

# LA TM150HRP

120° Hyper Red Pointsource TO46 (650 nm)



Light Avenue's TO46 LED series is designed for high power and high temperature applications. Due to the high quality chips used the maximum operating current can be extended considerably compared to other devices. Junctions temperatures up to 125° C can be applied. A highly automated production process ensures high volume capability and competitive pricing.

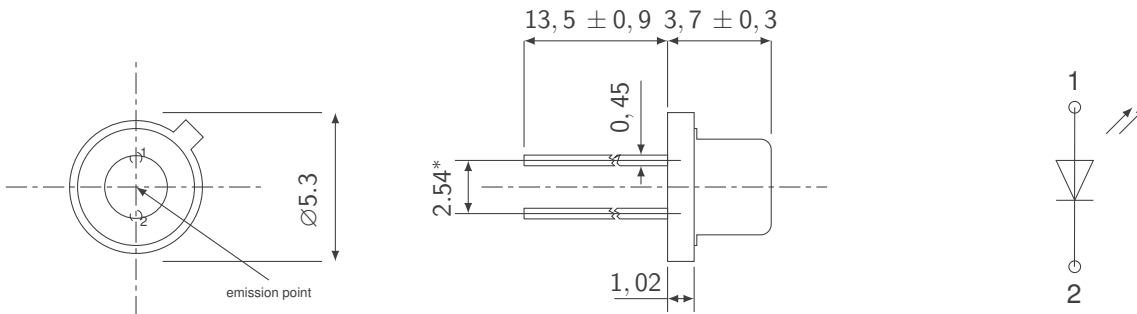
## Features

- Point Source Chip
- Aperture 150 micrometer
- High operating temperatures
- TO46 package

## Applications

- Industry
- Sensor
- Medical
- Light grids

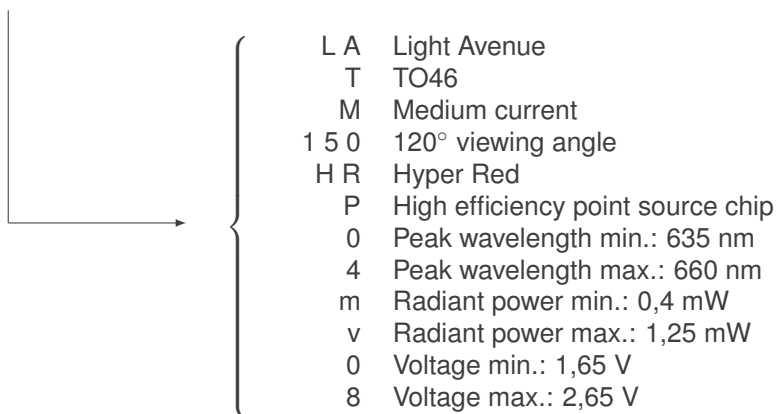
## Dimensions



\* all dimensions in mm. Tolerance  $\pm 0,2$  except given ones  
\* at the bottom of the LED

## Ordering information

| TYPE               | PEAK WAVELENGTH | RADIANT POWER   |
|--------------------|-----------------|-----------------|
| LA TM150HRP-04mv08 | 635 ... 660 nm  | 0,4 ... 1,25 mW |



# LA TM150HRP

120° Hyper Red Pointsource TO46 (650 nm)



## Electro-optical characteristics ( $T_A = 25^\circ\text{C}$ )<sup>2</sup>

| PARAMETER             | SYMBOL           | CONDITION            | MIN. | TYP. <sup>1</sup> | MAX. | UNIT  |
|-----------------------|------------------|----------------------|------|-------------------|------|-------|
| Radiant power         | $\Phi_e$         | $I_f = 20\text{ mA}$ | 0,4  | 0,8               | 1,25 | mW    |
| Radiant intensity     | $I_e$            | $I_f = 20\text{ mA}$ |      | 0,2               |      | mW/sr |
| Forward voltage       | $V_F$            | $I_f = 20\text{ mA}$ | 1,65 | 1,90              | 2,65 | V     |
| Peak wavelength       | $\lambda_{peak}$ | $I_f = 20\text{ mA}$ | 635  | 650               | 660  | nm    |
| Spectral width        | $RMS$            | $I_f = 20\text{ mA}$ |      | 25                |      | nm    |
| Beam Divergence Angle | $\theta$         | $I_f = 20\text{ mA}$ |      | 120               |      | °     |

## Maximum ratings ( $T_A = 25^\circ\text{C}$ )

| PARAMETER               | SYMBOL       | CONDITION                      | MINIMUM | MAXIMUM | UNIT |
|-------------------------|--------------|--------------------------------|---------|---------|------|
| Operating Current       | $I_{f,max}$  |                                |         | 50      | mA   |
| Operating Pulse Current | $I_{fp,max}$ | $t_p = 10\mu\text{s}, D = 2\%$ |         | 300     | mA   |
| Operating Temperature   | $T_{op}$     |                                | -40     | 100     | °C   |
| Storage Temperature     | $T_{st}$     |                                | -50     | 125     | °C   |
| Junction Temperature    | $T_j$        |                                |         | 125     | °C   |
| Reverse Voltage         | $V_R$        |                                | 10      |         | V    |
| Power Consumption       | $P_{tot}$    |                                |         | 200     | mW   |

