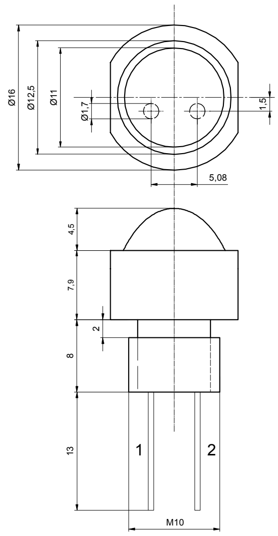
Jumbo-LED ELJ-670-629

16.11.2007 rev. 04

Radiation	Type	Technology	Case
Ruby	3 W	AlGaAs/GaAlAs	Plastic lens, metal case



Outline:

H = 12.4 mm (± 0.5)

D = 16.0 mm (± 0.5)

Thread M10

Pin 1 – cathode

Pin 2 – anode

Description

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

Applications

Illumination, 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	1.5	A
Peak forward current	t_p≤10 µs, f≤500 Hz	I_{FM}	1,8	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		2.0	2.5	V
Forward voltage*	I_F = 1000 mA	V_F		2.5	3.0	V
Switching time	I_F = 350 mA	t_r, t_f		55		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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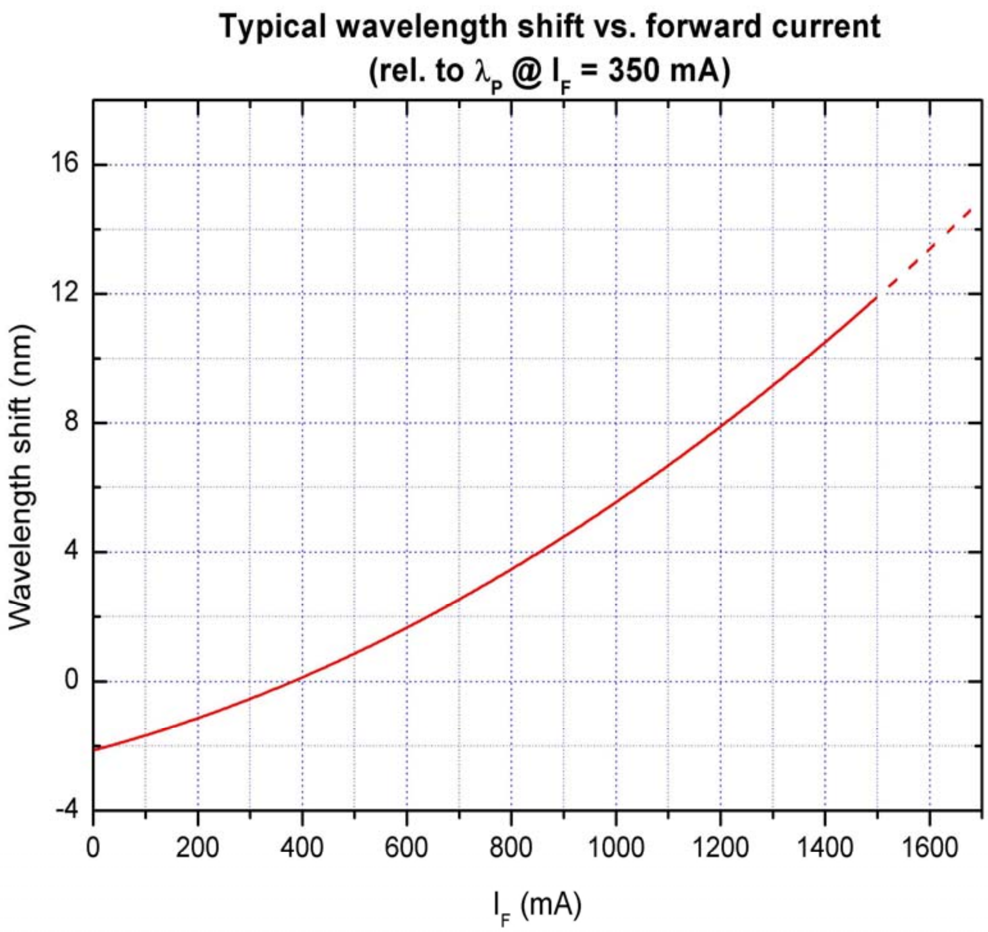
Optical Characteristics

