LA BM10HRE

10° Hyper Red Beam LED (640 nm)

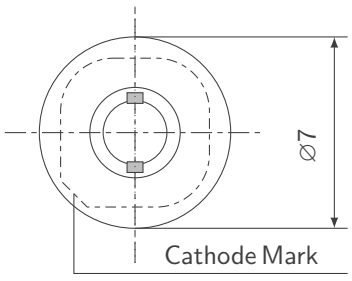
A Brand of Chips 4 Light GmbH

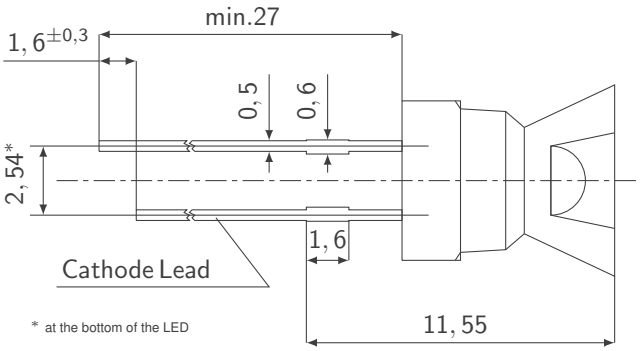
The Mini BeamLED series is designed for high intensity and high temperature applications. Due to the unique shape the LED has an efficiency of more than 60% higher compared to a conventional LED with the same emission angle. The integrated optics based on the principle of total internal reflection results in very few losses in emission angles were no light is needed. The usage of special thermoplastic materials allows junctions temperatures up to 140°C.

Features

- Optical power 50 mW
- Peak wavelength 640 nm
- Extremely small beam width
- High optical precision
- High optical efficiency
- High operating temperatures

Dimensions





all dimensions in mm. Tolerance ±0, 1 except given ones

Ordering information

ORDERING NUMBER	ORDERING DESCRIPTION
LA BM10HRE-2224-X	LED Component, Beam LED, 635 - 645 nm, 32 - 64 mW, 10° Viewing Angle

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Electro-optical characteristics ($T_A = 25°C$)[2]

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.[1]	MAX.	UNIT
Radiant power	Φ_e	$I_f = 50$ mA	32	50	64	mW
Radiant intensity	I_e	$I_f = 50$ mA		500		mW/sr
Forward voltage	V_F	$I_f = 50$ mA	1.65	2.20	2.65	V
Peak wavelength	λ_{peak}	$I_f = 50$ mA	635	640	645	nm
Spectral width	RMS	$I_f = 50$ mA		25		nm
Beam Divergence Angle	θ	$I_f = 50$ mA		10		°

Maximum ratings ($T_A = 25°C$)

PARAMETER	SYMBOL	CONDITION	MINIMUM	MAXIMUM	UNIT
Operating Current	$I_{f,max}$			100	mA
Operating Pulse Current	$I_{fp,max}$	$t_p = 10\mu$s, D = 2%		500	mA
Operating Temperature	T_{op}		-40	120	° C
Storage Temperature	T_{st}		-50	125	° C
Junction Temperature	T_j			140	° C
Reverse Voltage	V_R		10		V
Power Consumption	P_{tot}			180	mW

Thermal characteristics

PARAMETER	SYMBOL	VALUE	UNIT
Thermal resistance junction ambient	$R\Theta_{JA}$	180	K/W
Soldering temperature (3 seconds maximum)	T_{sold}	260	°C

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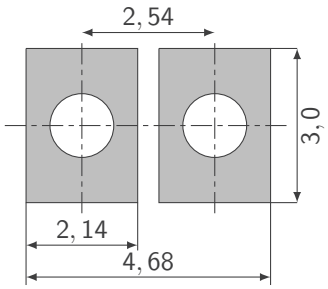
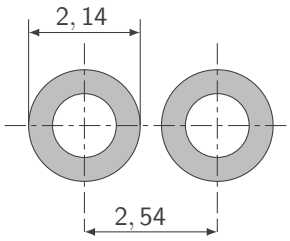
Recommended Solderpad





all dimensions in mm. Tolerance ±0, 1 except given ones

Soldering

METHOD	SOLDERING CONDITIONS	REMARK (VALID FOR TTW AND LEAD FREE SOLDERING)
TTW soldering	Bath temperature 250°C, Immersion time: within 5 sec.	Soldering system: Very good soldering results have been achieved on ERSA soldering systems at a bath temperature of 250°C and at a feeding rate of 1.2 m/s.
Lead free soldering	Bath temperature 260°C, immersion time: within 3 sec.	We recommend dosage of the soldering flux with a spray fluxer or nozzle fluxer. If this is not possible, one should pay attention to avoid contact of the soldering flux and the LED body and to keep the recommended preheat period. We recommend to use a water based soldering flux (e.g. Pacific 2007 interflux Electronics NV). Do not use alcohol based fluxer.
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.

Mounting

- The lead should be bent at a point located at least 0.8 mm away from the package. Bending should be performed with base firmly fixed by means of a jig or radio pliers.
- Lead binding should be carried out prior to soldering and never during or after soldering.

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- Locate the lead, ensuring correct alignment, thereby reducing stress to the LED.
- Due to thermoplastic encapsulant the LEDs are slightly more sensitive to the effects of stress during automatic mounting (such as mechanical stress within the package resin transmitted via the leads).
- The insertion pressure and clinching angle must both be minimized so as to minimize the lead-cuttingstress and clinch stress applied to the LED lamps.
- Please evaluate the specific mounting process carefully for each individual project before actually using the automatic mounting machine to mount these LED lamps. Setting the best clinch angle and force may require experimentation when the automatic insertion machine is first set up.
- Please pay attention: The heat sink lead is also the anode lead at the same time. Metal pads on PCB surrounding the heat sink leads of the LEDs should be as large as possible.

Cleaning and Coating

Do not use untested chemical liquids, because they may cause crack formation or haze on the surface of the plastic body. When cleaning is required, refer to the following table for the proper chemical to be used (Immersion time less than 3 minutes at room temperature).

SOLVENT	ADABTABILITY
Water	can be used
Amonium Hydroxide	can be used

Should you intend to provide the LEDs with a conformal coating, please take care to use a water-based coating.

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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

This product is sensitive to electrostatic discharge (ESD).
Storage ambient conditions for all LEDs in sealed packages must be within $T_A = 10...40°C$ 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 automatically with a quantity of 1000 or 2000 pieces into paperboard containers. Labels for identification of cathode and anode and with the lot data are placed on the box. The label shows company name and address, LED type, quantity, lot number, production date, machine number and the appropriate barcode. 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 send to us without credit.

Shipping Conditions

If not otherwise arranged, the "General Terms of Business of Chips 4 Light GmbH" apply for any shipment. If this document is not familiar to you, please request it at our nearest sales office.

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[1]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.
[2]Light Measurements are done with an accuracy of ±15%. Voltage and wavelength are measured with an accuracy of ± 0.1 V and ± 1 nm. Correlation to customer's equipment and products is required.
[3]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.
[4]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..

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