

## Data Sheet

### Description

Flexible Light Strip Module is high performance light tube produced by Avago Technologies, integrating LEDs solution with excellent thermoplastic polyurethane. This Light Strip is an environmentally friendly “Green Material”, it offers a unique combination of mechanical, physical, and chemical properties, including high tensile strength, excellent abrasion resistance, outstanding flexibility, weather resistance, non toxic, recyclable, and decomposable. Flexible Light Strip Module provides conveniences for the designers to integrate light strip onto their devices with minimum consideration on optical and mechanical optimization. The specially designed housing helps to concentrate the light for maximum efficiency and the specially designed PCB provides plug-and-play type of solution for assembly. The total solution provides the ease of design and assembly for designers.

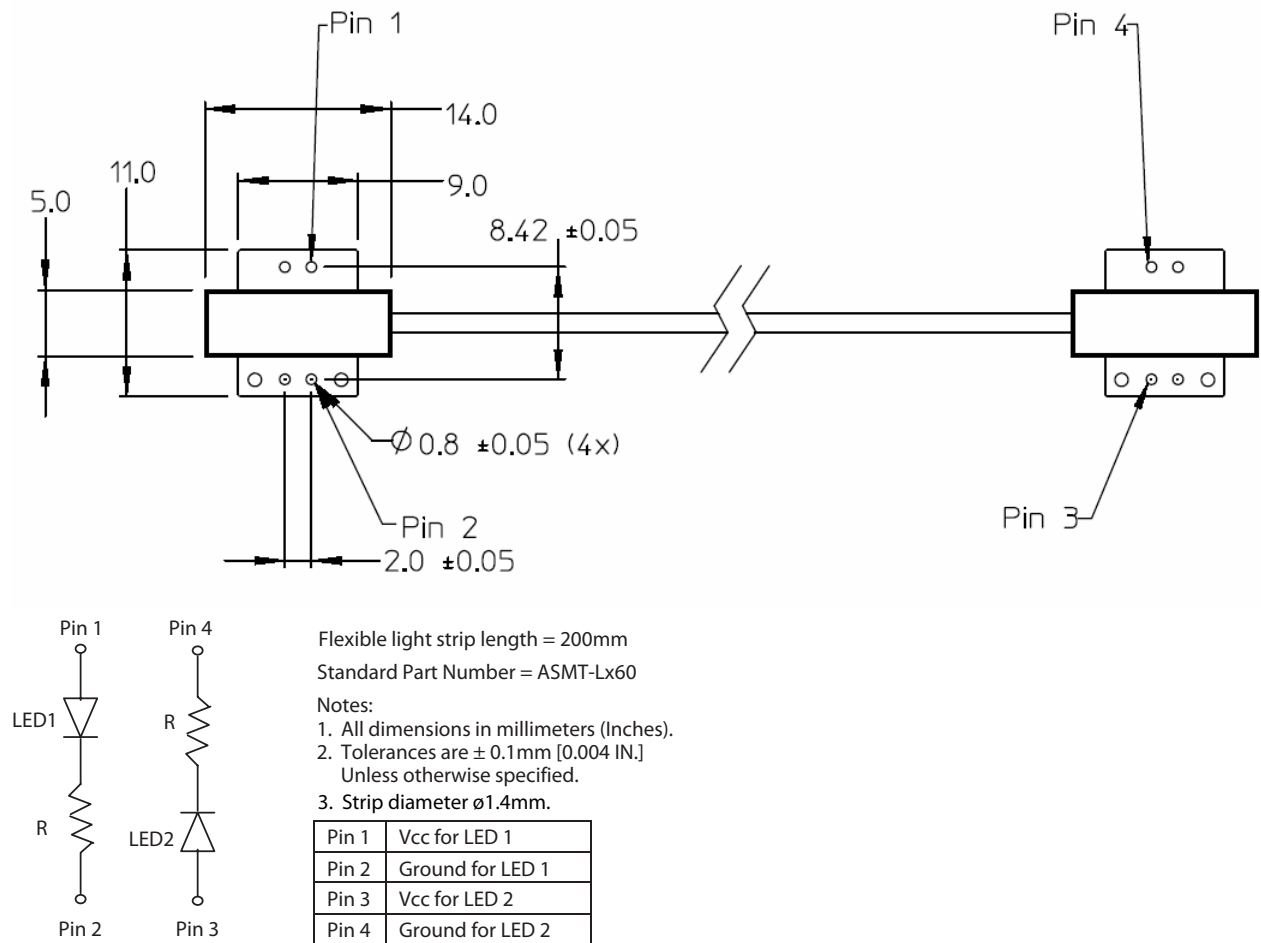
### Features

- Outstanding abrasion resistance
- Excellent mechanical properties
- Excellent chemical resistance
- Excellent light transitivity
- High shaping flexibility
- Available length 100mm to 500mm at interval of 1mm
- Available voltage source : 5V, 9V and 12V
- Available color: Blue, Green, Red and White
- Light strip module in straight configuration

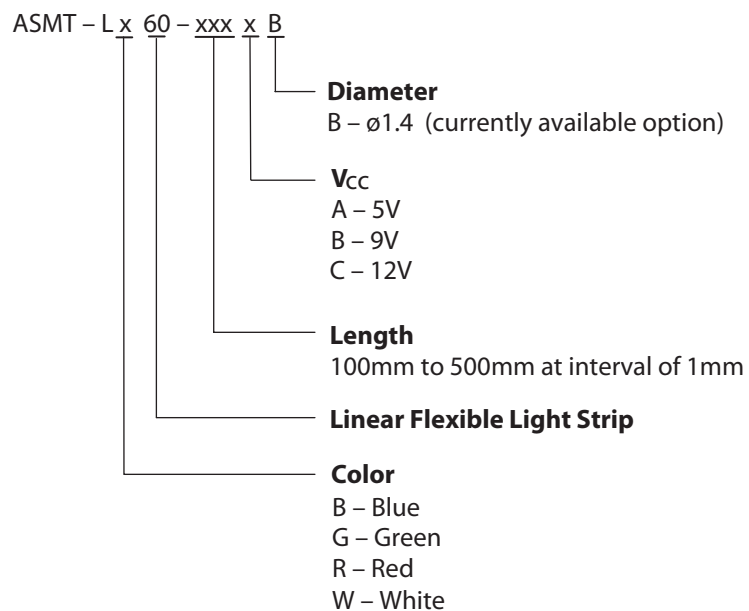
### Applications

- Handheld devices
- Cellular Phones
- Decorative lighting
- Electronics and electrical appliances

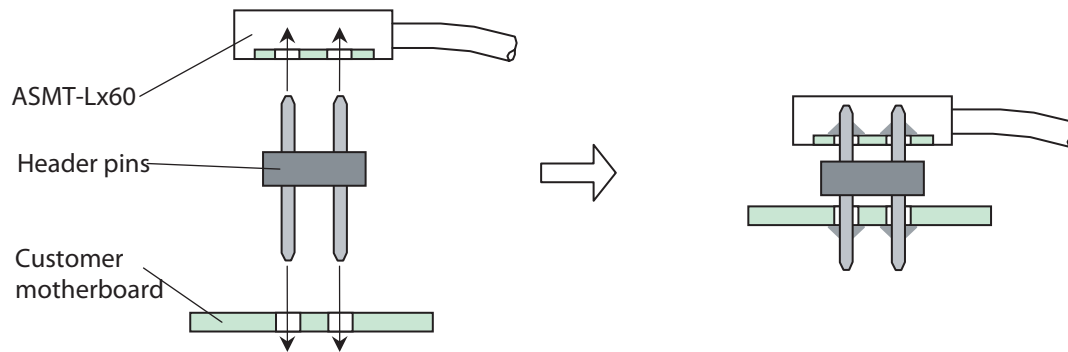
## Package Dimensions



## Part Numbering System for Other Available Options



## Recommended Connector



CAUTION: ASMT-Lx60 devices are Class 1 ESD sensitive. Please observe appropriate precautions during handling and processing. Refer to Avago Technologies Application Note AN-1142 for additional details.

## Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$

| Parameter                                               | ASMT-Lx60                          | Unit             |
|---------------------------------------------------------|------------------------------------|------------------|
| DC Forward Current <sup>[1] [2]</sup>                   | 30                                 | mA               |
| Power Dissipation <sup>[2] [3]</sup>                    | 363                                | mW               |
| Reverse Voltage ( $I_R = 100\text{ A}$ ) <sup>[2]</sup> | 5                                  | V                |
| LED Junction Temperature                                | 110                                | $^\circ\text{C}$ |
| Operating Temperature Range                             | -30 to 60                          | $^\circ\text{C}$ |
| Storage Temperature Range                               | -30 to 60                          | $^\circ\text{C}$ |
| Manual Soldering Temperature                            | 350 $^\circ\text{C}$ for 3 sec max |                  |

Note:

1. Derate linearly as shown in Figure 4.
2. For each individual LED + resistor string.
3.  $V_{CC}$  max = 12.1V.

## Electrical Characteristics at $T_A = 25^\circ\text{C}$

| Part Number | Voltage $V_{CC}$ (Volts) <sup>[1]</sup> |         |         | LED Forward Current <sup>[1]</sup><br>$I_F$ (mA) @ $V_{CC} = 12.0\text{V}$ |
|-------------|-----------------------------------------|---------|---------|----------------------------------------------------------------------------|
|             | Minimum                                 | Typical | Maximum | Typical                                                                    |
| ASMT-Lx60   | 11.9                                    | 12.0    | 12.1    | 20                                                                         |

Note:

1. For each individual LED + resistor string.
2. Resistor value is determined by forward voltage of LED.

## Optical Characteristics at T<sub>A</sub> = 25°C

| Part Number | Luminous Intensity,<br>I <sub>v</sub> <sup>[1, 2]</sup> (mcd) @ 20mA |       | Peak<br>Wavelength,<br>λ <sub>peak</sub> <sup>[1]</sup> (nm) | Color, Dominant<br>Wavelength<br>λ <sub>d</sub> <sup>[1, 3]</sup> (nm) |       | Luminous<br>Incidence <sup>[5]</sup><br>E <sub>v</sub> (lm/m <sup>2</sup> ) |
|-------------|----------------------------------------------------------------------|-------|--------------------------------------------------------------|------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------|
|             | Min.                                                                 | Max.  | Typ.                                                         | Min.                                                                   | Max.  | Typ.                                                                        |
| ASMT-LB60   | 71.5                                                                 | 180.0 | 468                                                          | 465                                                                    | 475   | 30.0                                                                        |
| ASMT-LG60   | 180.0                                                                | 450.0 | 520.0                                                        | 515.0                                                                  | 535.0 | 130.0                                                                       |
| ASMT-LR60   | 112.5                                                                | 285.0 | 637.0                                                        | 615.0                                                                  | 630.0 | 30.0                                                                        |

| Part Number | Luminous Intensity,<br>I <sub>v</sub> <sup>[1, 2]</sup> (mcd) @ 20mA |      | Typical Chromaticity<br>Coordinates <sup>[1, 4]</sup> |      | Luminous Incidence <sup>[5]</sup><br>E <sub>v</sub> (lm/m <sup>2</sup> ) |
|-------------|----------------------------------------------------------------------|------|-------------------------------------------------------|------|--------------------------------------------------------------------------|
|             | Min.                                                                 | Max. | X                                                     | Y    | Typ.                                                                     |
| ASMT-LW60   | 1000                                                                 | 1600 | 0.31                                                  | 0.31 | 230.0                                                                    |

Notes:

1. For individual LED light source only.
2. The luminous intensity I<sub>v</sub> is measured at the peak of the spatial radiation pattern which may not be aligned with the mechanical axis of the LED package. Refer to I<sub>v</sub> bin table for binning structure and tolerance.
3. The dominant wavelength, λ<sub>d</sub>, is derived from the CIE 1931 Chromaticity Diagram and represents the perceived color of the device. Refer to color bin limit tables for binning structure and tolerance.
4. The chromaticity coordinates are derived from the CIE 1931 Chromaticity Diagram and represent the perceived color of the device. Refer to color bin limit tables for binning structure and tolerance.
5. Measurement done at the center of the light stripe at straight position without bending.

