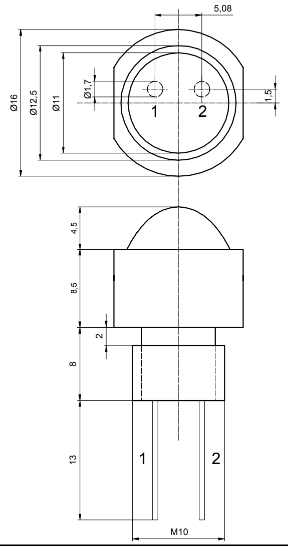
Radiation	Type	Technology	Case
Infrared	2 W	AlGaAs/GaAlAs	Plastic lens, metal case



Outline:

H = 13 mm (± 0.5)

D = 16 mm (± 0.5)

Thread M10

Pin 1 – cathode

Pin 2 – anode

Description

High-power infrared LED with narrow beam angle, with aluminium case and 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	1.1	A
Peak forward current	t_p≤10 µs, f≤500 Hz	I_{FM}	2,0	A
Power dissipation	on heat sink	P	2	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		1.5	2.0	V
Forward voltage*	I_F = 1000 mA	V_F		1.9		V
Switching time	I_F = 350 mA	t_r, t_f		100		ns
Reverse voltage	I_R = 100 µA	V_R	5			
Thermal resistance junction-case		R_{thJC}		10		K/W

*only recommended on optimal heat sink

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Tel.: +49-30-6576 2543, Fax : +49-30-6576 2545

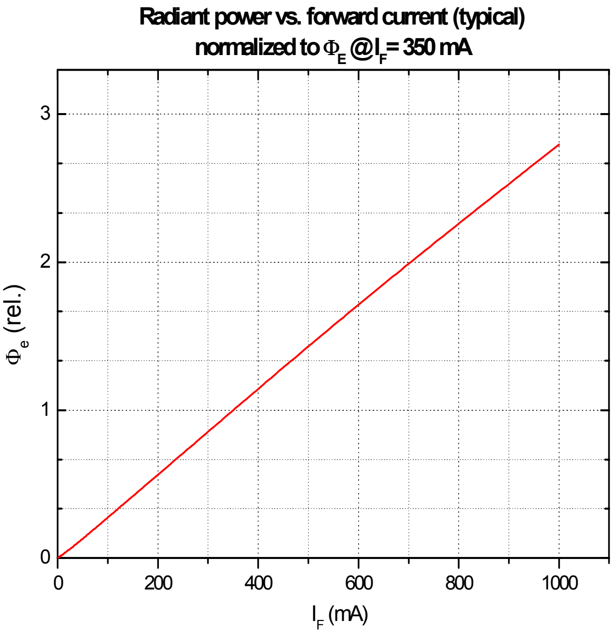
Optical Characteristics

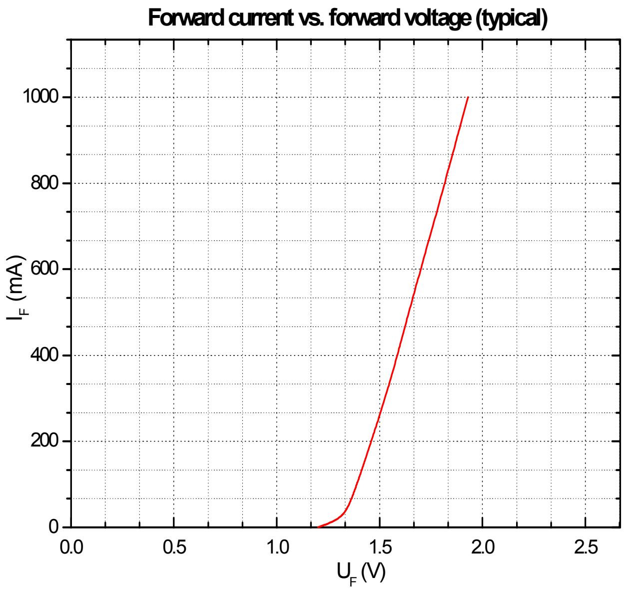
at T_{amb} = 25°C, on heat sink (S ≥ 200 cm²), unless otherwise specified

