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ELD-810-345

TECHNICAL DATA

Infrared LED, 3 mm AlGaAs

ELD-810-345 is a AlGaAs, high-power, high-speed infrared LED in standard 3 mm housing.
On forward bias, it emits a high power radiation of typical 18 mW at a peak wavelength at 810 nm.

Specifications

- Structure: AlGaAs/AlGaAs
- Peak Wavelength: typ. 810 nm
- Optical Output Power: typ. 18 mW
- Package: 3 mm plastic lens

Absolute Maximum Ratings (T_a=25°C)

Item	Symbol	Condition	Value	Unit
Power Dissipation	P_D		120	mW
Forward Current	I_F		60	mA
Peak Forward Current	I_{FP}	t_P: 10 µs, T = 10 ms	150	mA
Operating Temperature	T_{opr}		-20 … +85	°C
Storage Temperature	T_{stg}		-30 … +100	°C
Junction Temperature	T_J		100	°C
Soldering Temperature	T_{sol}	t ≤ 5 s, 3 mm from case	260	°C

Electro-Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	U_F	I_F = 20 mA	-	1.5	1.8	V
Forward Voltage *	U_F	I_F = 50 mA	-	1.6	-	V
Reverse Voltage	U_R	I_R = 100 µA	5	-	-	V
Radiation Power	P_O	I_F = 20 mA	6	8	-	mW
Radiation Power *	P_O	I_F = 50 mA	14	18	-	mW
Radiation Intensity *	I_E	I_F = 50 mA	20	28	-	mW/sr
Peak Wavelength	λ_P	I_F = 20 mA	800	810	830	nm
Half Width	$\Delta\lambda$	I_F = 20 mA	-	30	-	nm
Viewing Angle	φ	I_F = 20 mA	-	30	-	deg.
Switching Time	t_r, t_f	I_F = 20 mA	-	40	-	ns

* measured after 30s current flow

Notes

- Do not view directly into the emitting area of the LED during operation!
- The above specifications are for reference purpose only and subjected to change without prior notice.

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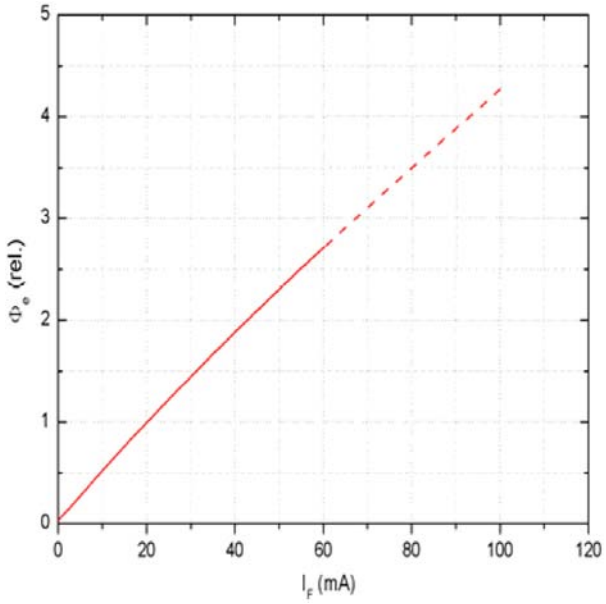
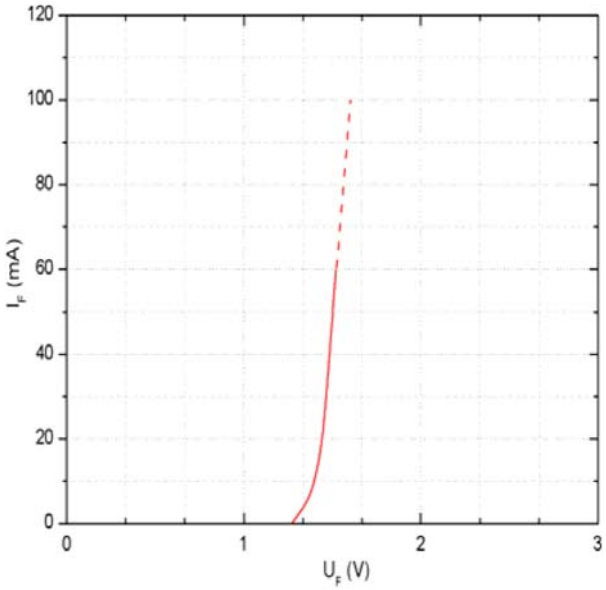
Typical Performance Curves