## Light Intensity (I<sub>v</sub>) Bin Limits<sup>[1][2]</sup>

### Blue

| Bin ID | Intensity (mcd) |         |
|--------|-----------------|---------|
|        | Minimum         | Maximum |
| Q      | 71.50           | 112.50  |
| R      | 112.50          | 180.00  |

Tolerance: ±15%

### Red

| Bin ID | Intensity (mcd) |         |
|--------|-----------------|---------|
|        | Minimum         | Maximum |
| R      | 112.5           | 180.0   |
| S      | 180.0           | 285.0   |

Tolerance: ±15%

### White

| Bin ID | Intensity (mcd) |         |
|--------|-----------------|---------|
|        | Minimum         | Maximum |
| W1     | 1000            | 1200    |
| W2     | 1200            | 1400    |
| W3     | 1400            | 1600    |

Tolerance: ±15%

### Green

| Bin ID | Intensity (mcd) |         |
|--------|-----------------|---------|
|        | Minimum         | Maximum |
| S      | 180.0           | 285.0   |
| T      | 285.0           | 450.0   |

Tolerance: ±15%

Notes:

1. Bin categories are established for classification of products. Products may not be available in all categories. Please contact your Avago Technologies representative for information on current available bins.
2. For individual LED light source only.

## Color Bin Limits <sup>[1]</sup> <sup>[2]</sup>

### Blue

| Bin ID | Dom. Wavelength (nm) |         |
|--------|----------------------|---------|
|        | Minimum              | Maximum |
| B      | 465.0                | 470.0   |
| C      | 470.0                | 475.0   |

Tolerance:  $\pm 1.0\text{nm}$

### Green

| Bin ID | Dom. Wavelength (nm) |         |
|--------|----------------------|---------|
|        | Minimum              | Maximum |
| A      | 515.0                | 520.0   |
| B      | 520.0                | 525.0   |
| C      | 525.0                | 530.0   |
| D      | 530.0                | 535.0   |

Tolerance:  $\pm 1.0\text{nm}$

### Red

| Bin ID | Dom. Wavelength (mcd) |         |
|--------|-----------------------|---------|
|        | Minimum               | Maximum |
| -      | 615                   | 630     |

Tolerance:  $\pm 1.0\text{nm}$

### White

| Rank | Chromaticity Coordinates |       |       |       |    |
|------|--------------------------|-------|-------|-------|----|
|      | X                        | Y     | Z     | u'    | v' |
| C11  | 0.290                    | 0.297 | 0.297 | 0.290 |    |
|      | 0.306                    | 0.316 | 0.283 | 0.274 |    |
| C12  | 0.297                    | 0.303 | 0.303 | 0.297 |    |
|      | 0.316                    | 0.326 | 0.293 | 0.283 |    |
| C13  | 0.303                    | 0.310 | 0.310 | 0.303 |    |
|      | 0.326                    | 0.336 | 0.303 | 0.293 |    |
| C21  | 0.290                    | 0.297 | 0.297 | 0.290 |    |
|      | 0.274                    | 0.283 | 0.251 | 0.241 |    |
| C22  | 0.297                    | 0.303 | 0.303 | 0.297 |    |
|      | 0.283                    | 0.293 | 0.261 | 0.251 |    |
| C23  | 0.303                    | 0.310 | 0.310 | 0.297 |    |
|      | 0.293                    | 0.303 | 0.271 | 0.251 |    |
| D11  | 0.310                    | 0.320 | 0.320 | 0.310 |    |
|      | 0.336                    | 0.350 | 0.318 | 0.303 |    |
| D12  | 0.320                    | 0.330 | 0.330 | 0.320 |    |
|      | 0.350                    | 0.365 | 0.333 | 0.318 |    |
| D21  | 0.310                    | 0.320 | 0.320 | 0.310 |    |
|      | 0.303                    | 0.318 | 0.285 | 0.271 |    |
| D22  | 0.320                    | 0.330 | 0.330 | 0.320 |    |
|      | 0.318                    | 0.333 | 0.300 | 0.285 |    |

Tolerance of each bin limit =  $\pm 0.02$

#### Notes:

- Bin categories are established for classification of products. Products may not be available in all categories. Please contact your Avago Technologies representative for information on current available bins.
- For individual LED light source only.

