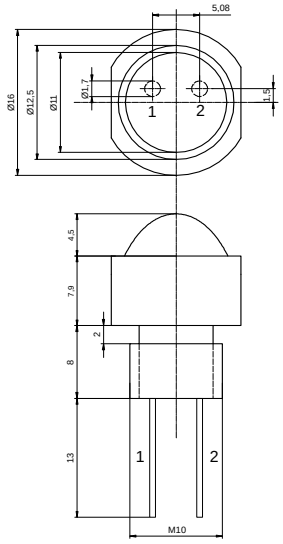
Jumbo-LED ELJ-830-649-1

07.05.2008 rev. 02

Radiation	Type	Technology	Case
Infrared	4 W	AlGaAs/AlGaAs	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 infrared-LED in black anodised aluminium case, with thread socket for easy handling and heat sink mounting

Applications

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

Absolute Maximum Ratings

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

Parameter	Test conditions	Symbol	Value	Unit
DC forward current	on heat sink	I_F	1.2	A
Peak forward current	t_p≤10 µs, D = 0,05	I_{FM}	2.0	A
Power dissipation	on heat sink	P	2.8	W
Operating temperature range	on heat sink	T_{amb}	-25 to +100	℃
Storage temperature range	on heat sink	T_{stg}	-25 to +100	℃
Junction temperature	on heat sink	T_j	100	℃

Electrical Characteristics

T_{amb} = 25℃, unless otherwise specified

Parameter	Test conditions	Symbol	Min	Typ	Max	Unit
Forward voltage	I_F = 350 mA	V_F		1.6	1.9	V
Forward voltage*	I_F = 1000 mA	V_F		2.0	2.4	V
Switching time	I_F = 350 mA	t_r, t_f		20		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

EPIGAP Optoelektronik GmbH, D-12555 Berlin, Köpenicker Str.325 b, Haus 201
Tel.: +49-30-6576 2543, Fax : +49-30-6576 2545

Optical Characteristics

at T_{amb} = 25℃, 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	80	110		mW
Radiant power*	I_F = 1000 mA	Φ_e		300		mW
Radiant intensity	I_F = 350 mA	I_e	200	300		mW/sr
Radiant intensity*	I_F = 1000 mA	I_e		850		mW/sr
Peak wavelength	I_F = 350 mA	λ_p	820	830	840	nm
Spectral bandwidth at 50%	I_F = 350 mA	$\Delta\lambda_{0.5}$		35		nm
Full viewing angle	I_F = 350 mA	φ		35		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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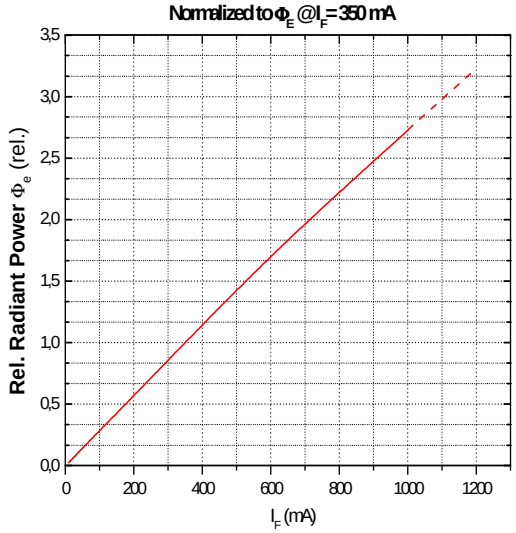
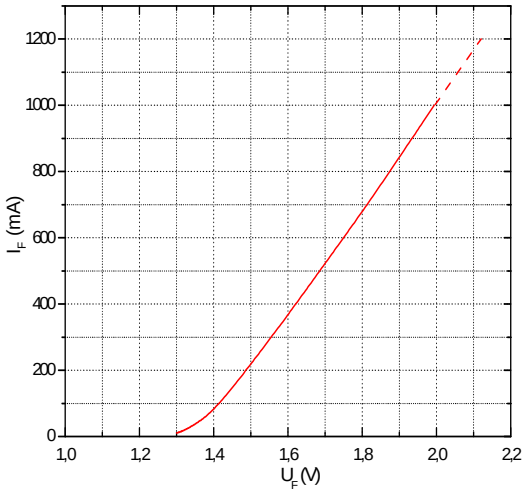
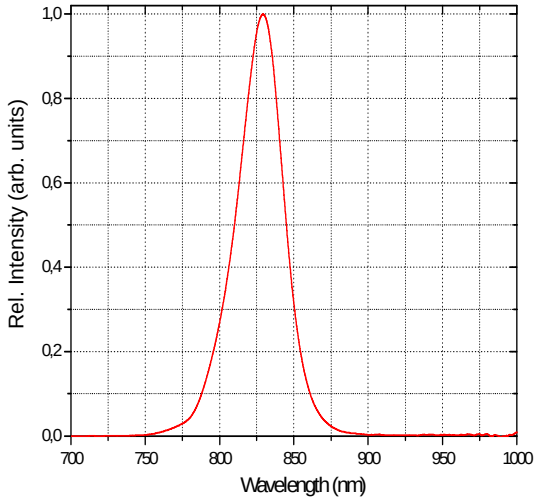
Radiant Power vs. Forward Current (typical)
Normalized to Φ_E @I_F=350 mA