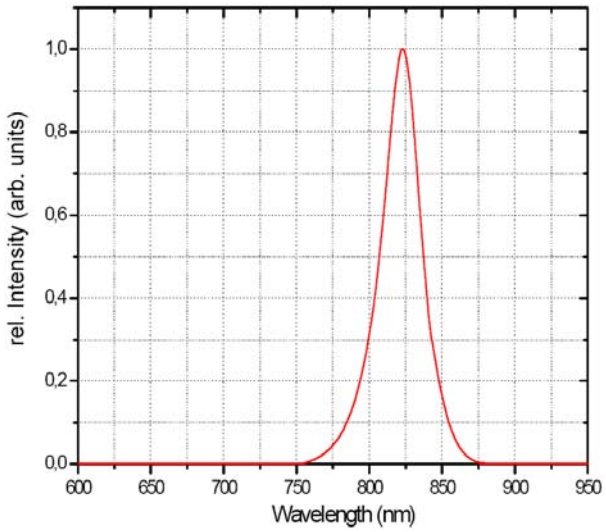
Radiant Power – Forward Current (typical)
normalized to P_O @ I_F=20 mA



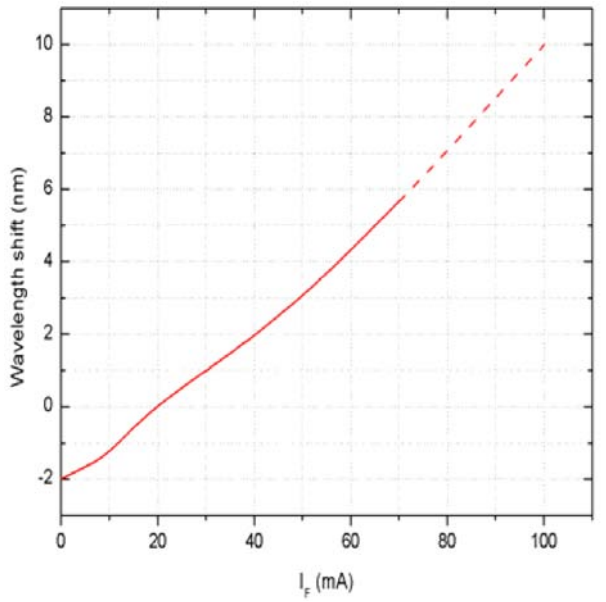
Forward Current – Forward Voltage (typical)



Spectral Power Distribution (typical)
at I_F=20 mA



Typical Wavelength Shift – Forward Current
(rel. to λ_P @ I_F=20 mA)



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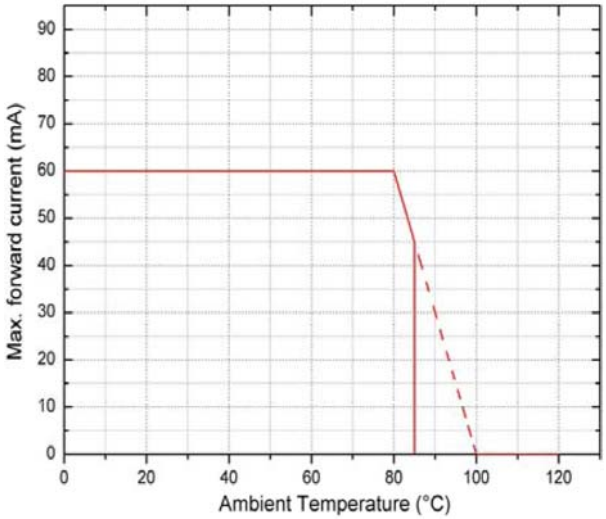
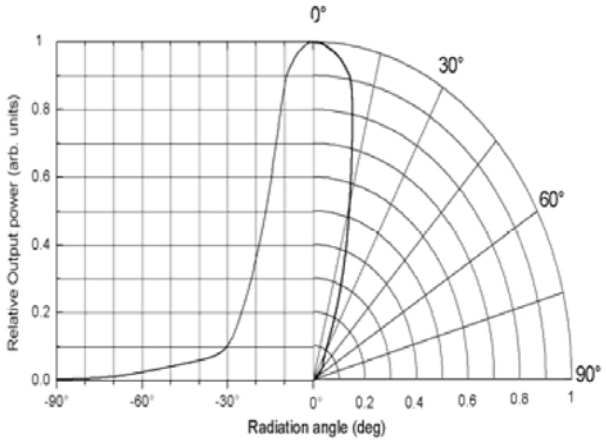
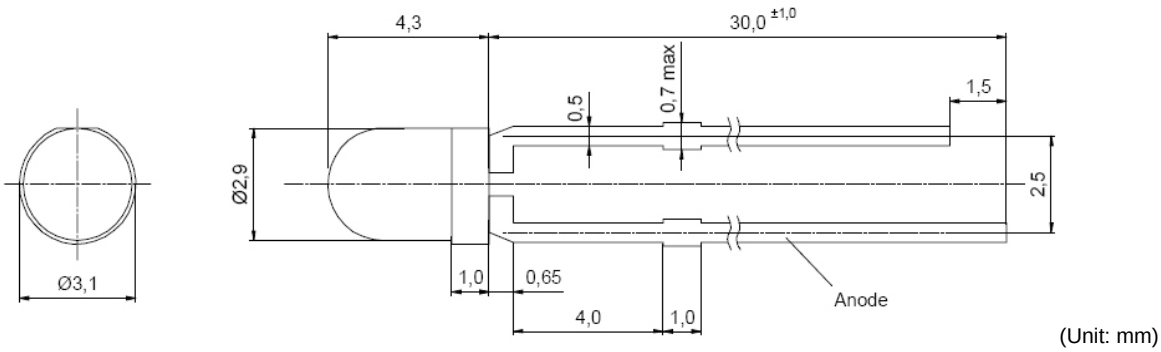
Ambient Temperature – Max. Forward Current