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	Φ_e	20	30		mW
Radiant power*	I_F = 1000 mA	Φ_e	55	80		mW
Radiant intensity	I_F = 350 mA	I_e	220	320		mW/sr
Radiant intensity*	I_F = 1000 mA	I_e		800		mW/sr
Peak wavelength	I_F = 350 mA	λ_p	660	670	680	nm
Spectral bandwidth at 50%	I_F = 350 mA	$\Delta\lambda_{0.5}$		24		nm
Viewing angle	I_F = 350 mA	φ		15		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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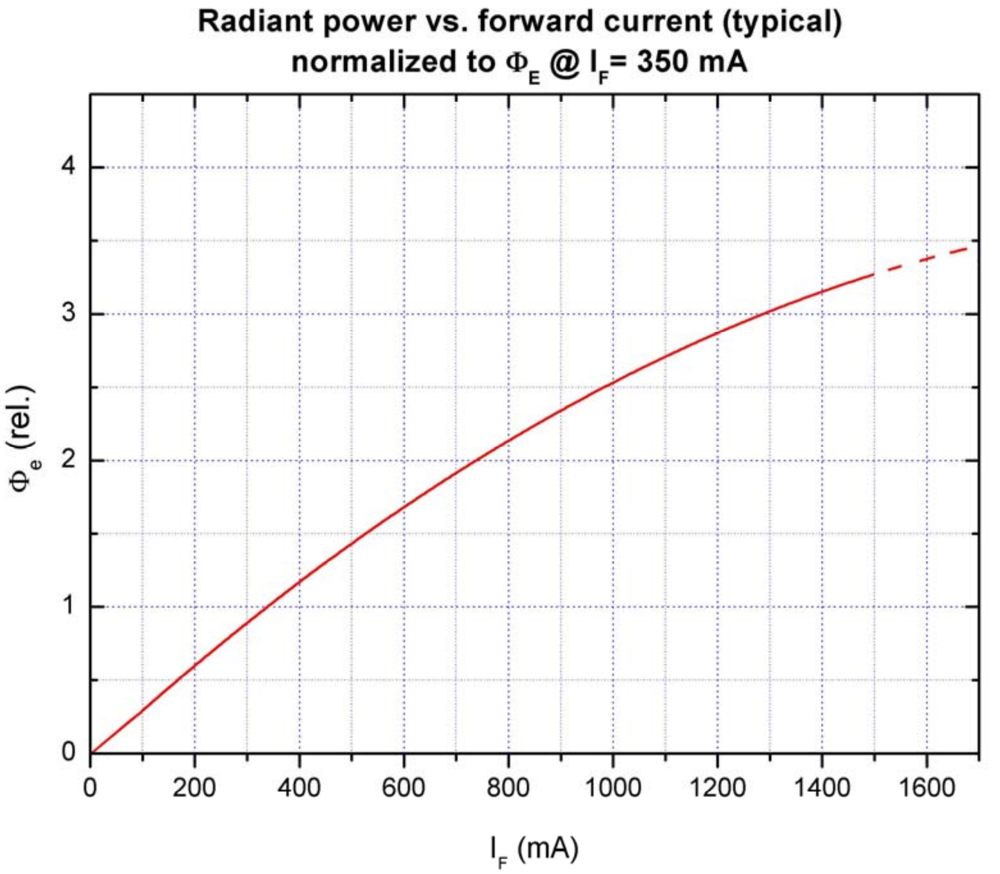
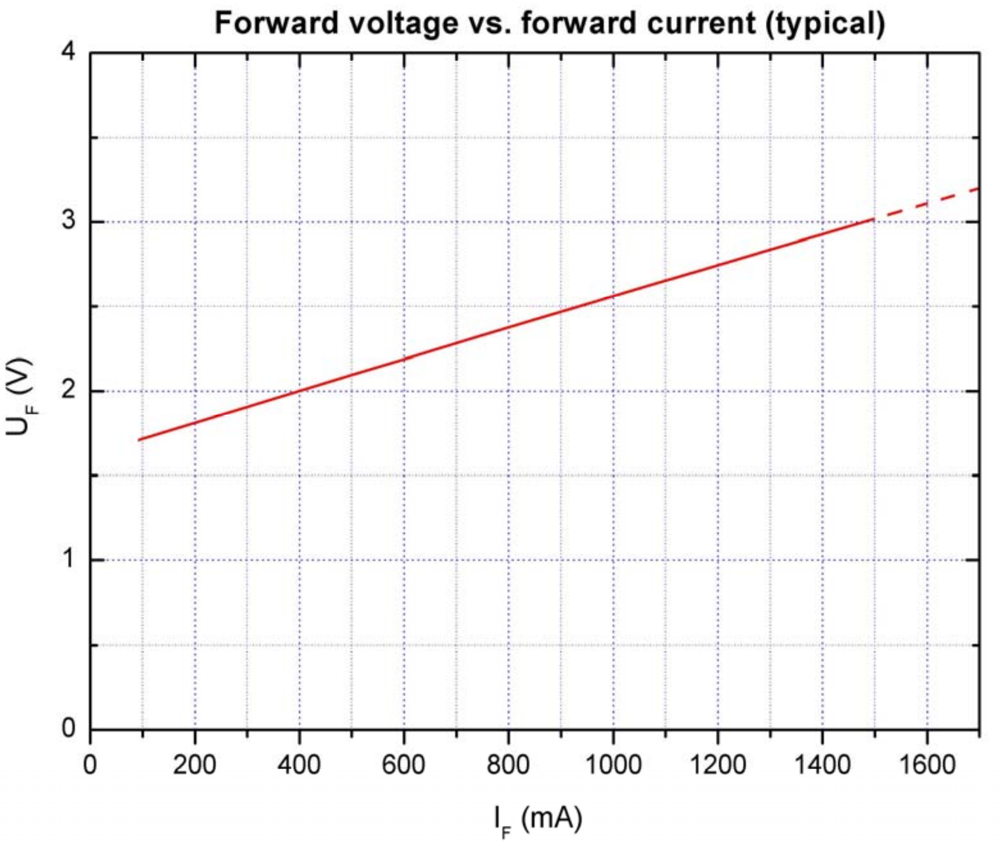
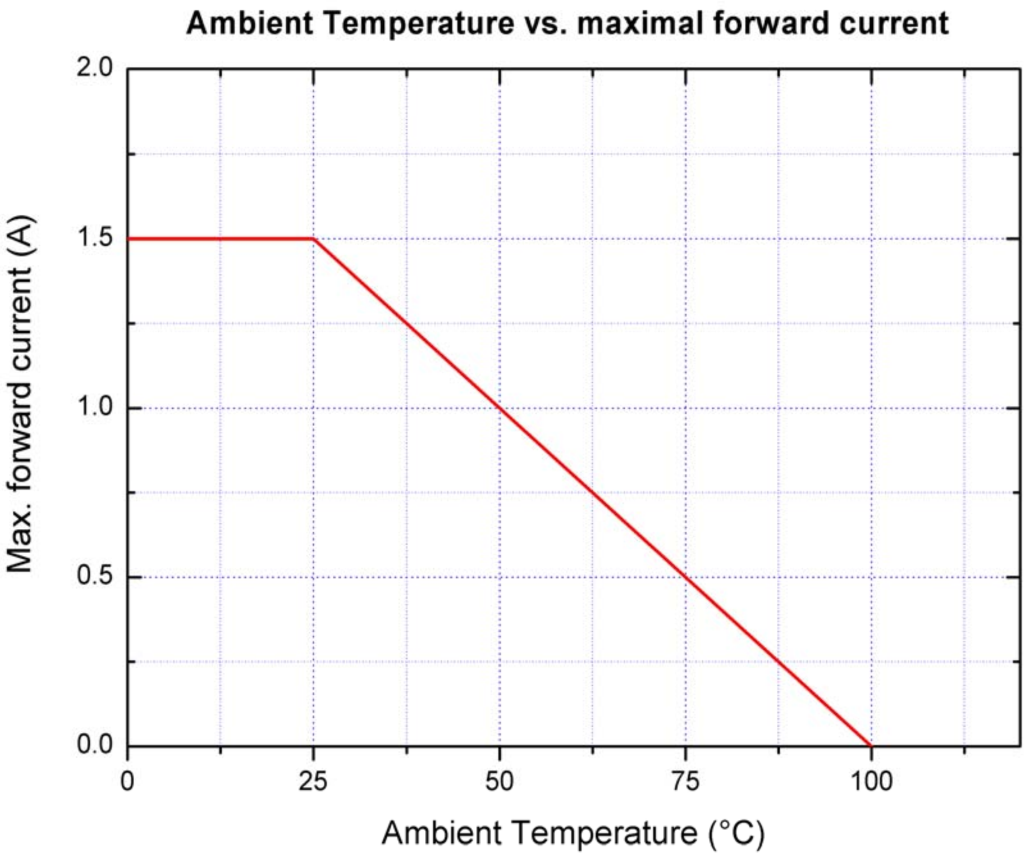

