



ELJ-590-627



TECHNICAL DATA

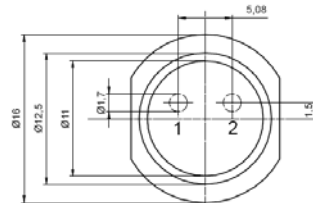
High Power LED, Jumbo Package

AllnGaP

ELJ-590-627 is high power LED in an black anodised aluminium case, with thread socket for easy handling and heat sink mounting. It is designed for illumination, remote control and optical communications, light barriers, measurement systems, etc.

Specifications

- Technology: AllnGaP, 1 power LED chip
- Peak Wavelength: typ. 590 nm
- Optical Output Power: typ. 25 mW
- Package: Jumbo, metal case with plastic lens

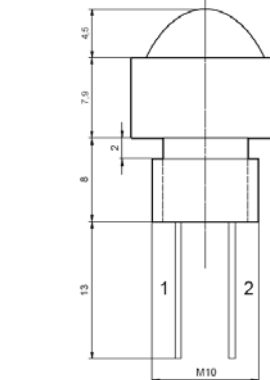


Absolute Maximum Ratings (T_C=25°C)

Item	Symbol	Value	Unit
Power Dissipation	P _D	3	W
Forward Current	I _F	1.0	A
Pulse Forward Current *	I _{FP}	1.6	A
Operating Temperature	T _{opr}	-25 ... +100	°C
Storage Temperature	T _{stg}	-25 ... +100	°C
Junction Temperature	T _j	100	°C

on heat sink (S ≥ 200 cm²)

* pulse width ≤ 10μs, f ≤ 500 Hz



Outline:

H = 12.4 mm (± 0.5)
 D = 16 mm (± 0.5)

Thread M10

PIN	Function
1	LED Cathode
2	LED Anode

(Unit: mm)

Specifications (T_C=20°C)

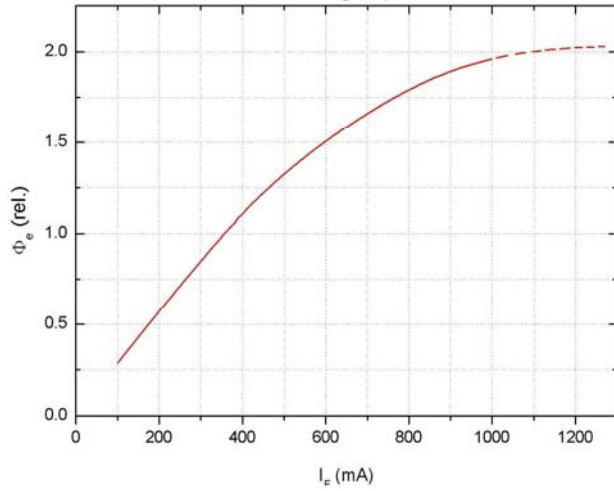
Item	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Optical Specifications						
Radiant Power	I _F = 350 mA	Φ _e	20	25	-	mW
Radiant Power *	I _F = 700 mA	Φ _e	-	40	-	mW
Radiant Intensity	I _F = 350 mA	I _e	170	330	-	mW/sr
Radiant Intensity *	I _F = 700 mA	I _e	-	570	-	mW/sr
Luminous Intensity	I _F = 350 mA		70	140	-	cd
Luminous Intensity *	I _F = 700 mA		-	230	-	cd
Peak Wavelength	I _F = 350 mA	λ _p	585	595	605	nm
Spectral Bandwidth at 50%	I _F = 350 mA	Δλ _{0,5}	-	17.5	-	nm
Viewing Angle	I _F = 350 mA	φ	-	17	-	deg
Electrical Specifications						
Forward Voltage	I _F = 350 mA	U _F	-	2.2	2.9	V
Forward Voltage *	I _F = 700 mA	U _F	-	2.4	3.2	V
Switching Time	I _F = 350 mA	t _r , t _f	-	65	-	ns
Reverse Voltage	I _R = 10 μA	U _R	5	-	-	
Thermal Resistance Junction-Case		R _{thJC}	-	10	-	K/W

