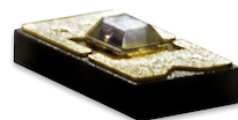


C4L-PM240RBD

High Power Point Source Blue (470 nm)



The point source LED is designed for applications, where an extremely small emission point without any bondwires is needed. The LED is produced by using a high efficiency LED flip chip mounted on a small ceramic submount. The point source LED is easy to handle and IR-reflow solderable. The chip placement accuracy relative to the package is very high. Additionally the LED is categorized by radiant power and peak wavelength.



Features

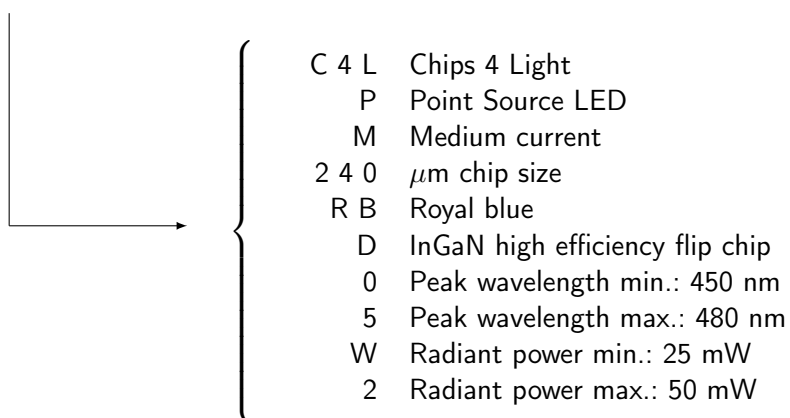
- Low package thickness
- Small emission point
- No bondwires
- Ultra-high-brightness performance
- High optical efficiency

Applications

- Sensor applications
- Industrial applications
- Encoders
- Triangulation

Ordering information

TYPE	PEAK WAVELENGTH	RADIANT POWER
C4L-PM240RBD-05W2	450 ... 480 nm	25 ... 50 mW



Customers' special wishes are also welcome.

C4L-PM240RBD

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Electro-optical characteristics ($T_A = 25^\circ\text{C}$)¹

PARAMETER	SYMBOL	CONDITION	MIN.	TYP. ²	MAX.	UNIT
Forward voltage	V_F	$I_F = 50\text{ mA}$	2,7		3,9	V
Peak wavelength	λ_{peak}	$I_F = 50\text{ mA}$	450		480	nm
Radiant power ³	Φ_e	$I_F = 50\text{ mA}$	25		50	mW
Spectral bandwidth	$\Delta\lambda$	$I_F = 50\text{ mA}$		20		nm
Viewing angle	$2\Theta_{1/2}$			140		°

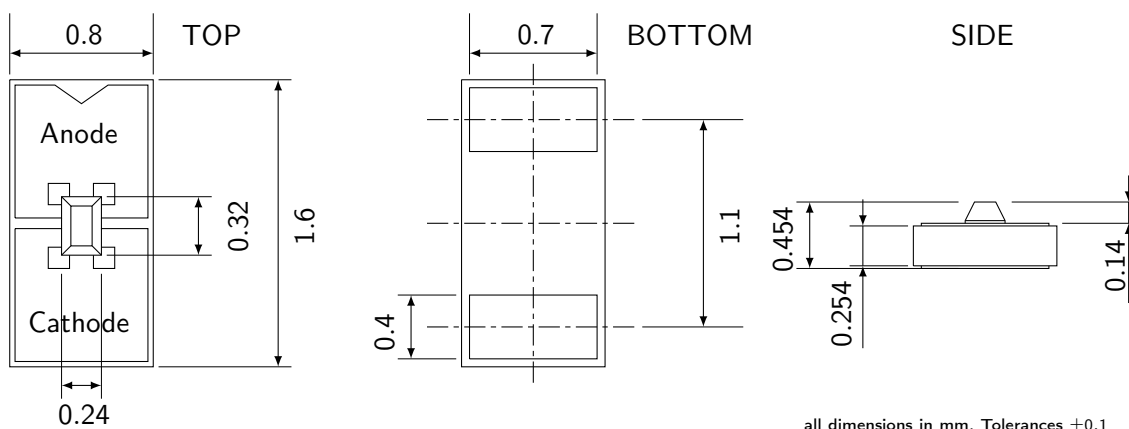
Maximum ratings ($T_A = 25^\circ\text{C}$)⁴

PARAMETER	SYMBOL	MINIMUM	MAXIMUM	UNIT
Operating temperature range	T_{op}	-20	85	°C
Storage temperature range	T_{stg}	-20	85	°C
Forward current	I_F		100	mA
LED junction temperature	T_j		125	°C
Reverse voltage	V_R		5	V
Power dissipation	P_D		400	mW

