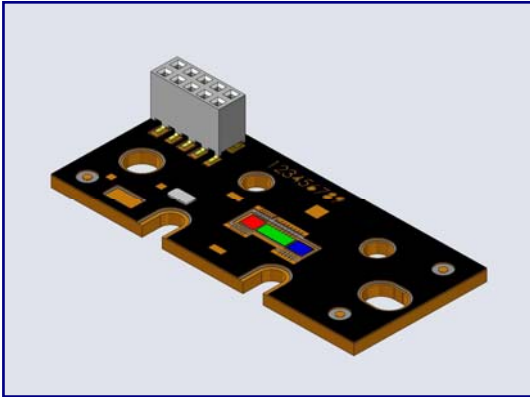


PhlatLight® LTM-150 RGB LED Module for Edge-Illuminated Backlight Units



The PhlatLight LTM-150 is an ultra-thin LED module that has been designed specifically for edge lighting LCD backlight units. The LTM-150 consists of a single red, green, and blue PhlatLight LED, made with Luminus' patented Laser Lift-Off™ technology, mounted onto a thermally efficient core board. Each module emits the equivalent of over 1,000 lumens of white light, so that an entire BLU can be realized with a very small number of modules; for example, a 46 inch television requires only eight modules. The small number of LED modules results in high reliability, low color variation and simple color management.

Features and Benefits of the PhlatLight LTM-150 Modules

- Modules made with Luminus' patented **Laser Lift-Off™** process technology
- Edge lighting approach enables **thin backlight design**
- RGB solution provides **brilliant color**; color gamut exceeds NTSC guidelines
- **Low profile package** provides high coupling efficiency into an optical waveguide
- Individual chip size and shape optimized for **efficient color mixing**
- Small number of LEDs **minimizes cost**
- Low power consumption and **high efficiency**
- **High dynamic range**; LEDs can be operated at maximum brightness or maximum efficacy
- PhlatLight LED lifetimes exceed **60,000 hours**
- **Environmentally friendly** PhlatLight technology contains no mercury
- **RoHS compliant**

Award Winning Backlight Solution

The PhlatLight Backlight Unit won the 2008 SID Gold Award for Display Component of the Year. Pictured to the right is a 37 inch BLU, illuminated by seven LTM-150 modules.



LTM-150 Module Performance

| Electrical and Optical Characteristics ¹ | | | | | | |
|---|-----|--------------------|-------------|-------------|-------------|-----------------|
| | | Symbol | R | G | B | Unit |
| Emitting Area | | | 3.9 | 7 | 4 | mm ² |
| Emitting Area dimensions ² | | | 2.05 x 1.87 | 4.32 x 1.73 | 2.29 x 1.85 | mm |
| Test current | | I _{Ftest} | 4 | 4 | 4 | A |
| Luminous Flux ³ | Typ | | 370 | 800 | 120 | lm |
| Dominant Wavelength ⁴ | Typ | λ _d | 623 | 530 | 462 | nm |
| Forward Voltage ⁴ | Typ | V _F | 2.2 | 3.9 | 3.9 | V |
| Photometric Thermal Efficiency Coefficient | | | -0.69 | -0.18 | -0.007 | % / °C |
| Radiometric Thermal Efficiency Coefficient | | | -0.52 | -0.20 | -0.17 | % / °C |
| Efficacy | Typ | | 40 | 59 | 7.7 | lm/W |

| Absolute Maximum Ratings | | | | | | |
|--|-----|-------------------|----|------|-----|----|
| Maximum Drive current | Max | I _{Fmax} | 6 | 10.5 | 6 | A |
| Maximum Operating Junction Temperature | | | 80 | 120 | 120 | °C |

| Total Luminous Flux at White Points | | | | |
|-------------------------------------|-----|-----|-------|----|
| Color Temp | 10W | 20W | 30W | |
| 8,000 K | 518 | 855 | 1,105 | lm |
| 12,000 K | 497 | 816 | 1,060 | lm |
| 16,000 K | 485 | 794 | 1,034 | lm |

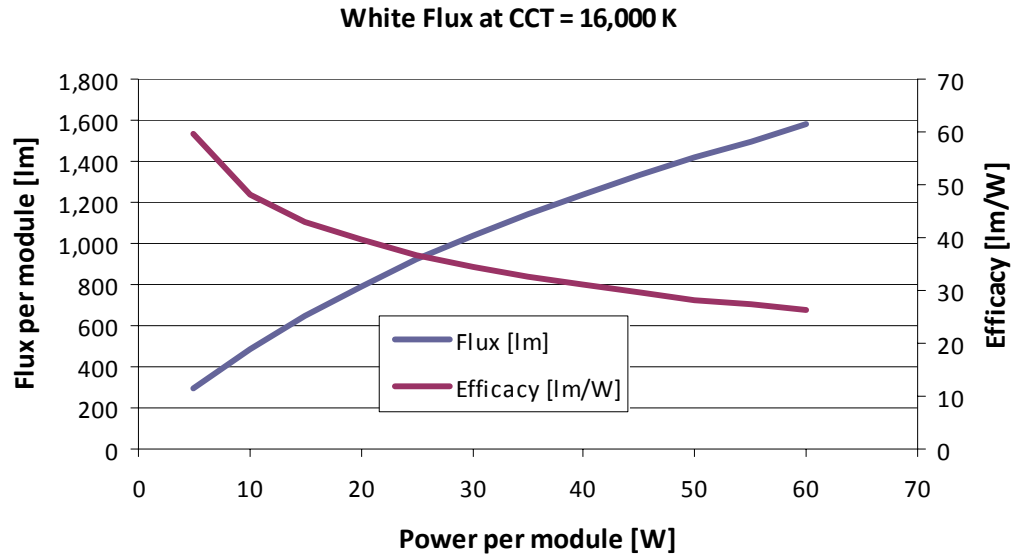
¹ All ratings based on operation with a constant heat sink temperature T_{hs}=40°C

² Nominal envelope of emitting area. Refer to device mechanical outline drawing for details.

