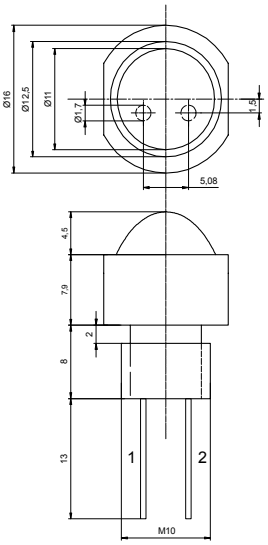
# Jumbo-LED ELJ-630-628

16.11.2007 rev. 06

| Radiation | Type | Technology | Case |
|---|---|---|---|
| Red | 3 W | AlInGaP/GaAs | Plastic lens, metal case |




**Outline:**

H = 12.4 mm (± 0.5)

D = 16 mm (± 0.5)

Thread M10

Pin 1 – cathode

Pin 2 – anode

## Description

High-power red LED in an aluminium case with thread socket, for easy handling and heat sink mounting

## Applications

Medical appliances, remote control and optical communications, light barriers, measurement systems

## Absolute Maximum Ratings

at $T_{amb}$ = 25°C, on heat sink (S ≥ 200 cm²), unless otherwise specified

| Parameter | Test conditions | Symbol | Value | Unit |
|---|---|---|---|---|
| DC forward current | on heat sink | $I_F$ | 1.0 | A |
| Peak forward current | $t_p$≤10 µs, f≤500 Hz | $I_{FM}$ | 1.5 | A |
| Power dissipation | on heat sink | P | 3 | W |
| Operating temperature range | on heat sink | $T_{amb}$ | -25 to +100 | °C |
| Storage temperature range | on heat sink | $T_{stg}$ | -25 to +100 | °C |
| Junction temperature | on heat sink | $T_j$ | 100 | °C |

## Electrical Characteristics

$T_{amb}$ = 25°C, unless otherwise specified

| Parameter | Test conditions | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Forward voltage | $I_F$ = 350 mA | $V_F$ | | 2.2 | 2.5 | V |
| Forward voltage* | $I_F$ = 1000 mA | $V_F$ | | 2.5 | 2.7 | V |
| Switching time | $I_F$ = 350 mA | $t_r$, $t_f$ | | 60 | | ns |
| Reverse voltage | $I_R$ = 10 µA | $V_R$ | 5 | | | |
| Thermal resistance junction-case | | $R_{thJC}$ | | 10 | | K/W |

*only recommended on optimal heat sink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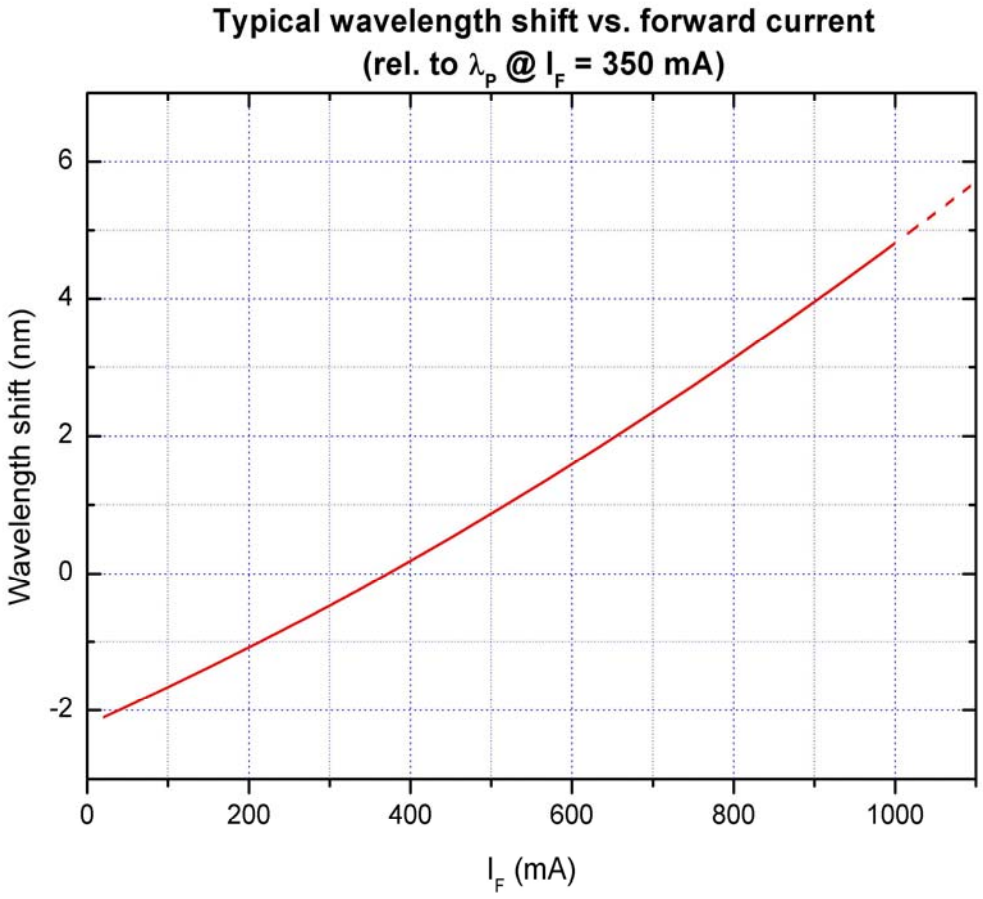
## Optical Characteristics