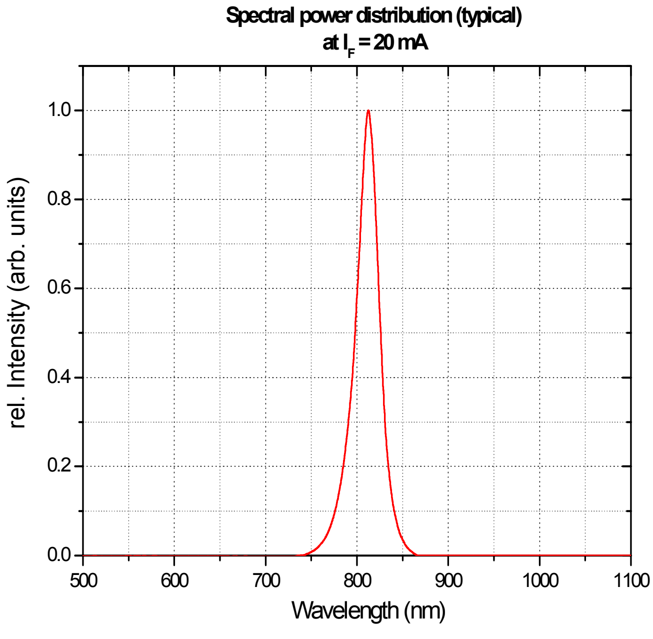
Parameter	Test conditions	Symbol	Min	Typ	Max	Unit
Radiant power	I_F = 350 mA	Φ_e	50	85		mW
Radiant power*	I_F = 1000 mA	Φ_e		220		mW
Radiant intensity	I_F = 350 mA	I_e	800	1200		mW/sr
Radiant intensity*	I_F = 1000 mA	I_e		3300		mW/sr
Peak wavelength	I_F = 350 mA	λ_p	800	810	820	nm
Spectral bandwidth at 50%	I_F = 350 mA	$\Delta\lambda_{0,5}$		30		nm
Viewing angle	I_F = 350 mA	φ		10		deg

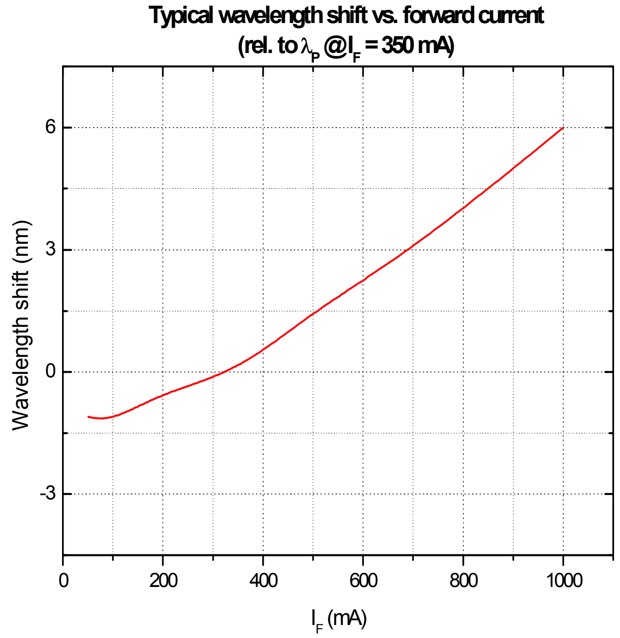
*only recommended on optimal heat sink

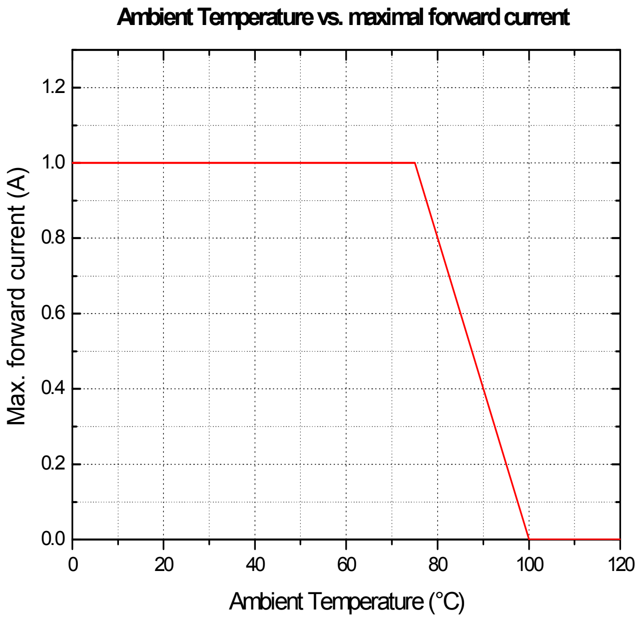
Note: All measurements carried out with *EPIGAP* equipment, on blank aluminium heat sink, S = 180 cm², passive cooling. Measurement results and curve characteristics obtained with other heat sinks may differ.