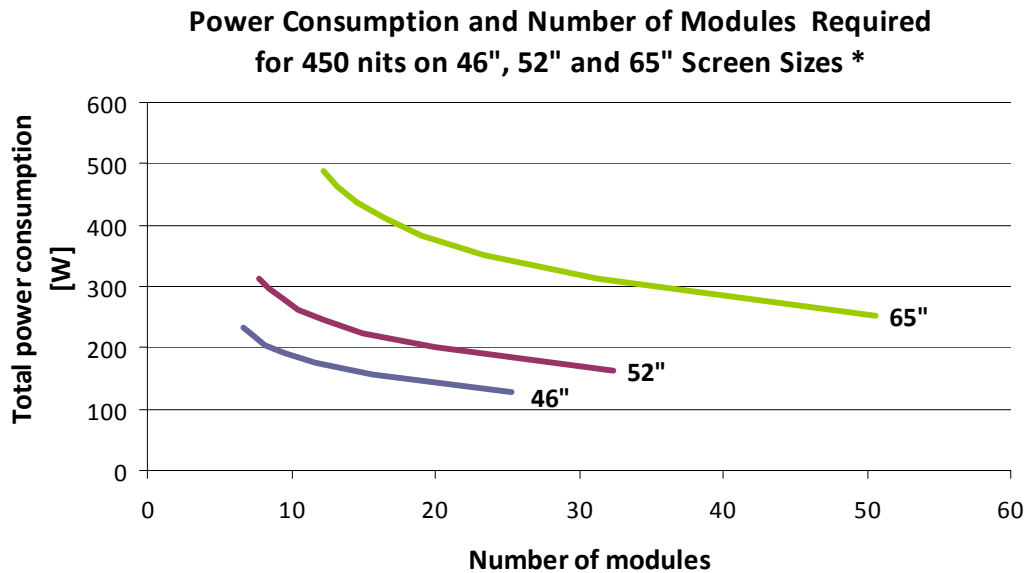
³ Total luminous flux from emitting area at test current and typical dominant wavelength listed in this datasheet. Flux specifications will vary with wavelength for red and blue devices

⁴ At test current

Luminous Flux (per module) vs. Input Power

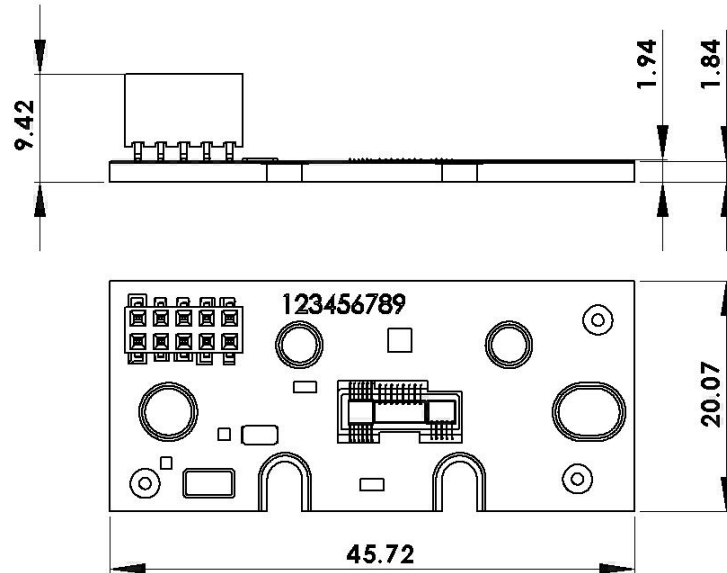


Number of Modules vs. Total Power Consumption

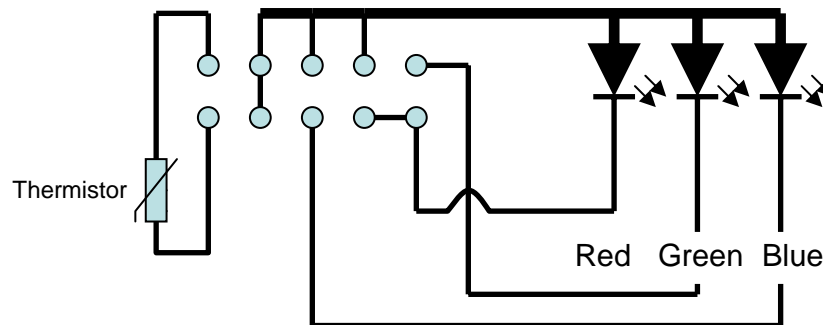


* Based on 8% LCD panel transmission efficiency and typical film stack including diffuser, BEF and DBEF

Mechanical Dimensions



Electrical Circuit



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