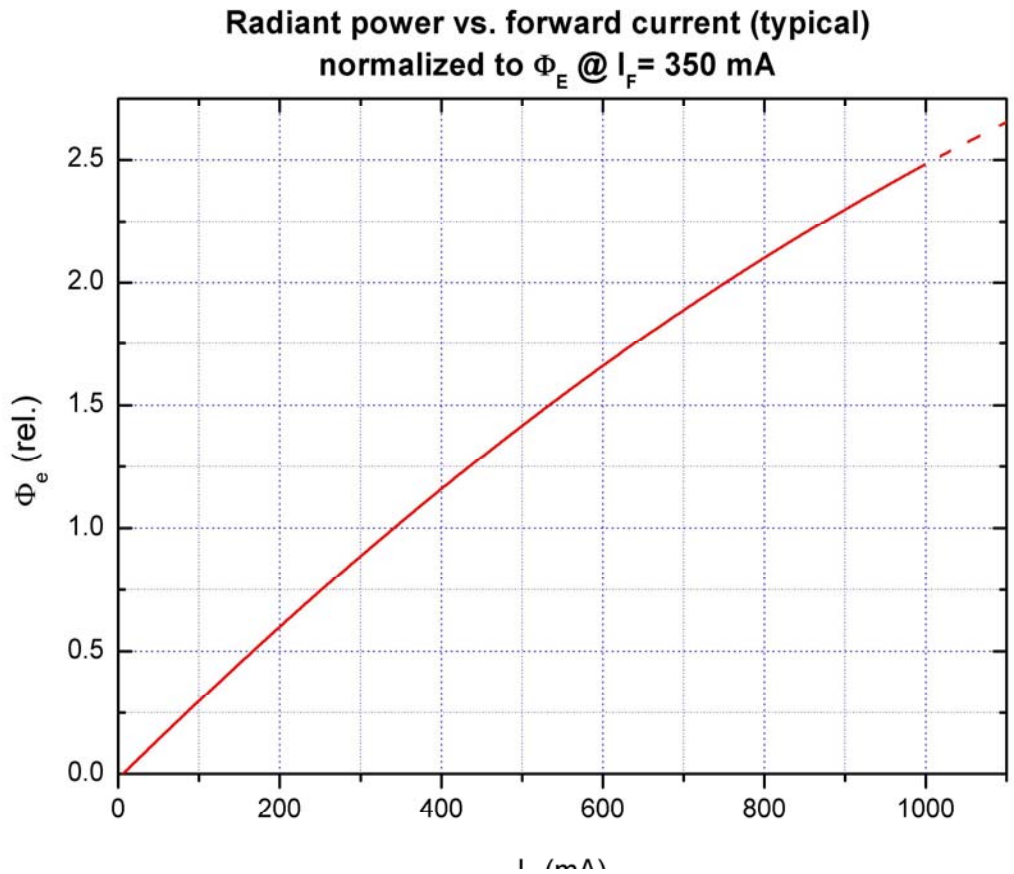
at $T_{amb}$ = 25°C, on heat sink (S ≥ 200 cm²), unless otherwise specified