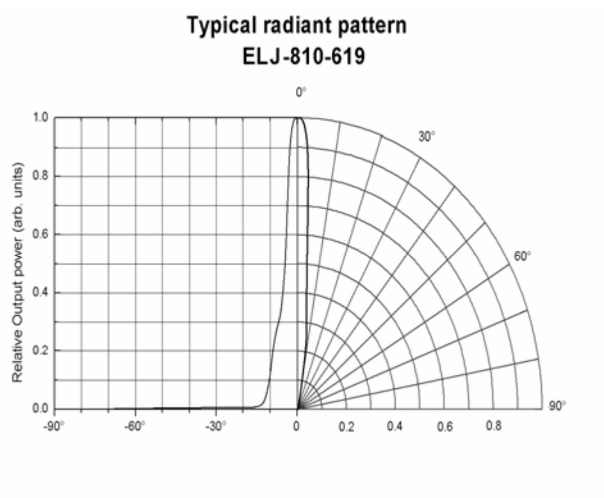





Spectral power distribution (typical)
at I_F = 20 mA
rel. Intensity (arb. units)
Wavelength (nm)
0.0
0.2
0.4
0.6
0.8
1.0
500
600
700
800
900
1000
1100


Typical wavelength shift vs. forward current
(rel. to λ_P @ I_F = 350 mA)
Wavelength shift (nm)
I_F (mA)
-3
0
3
6
0
200
400
600
800
1000

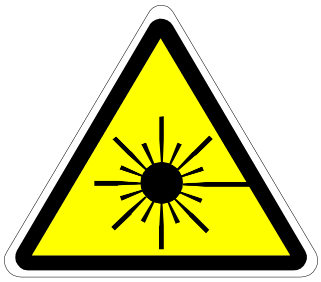

Ambient Temperature vs. maximal forward current
Max. forward current (A)
Ambient Temperature (°C)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0
20
40
60
80
100
120

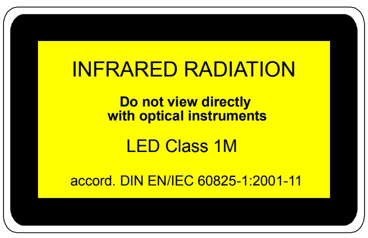

Typical radiant pattern
ELJ-810-619
Relative Output power (arb. units)
0°
30°
60°
90°
-90°
-60°
-30°
0
0.2
0.4
0.6
0.8
1.0

Remarks concerning optical radiation safety*

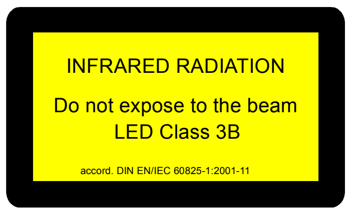
Up to a forward current of 350 mA, at continous operation, this product may be classified as LED product *Class 1M*, according to standard IEC 60825-1:A2. *Class 1M* products are safe to eyes and skin under normal conditions, including when users view the light beam directly. *Class 1M* products produce either a highly divergent beam or a large diameter beam,so only a small part of the whole light beam can enter the eye. However, such optical products can be harmful to the retina if the beam is viewed using magnifying optical instruments. Therefore, users should not incorporate optics that could concentrate the output into the eyes.

If intended to operate at higher continuous current (>350 mA), this product has to be (potentially) classified as *Class 3B* LED. *Class 3B* LEDs may have sufficient power to cause an eye injury, both from the direct beam and from reflections,so these products are therefore considered hazardous to the eye. However, the extent and severity of any eye injury arising from an exposure to the light beam of a *Class 3B* product will depend upon several factors including the radiant power entering the eye and the duration of the exposure. Nontheless, adequate precautions should be taken to avoid direct or indirect viewing into the beam..





$I_F < 350mA$



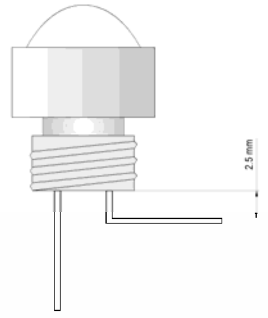
$I_F > 350mA$

*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.

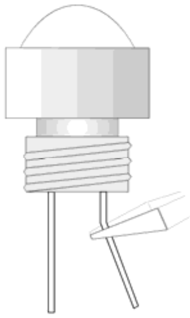
Handling precautions

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

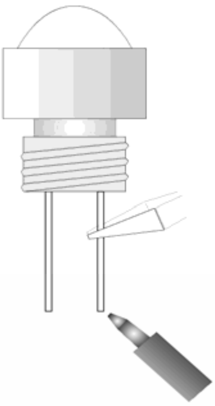
a) The bending point of the lead frame should be located at least 2.5 mm away from the body.



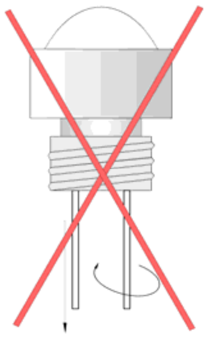
b) While bending, the base of the lead frame has to be fixed with radio pliers or similar.



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.