Typical Radiant Pattern



Outer Dimensions



Precaution for Use

1. Cautions

DO NOT look directly into the emitted light or look through the optical system. To prevent in adequate exposure of the radiation, wear protective glasses.

*2. Remarks concerning optical radiation safety**

Up to maximum forward current, at continuous operation, this LED may be classified as LED product Class 1 , according to standard IEC 60825-1:A2. Class 1 products are safe to eyes and skin under reasonably predictable conditions. This implicates a direct observation of the light beam by means of optical instruments.

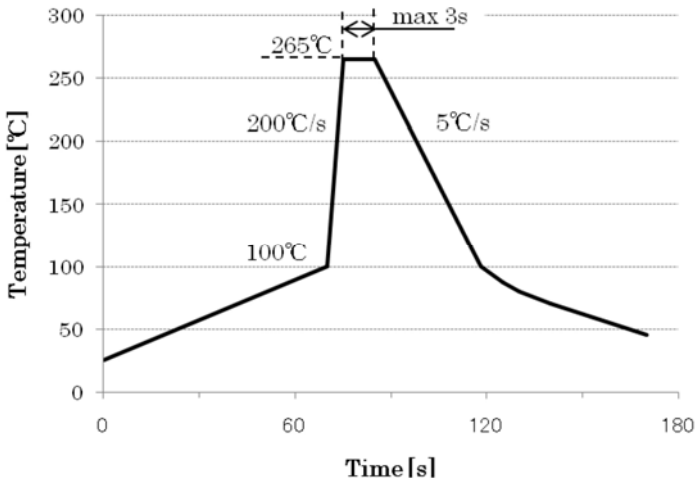
*Note: Safety classification of an optical component mainly depends on the intended application and the way the component is being used. Furthermore, all statements made to classification are based on calculations and are only valid for this LED "as it is", and at continuous operation. Using pulsed current 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.

3. Lead Forming

- When forming leads, the leads should be bent at a point at least 3 mm from the base of the lead. DO NOT use the base of the leadframe as a fulcrum during lead forming.
- Lead forming should be done before soldering.
- DO NOT apply any bending stress to the base of the lead. The stress to the base may damage the LED's characteristics or it may break the LEDs.
- When mounted the LEDs onto the printed circuit board, the holes on the circuit board should be exactly aligned with the leads of LEDs. If the LEDs are mounted with stress at the leads, it causes deterioration of the lead and it will degrade the LEDs.

4. Soldering Conditions

- Solder the LEDs no closer than 3 mm from the base of the lead.
- DO NOT apply any stress to the lead particularly when heat.
- The LEDs must not be reposition after soldering.
- After soldering the LEDs, the lead should be protected from mechanical shock or vibration until the LEDs return to room temperature.
- When it is necessary to clamp the LEDs to prevent soldering failure, it is important to minimize the mechanical stress on the LEDs.
- Cut the LED leads at room temperature. Cutting the leads at high temperature may cause the failure of the LEDs.



5. Static Electricity

- The LEDs are very sensitive to Static Electricity and surge voltage. So it is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.
- All devices, equipment and machinery must be grounded properly. It is recommended that precautions should be taken against surge voltage to the equipment that mounts the LEDs.