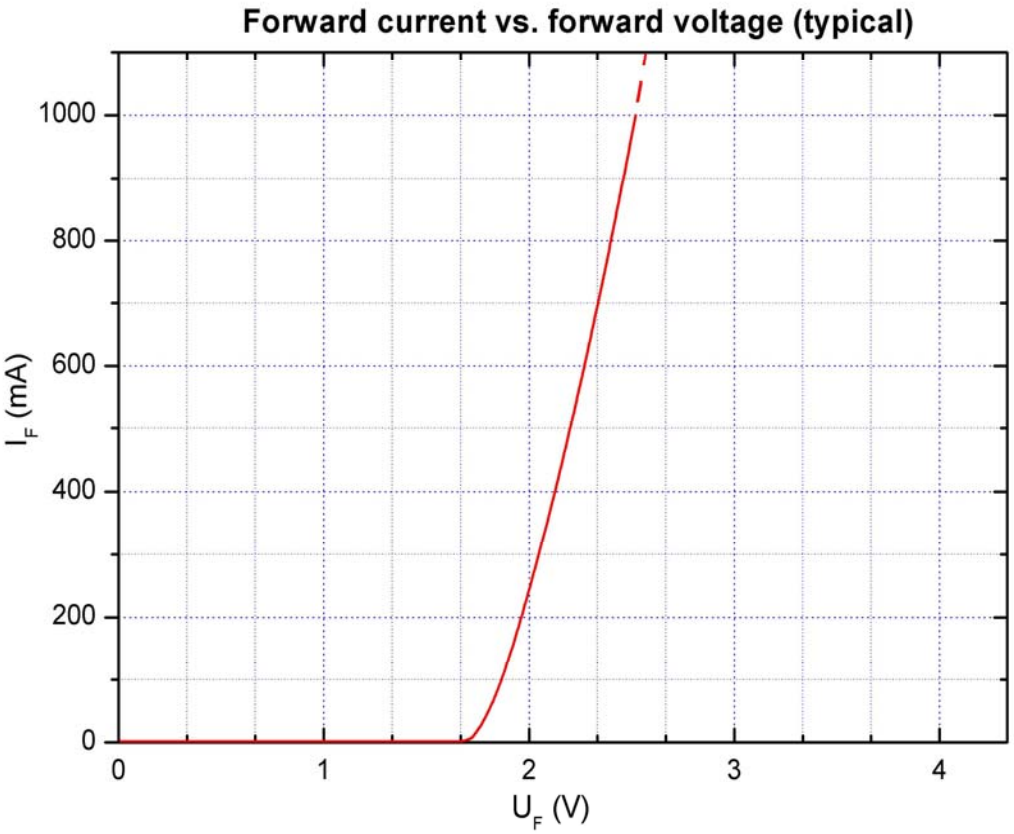
| Parameter | Test conditions | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Radiant power | $I_F$ = 350 mA | $\Phi_e$ | 65 | 95 | | mW |
| Radiant power* | $I_F$ = 1000 mA | $\Phi_e$ | | 260 | | mW |
| Radiant intensity | $I_F$ = 350 mA | $I_e$ | 420 | 830 | | mW/sr |
| Radiant intensity* | $I_F$ = 1000 mA | $I_e$ | | 1970 | | mW/sr |
| Luminous intensity | $I_F$ = 350 mA | $I_v$ | 90 | 175 | | cd |
| Luminous intensity* | $I_F$ = 1000 mA | $I_v$ | | 380 | | cd |
| Peak wavelength | $I_F$ = 350 mA | $\lambda_p$ | 625 | 630 | 635 | nm |
| Dominant wavelength | $I_F$ = 350 mA | $\lambda_D$ | | 620 | | nm |
| Spectral bandwidth at 50% | $I_F$ = 350 mA | $\Delta\lambda_{0.5}$ | | 20 | | nm |
| Viewing angle | $I_F$ = 350 mA | $\varphi$ | | 17 | | deg |

*only recommended on optimal heat sink

Note: All measurements carried out with *EPIGAP* equipment, on blank aluminium heat sink, S = 180 cm², passive cooling. Measurement results and curve characteristics obtained with other heat sinks may differ.







