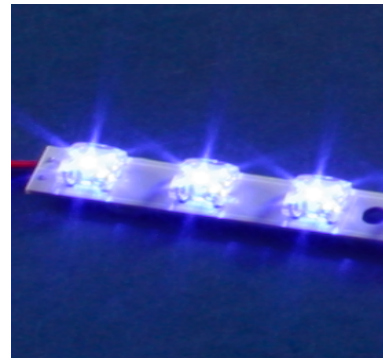
- SIMPLE 12V DC OPERATION
- SCREW HOLES FOR EASE OF MOUNTING
- ON-BOARD CURRENT LIMITING
- HIGH FLUX, ELLIPTICAL BEAM
- PLUG & SOCKET LINKABLE
- STRONG, ROBUST 4 PIN LED

TYPICAL APPLICATIONS

- LIGHTING PANELS
- EDGE-ILLUMINATION
- LIGHT BOXES
- ILLUMINATED TRIMS
- SIGNS AND DISPLAYS
- STRIP LIGHTING

Physical Information:

- ◆ Strip Length 300mm
- ◆ Strip Width 10mm
- ◆ LED Height 9mm
- ◆ 18 LEDs per complete strip



PRODUCT DATA

Strip characteristics at 12V DC applied, $T_a = 25\text{ C}$

Part Number: HLLSSFRHW3-012

Colour: White

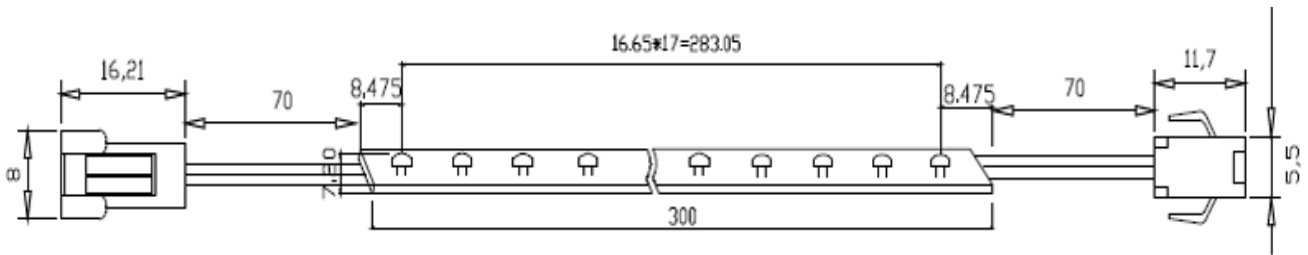
Forward Voltage (V DC): 12

Forward Current (mA) : Typ 140

Power consumption: Typ 1.7W

Beam shape: wide angle output

Drawing of product dimensions



All dimensions are in mm. Tolerance ± 0.25 mm unless otherwise noted.

Absolute Maximum Ratings per LED at $T_a=25^\circ\text{C}$

Quantity	Rating
Reverse Voltage	5V
Operating Temperature Range	-35°C to $+75^\circ\text{C}$
Temperature Range in Storage	-35°C to $+100^\circ\text{C}$
Forward DC Current	20mA

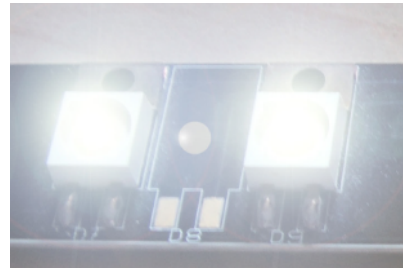
Application Notes:

- Please observe correct polarity when connecting to supply.
- Use of a regulated 12V DC supply is recommended.
- To prevent voltage drop, a power feed at each end is recommended for chains longer than 5 strips in length. For very long lengths it is recommended to connect a power feed after every 10 strips.