Radiant power vs. forward current (typical)
normalized to Φ_E @ I_F= 350 mA
Φ_e (rel.)
0
1
2
3
4
0
200
400
600
800
1000
1200
1400
1600
I_F (mA)


Forward voltage vs. forward current (typical)
U_F (V)
0
1
2
3
4
0
200
400
600
800
1000
1200
1400
1600
I_F (mA)



Remarks concerning optical radiation safety*

Up to nominal forward current (≤350 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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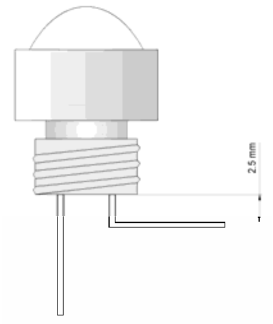
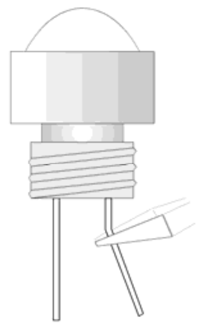
Handling precautions

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

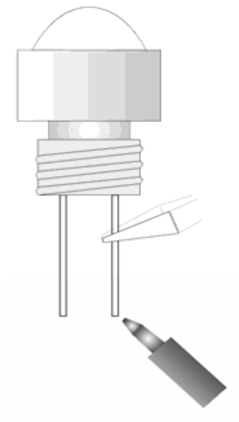
a) The bending point of the lead frame should be located at least 2.5 mm away from the body.



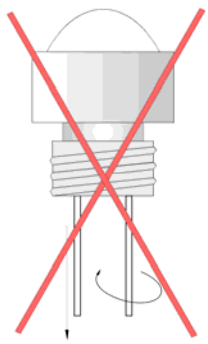
b) While bending, the base of the lead frame has to be fixed with radio pliers or similar.



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.