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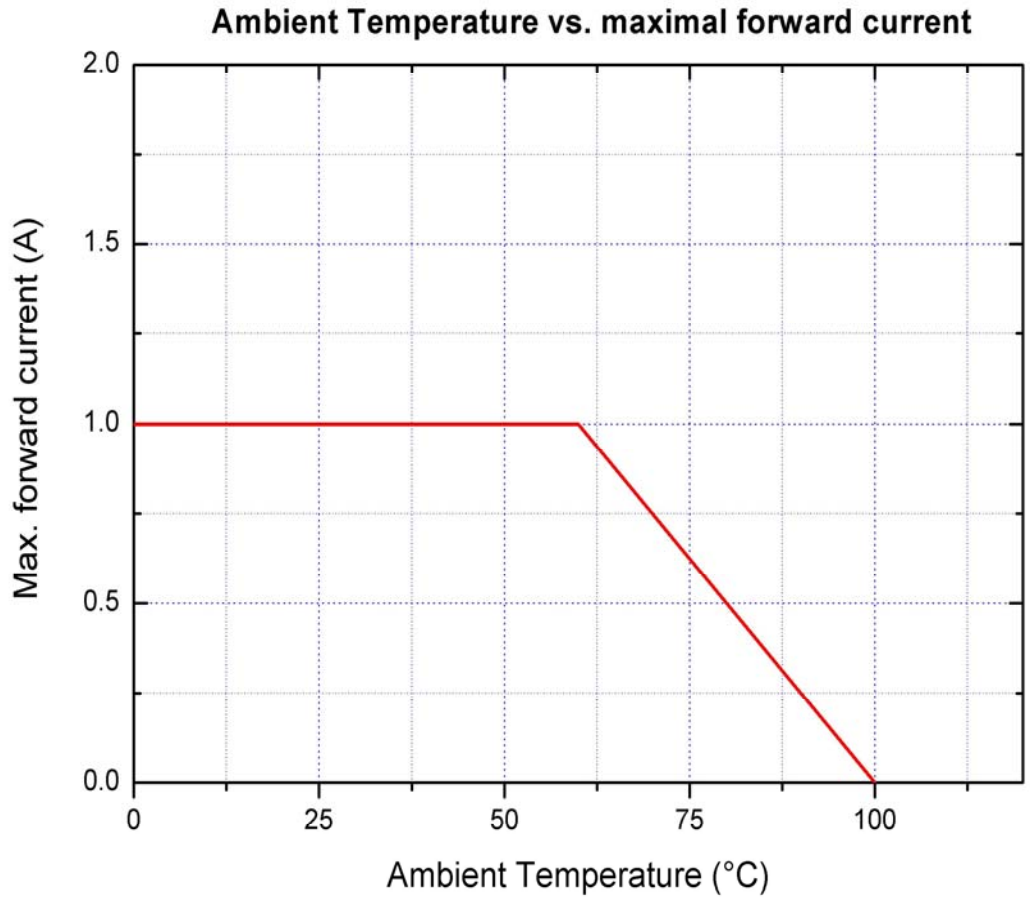


**Remarks concerning optical radiation safety***

For low forward current (<150 mA) and continuous operation, this LED may be classified as LED product *Class 2*, according to standard IEC 60825-1:A2. *Class 2* products emit in the visible region, damaging exposure is usually prevented through avert reactions including blink reflex. It can be expected that these reactions provide sufficient protection under reasonably predictable conditions. This also implicates a direct observation of the light beam by means of optical instruments.

If intended to operate at higher current, this product should be classified as LED product *Class 2M*, according to standard IEC 60825-1:A2. *Class 2M* products are safe to eyes and skin under normal conditions, including when users view the light beam directly. These products emit in the visible region and it is presumed that the human blink reflex will be sufficient to prevent damaging exposure, but if the beam is focused down, damaging levels of radiation may be reached. Therefore, users should not incorporate optics that could concentrate the output into the eyes.

*Note: Safety classification of an optical component mainly depends on the intended application and the way the component is being used. Furthermore, all statements made to classification are based on calculations and are only valid for this LED "as it is", and at continuous operation. Using pulsed current or altering the light beam with additional optics may lead to different safety classifications. Therefore these remarks should be taken as recommendation and guideline only.


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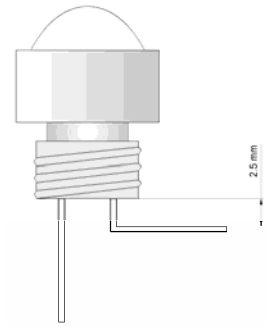
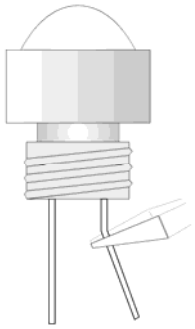
## Handling precautions

To prevent damage to the LED during soldering and assembly, following precautions have to be taken into account.

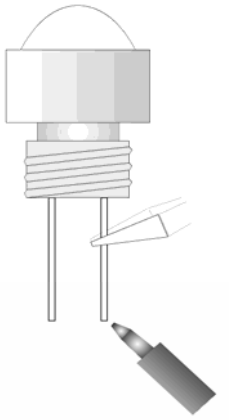
a) The bending point of the lead frame should be located at least 2.5 mm away from the body.



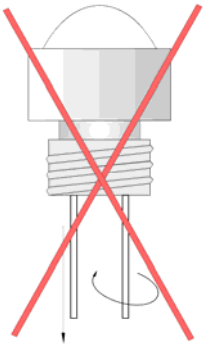

b) While bending, the base of the lead frame has to be fixed with radio pliers or similar.



c) To ensure an adequate strain relief, the lead frames have to be firmly fixed during soldering.



d) Avoid any torsion or tensile loading of the lead frames, especially when they have been heated after being soldered.



e) LEDs are static sensitive devices, so adequate handling precautions have to be taken, e.g. wearing grounding wrist straps.



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