HIGH POWER 350MA WHITE LIGHT STRIP

FEATURES

- THERMALLY CONDUCTIVE CIRCUIT BOARD
- SCREW HOLES FOR EASE OF MOUNTING TO HEATSINK
- CENTRAL LINK FOR ADDED CONTROL
- EXCELLENT THERMAL TRANSFER FROM LED CHIP

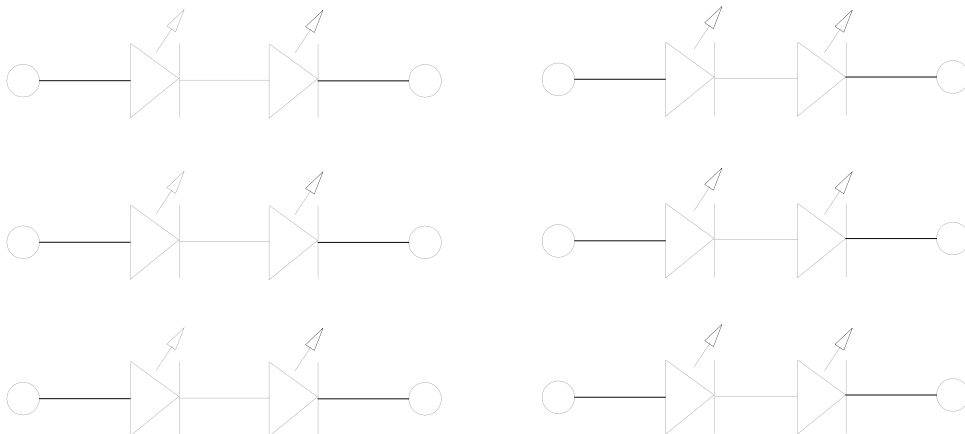


TYPICAL APPLICATIONS

- UPLIGHTERS AND DOWNLIGHTERS
- LIGHT BOX ILLUMINATION
- STRIP LIGHTS
- SIGNS AND DISPLAYS
- GENERAL ILLUMINATION AND LIGHTING
- TASK LIGHTING

PCB Layout:

PCB comprises 3 chains in parallel, each with an open central link and consisting of 4 LED pads in series. Circuit diagram is given below.



Note: LED pads are shown populated for ease of illustration. Actual population varies from strip to strip as explained overleaf. Some pads may therefore remain unpopulated.

Standard populations:

PCB pads are designed to accommodate TO-220 High Power LEDs. Standard populations are shown in the table below. Unpopulated pads may be populated with loose TO-220 High Power LEDs through the use of thermally conductive adhesive.

Population details with LED Characteristics at $I_f = 350\text{mA}$, $T_a = 25^\circ\text{C}$

Part Number	Number of LEDs	Emitted Colour	Luminous flux per LED (lm)		Forward voltage per LED (V)			CCT (K)	
			Min.	Typ.	Min.	Typ.	Max.	Min.	Max.
HLHSB14D	4	Daylight white	30	35	3	3.5	4	5000	8000
HLHSB18D	8	Daylight white	30	35	3	3.5	4	5000	8000
HLHSB112D	12	Daylight white	30	35	3	3.5	4	5000	8000
HLHSB14W	4	Warm white	18	25	*	3.5	4.25	2700	3700
HLHSB18W	8	Warm white	18	25	*	3.5	4.25	2700	3700
HLHSB112W	12	Warm white	18	25	*	3.5	4.25	2700	3700

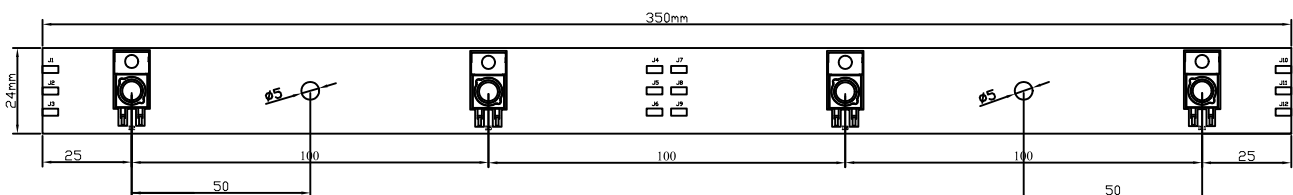
Absolute Maximum Ratings per LED at $T_a = 25^\circ\text{C}$

Quantity	Rating
Reverse Voltage	5V
Semiconductor Junction Temperature	120°C
Operating Temperature Range	-35°C to +75°C
Temperature Range in Storage	-35°C to +100°C
Forward DC Current	350mA

LED Thermal Characteristics at $I_f = 350\text{mA}$, $T_a = 25^\circ\text{C}$

Quantity	Rating
Thermal Resistance (Semiconductor Junction to Board)	15 K/W
Forward Voltage Temperature Coeff.	-2 mV/K
Reverse Current (at reverse voltage of 5V)	5×10^{-5} A