Thermal characteristics

PARAMETER	SYMBOL	VALUE	UNIT
Thermal resistance	$R\Theta_{J-Pin}$		K/W

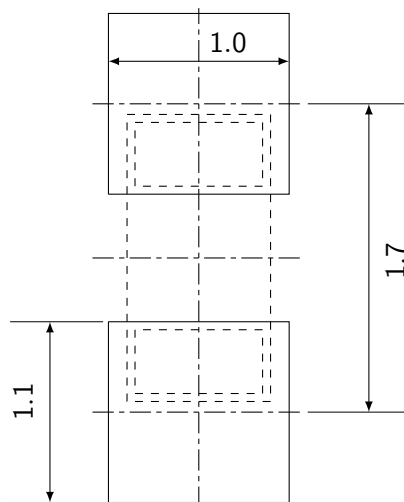
Outline drawing



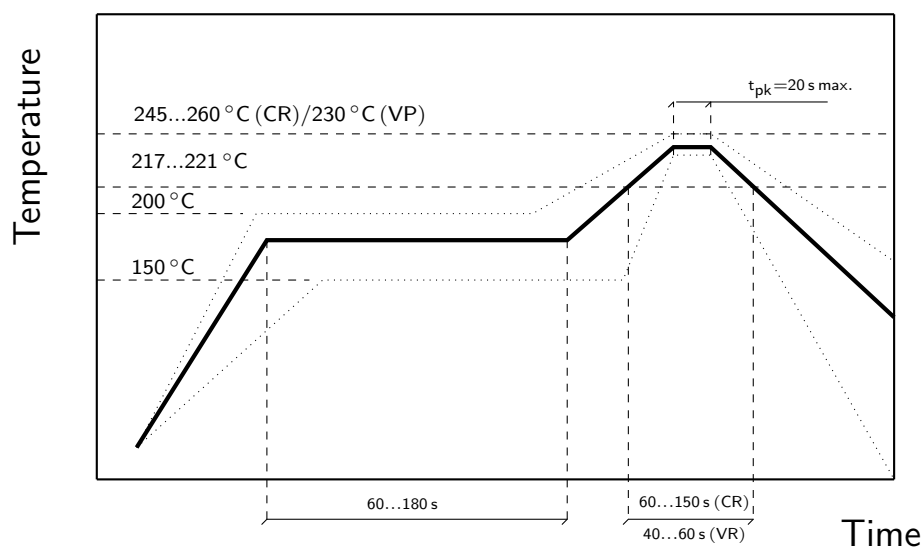
Packaging and Labelling

LEDs are packaged automatically into paperboard containers. Labels for identification 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.

Recommended Solderpad



Recommended Soldering Profile



C4L-PM240RBD

High Power Point Source Blue (470 nm)



Recommended reflow soldering conditions following IPS/JEDEC J-STD-020.

	MAXIMUM
Temperature maintained between 150 and 200 °C	180 s
Temperature maintained above 217 °C, Convection Reflow (CR) 150 s	
Temperature maintained above 217 °C, Vapor Phase (VP)	60 s
Ramp-Up Rate	+3 °C/s
Peak Temperature (t_{pk}), Convection Reflow (CR)	245 to 260 °C
Peak Temperature (t_{pk}), Vapor Phase (VP)	230 °C
Time to Peak Temperature	8 min
Time within 5°C of actual Peak Temperature	20 s
Ramp-Down Rate	-6°C/s

Actual solder profile may vary from the example given, and is very much depending on machine type and 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.

General Precautions with moisture-sensitive devices

Plastic and COB-assembled LEDs are sensitive to temperature shocks and especially to reflow soldering (the popcorn effect).

The cause of the popcorn effect is the enclosed moisture which can lead to cracks in the package with a sudden rise in temperature. All shapes and sizes of package for surface-mounted components are sensitive to this effect. The sensitivity increases with the thermal stress from the respective soldering process.

Components delivered without any form of protection against moisture should therefore either be baked or stored permanently in a dry environment, in both cases until immediately prior to soldering. The user is responsible for the qualification of the preparation and further processing of the LEDs.

Notes:

- The usage of LEDs in life-support devices or systems has to be expressly and written authorized by the supplier!
- Lead free product - RoHS compliant.
- Care must be taken when handling 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 must 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.
- The information in this document is subject to change without notice and describes the product generally. It shall not be considered as assured characteristics or detailed specification.
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- We understand suitable application of our published designs to be state-of-the-art technology which can no longer be classed as inventive under the stipulations of patent law. Our explicit application notes are to be treated only as mere examples of the many possible and extremely advantageous uses our products can be put to.
- Please contact our sales office in case you have any questions concerning the information inside this document.

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www.chips4light.com
info@chips4light.com
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¹After 1 minute of operation.

²Typical (Typ) data are defined as long-term production mean values. These values are not specified and only given for information.

³Measurements are done with an accuracy of $\pm 15\%$. Correlation to customer's equipment and products is required.

⁴Not to be exceeded at any time.