* only recommended on optimal heat sink

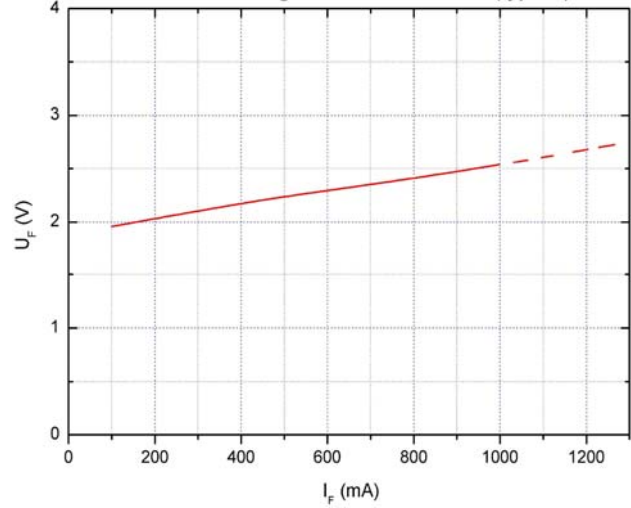


Typical Performance Curves

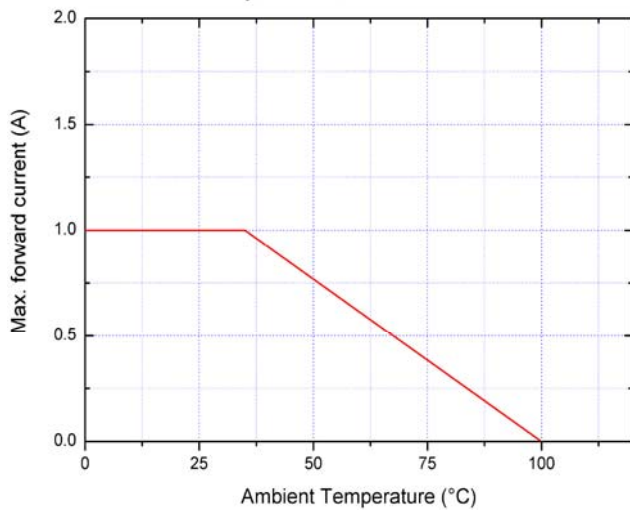
Radiant power vs. forward current (typical)
normalized to Φ_E @ $I_F = 350$ mA



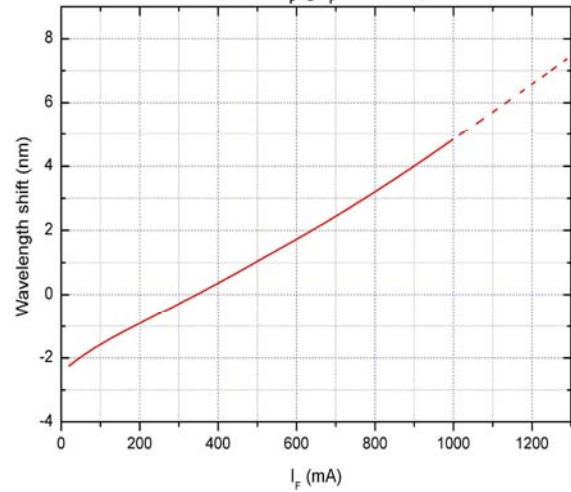
Forward voltage vs. forward current (typical)



Ambient Temperature vs. maximal forward current



Typical wavelength shift vs. forward current
(rel. to λ_p @ $I_F = 350$ mA)





Remarks concerning optical radiation safety*

At low 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.

Notes

- The mentioned specifications are for reference purpose only and subjected to change without prior notice.
- All measurements carried out on blank aluminium heat sink, S = 180 cm², passive cooling. Measurement results and curve characteristics obtained with other heat sinks may differ.
- Do not view directly into the emitting area of the LED during operation!
- This high power LED must be cooled!



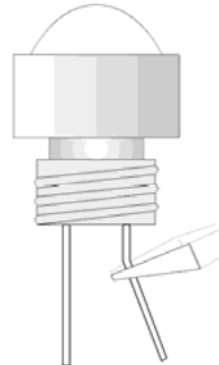
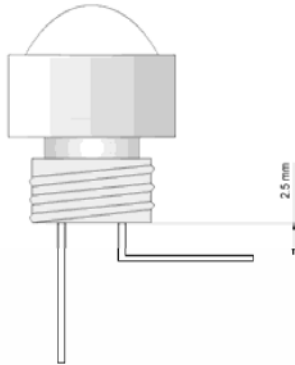
NOTE
LED
MUST BE COOLED



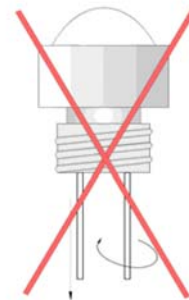
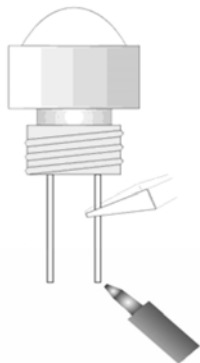
Handling precautions

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.