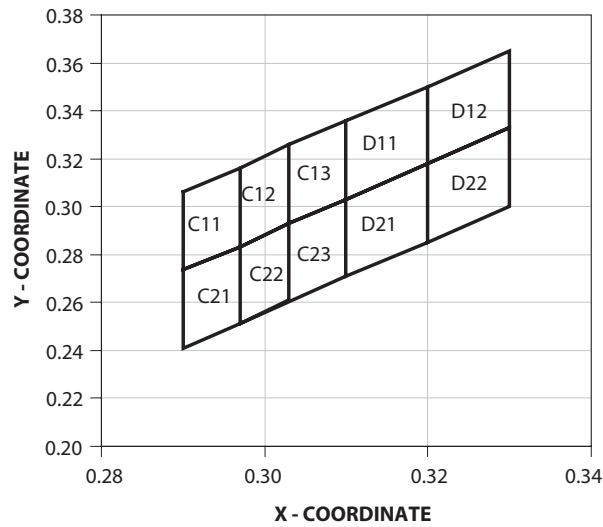


Figure 1. White binning in CIE 1931 Chromaticity Diagram.

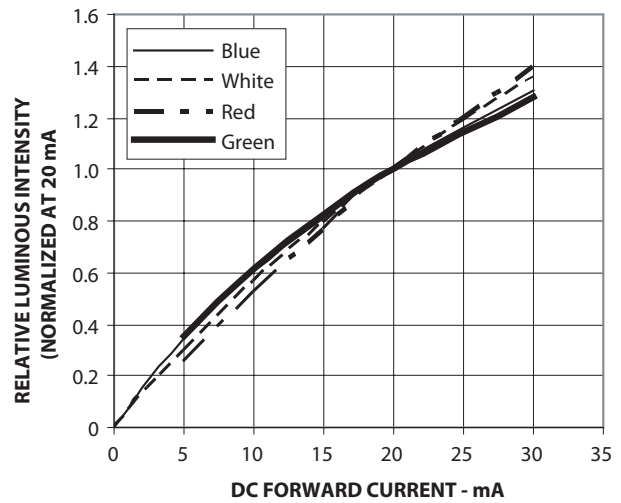


Figure 2. Relative luminous intensity vs. forward current for LED light sources only.

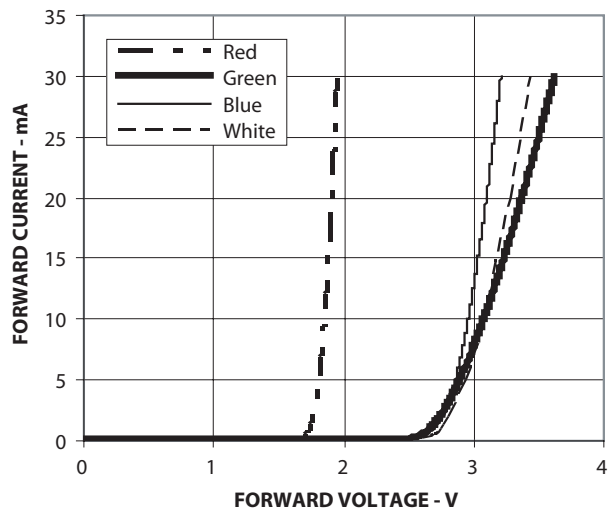


Figure 3. Forward voltage vs. forward current for LED light sources only.

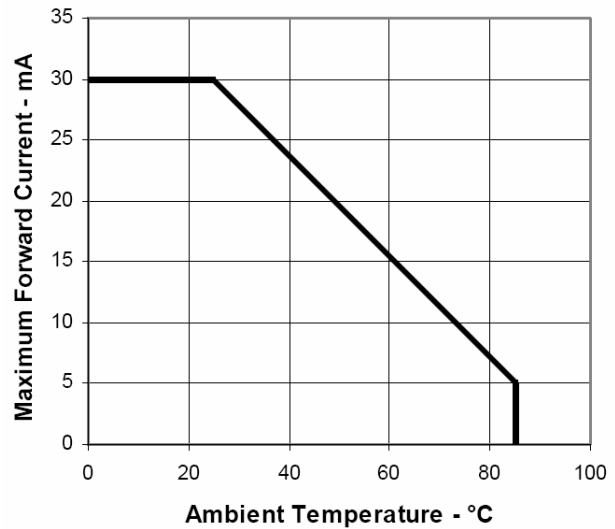


Figure 4. Maximum forward current vs. ambient temperature

## Handling Caution

1. Bending radius of the lightpipe shall always be larger than 10 times of the lightpipe diameter to avoid impact to its appearance and performance.

For product information and a complete list of distributors, please go to our web site:

[www.avagotech.com](http://www.avagotech.com)

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