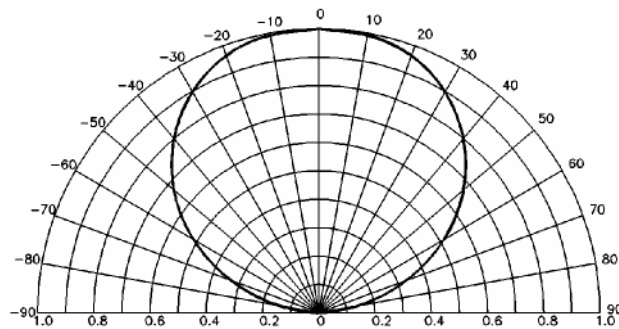
Strip dimensions (4 LED population shown)



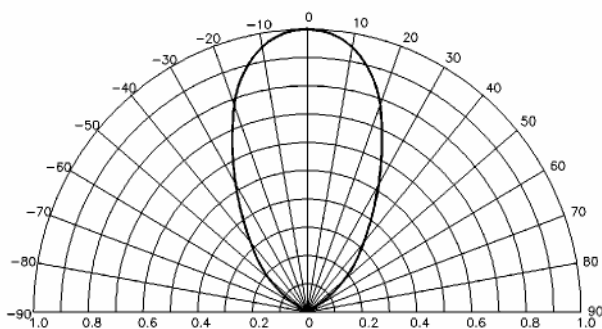
1. All dimensions are in millimeters.
2. Tolerance is $\pm 2\text{mm}$ unless otherwise noted.

Beam patterns for unlensed output, spherical lens and elliptical lens

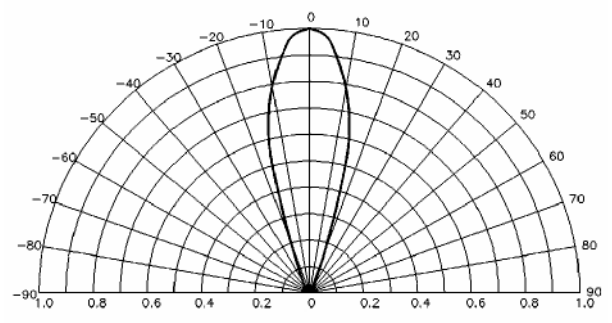
Typical Radiation Pattern when Unlensed ($2\theta_{1/2} \sim 120^\circ$)



Typical Radiation Pattern when Elliptically lensed ($2\theta_{1/2} \sim 60^\circ\text{H}, 30^\circ\text{V}$)

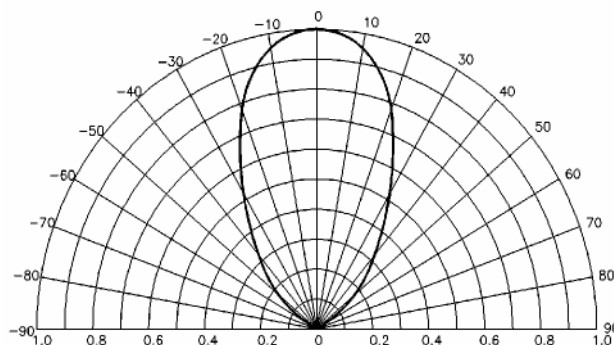


Horizontal



Vertical

Typical Radiation Pattern when Spherically lensed ($2\theta_{1/2} \sim 60^\circ$)



Lenses available separately or pre-fitted.

Application Notes

Precautions:

Current should be derated in order to keep junction temperature below maximum by reducing power dissipation.

Current spikes should be avoided especially during power up. It is good practice to initially connect PCB to unactivated supply, then gradually ramp up voltage to desired value.

Proper management of the thermal path should be observed. Adequate heatsinking of strip should be provided in order to maintain junction temperature below maximum. Proper thermal conduction layers should be introduced at all interfaces to prevent insulating air gaps in the thermal path.

If the LED package has a lens fitted, note that the lens should not be taken above 110 degrees Centigrade.

It is recommended that a constant-current source is used for the driving of these LEDs.

As with all semiconductor devices, it is good practice to avoid electrostatic discharge (ESD).