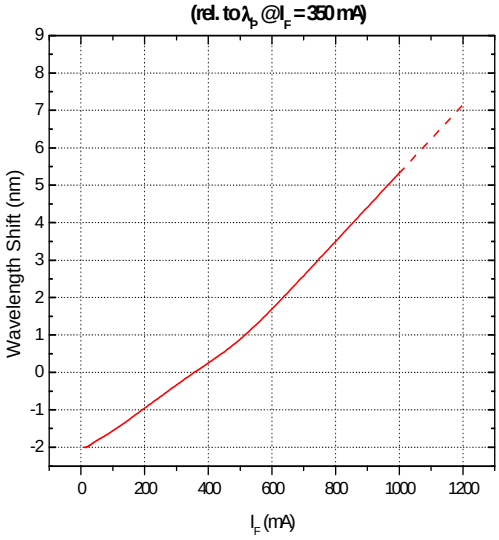
Forward Current vs. Forward Voltage (typical)



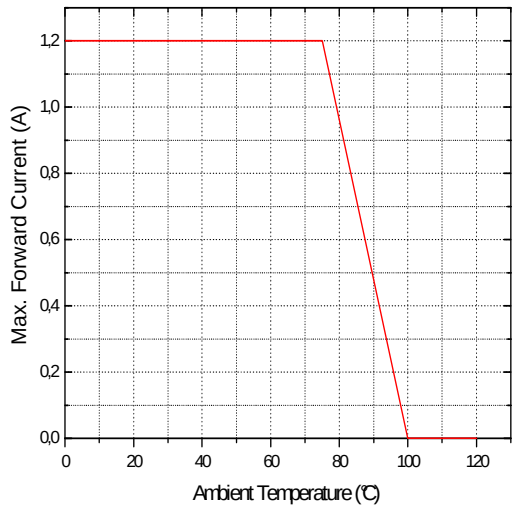
Spectral Power Distribution (typical)
at I_F = 350 mA



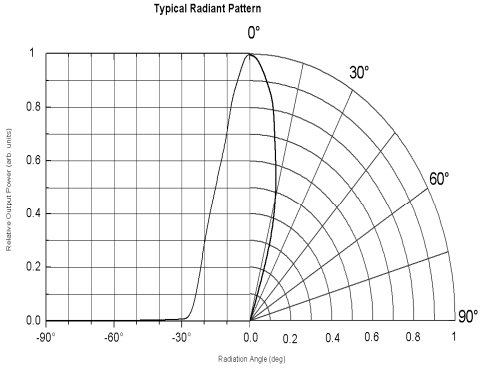
Typical Wavelength Shift vs. Forward Current
(rel. to λ_P @I_F = 350 mA)



Ambient Temperature vs. Maximal Forward Current



Typical Radiant Pattern



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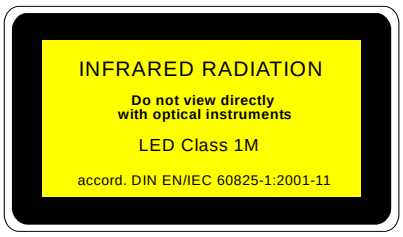
Remarks concerning optical radiation safety*

This LED may be classified as LED product Class 1 according to standard IEC 60825-1:A2 at low forward current (<160 mA) and continuous operation. *Class 1* products are safe to eyes and skin under reasonable predictable conditions. This implicates a direct observation of the light beam by means of optical instruments.

This product should be classified as LED product Class 1M according to standard IEC 60825-1:A2 if driven with higher continuous forward current (up to 1 A). Class 1M products are safe to eyes and skin under normal conditions, even when users look into the light beam directly. Class 1M products produce either a highly divergent beam or a large diameter beam, so only a small part of the whole radiation beam can enter the eye. However, such optical products can be harmful to the retina using magnifying optical instruments. Therefore, users should not incorporate optics that could focus 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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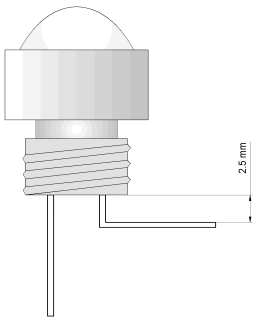
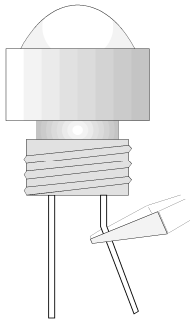
Handling precautions

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

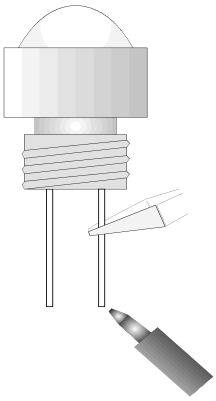
a) The bending point of the lead frame should be located at least 2.5 mm away from the body.



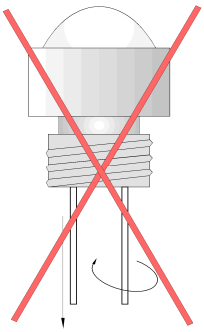
b) While bending, the base of the lead frame has to be fixed with radio pliers or similar.



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



d) To avoid any damage of the LED during soldering the lead frames should not be distorted especially when they have been heated



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

ESD

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