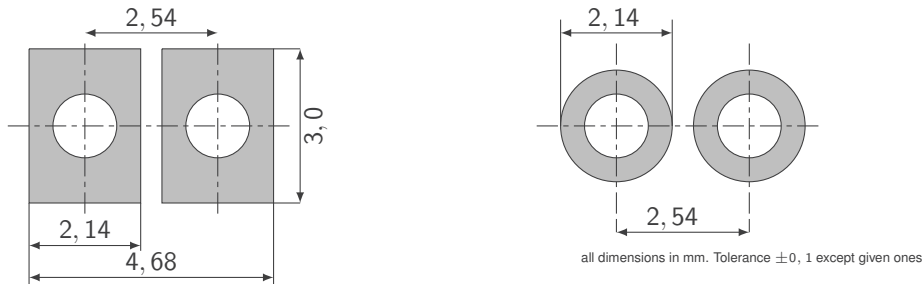
## Thermal characteristics

| PARAMETER                                 | SYMBOL         | VALUE | UNIT |
|---|----------------|-------|------|
| Thermal resistance junction ambient       | $R\theta_{JA}$ | 400   | K/W  |
| Soldering temperature (3 seconds maximum) | $T_{sold}$     | 260   | °C   |

## Material data

| DESCRIPTION | MATERIAL        | FINISH    |
|-------------|-----------------|-----------|
| LED chip    | AlGaAs          |           |
| Stem        | Kovar           | Au plated |
| Cap         | NiFe            | Ni-plated |
| Lead Pins   | Kovar           | Au plated |
| Window      | Glass AR coated |           |

### Recommended Solderpad



### Soldering

| METHOD         | SOLDERING CONDITIONS   | REMARK (VALID FOR TTW AND LEAD FREE SOLDERING)   |
|----------------|--|--|
| TTW soldering  | Bath temperature 250°C, Immersion time: within 5 sec.                                  | Soldering according to IEC-61760-1 TTW   |
| Soldering iron | 30W or smaller, temperature at tip of iron maximum 300°C, soldering time within 3 sec. | During soldering take care not to press the tip of iron against the lead. To prevent heat from being transferred directly to the lead hold the lead with a pair of tweezers while soldering. |

Actual solder profile is very much depending on wave type, machine configuration, geometrical configuration, board shape etc. It is strongly recommended to optimize and evaluate the actual soldering conditions carefully for each individual project before releasing the soldering process.

## **Important Usage and Application Information**

Lead free product - RoHS compliant.

All products, product specifications and data to improve reliability, function, design or otherwise are subject to change without notice. The information describes the type of component and shall not be considered as assured characteristics.

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our Sales Organization.

The light output of the products may cause injuries to human eyes in circumstances where the products are viewed directly with unshielded eyes. LEDs can emit highly concentrated light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 and IEC 62471.

## **Handling and Storage Conditions**

Please be careful when handling the products, particularly if an over-voltage exceeds the maximum rating. The overflow in energy may cause damage to the products. In addition these products are sensitive to static electricity. Customers have to take care when handling the products to ensure that the handling process is fully protected against static generation. Ensure that products are grounded and that the facility has conductive mats, antistatic uniforms and shoes. Antistatic containers are considered to be a good insurance against static electricity. The soldering iron point should be properly grounded. An atmospheric ionizer is recommended for use in the facility where static could be generated.

Storage ambient conditions for all LEDs in sealed packages must be within  $T_A = 10...40^{\circ}\text{C}$  and relative humidity  $< 60\%$ . LEDs in opened packages must be used within 2 weeks after opening. Storage time under the conditions above in sealed packages must not exceed 24 months.

## **Packing**

LEDs are packaged in trays. Labels for identification are placed on the box. The label shows company name and address, LED type, quantity and lot number. The box is hermetically sealed in a plastic bag for shipment.

## **Returns and Complaints**

For complaints and returns of material a RMA-number is necessary. Samples for analysis purposes can be sent to us without credit.

## **Shipping Conditions**

If not otherwise arranged, the "General Terms of Business of Light Avenue GmbH" apply for any shipment. If this document is not familiar to you, please request it at our nearest sales office.

## Disclaimer

### **Attention please! Components used in life-support devices or systems must be expressly authorized for such purpose!**

Critical components<sup>3</sup> may only be used in life-support devices<sup>4</sup> or systems with the express written approval by us.

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<sup>1</sup>Due to the special conditions of the manufacturing processes of lasers, the typical data or calculated correlations of technical parameters can only reflect statistical figures. These do not necessarily correspond to the actual parameters of each single product, which could differ from the typical data and calculated correlations or the typical characteristic line. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice.

<sup>2</sup>Light Measurements are done with an accuracy of  $\pm 15\%$ . Voltage and wavelength are measured with an accuracy of  $\pm 0.1$  V and  $\pm 1$  nm. Correlation to customer's equipment and products is required.

<sup>3</sup>A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or the effectiveness of that device or system.

<sup>4</sup>Life support devices or systems are intended(a) to be implanted in the human body, or(b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health and the life of the user may be endangered.