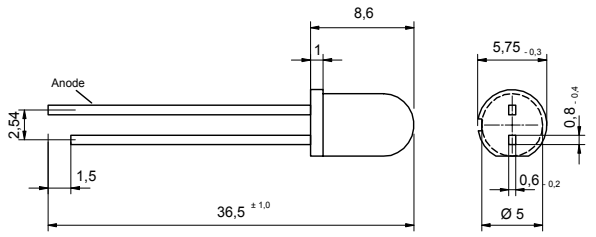
LED - Lamp

ELD-940-535

15.11.2007 rev. 02

Radiation	Type	Technology	Case
Infrared	DH	AlGaAs/GaAs	5 mm plastic lens



Description

High-power, high-speed infrared LED in the widely used 940 nm range. Mounted in standard 5 mm housing without standoff leads

Note: Special packages with standoff available on request

Applications

Optical communications, safety equipment, automation, optical sensors, medical appliances

Maximum Ratings

T_{amb} = 25°C, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current (DC)		I_F	150	mA
Peak forward current	($t_P \leq 50$ µs, $t_P/T = 1/2$)	I_{FM}	250	mA
Power dissipation		P_D	250	mW
Operating temperature range		T_{amb}	-20 to +80	°C
Storage temperature range		T_{stg}	-40 to +100	°C
Junction temperature		T_J	100	°C
Soldering temperature	t ≤ 5 s, 3 mm from case	T_{Sd}	260	°C

Optical and Electrical Characteristics

T_{amb} = 25°C, unless otherwise specified

Parameter	Test conditions	Symbol	Min	Typ	Max	Unit
Forward voltage	I_F = 20 mA	V_F		1.2	1.4	V
Forward voltage*	I_F = 100 mA	V_F		1,3		V
Reverse voltage	I_R = 100 µA	V_F	5			V
Radiant power	I_F = 20 mA	Φ_e	4,5	6.5		mW
Radiant power*	I_F = 100 mA	Φ_e		32		mW
Radiant intensity	I_F = 20 mA	I_e	10	14		mW/sr
Radiant intensity*	I_F = 100 mA	I_e	50	70		mW/sr
Peak wavelength	I_F = 100 mA	λ_p	930	940	950	nm
Spectral bandwidth at 50%	I_F = 100 mA	$\Delta\lambda_{0.5}$		45		nm
Viewing angle	I_F = 100 mA	φ		30		deg.
Switching time	I_F = 100 mA	t_r, t_f		500		ns

*measured after 30s current flow

Note: All measurements carried out on *EPIGAP* equipment

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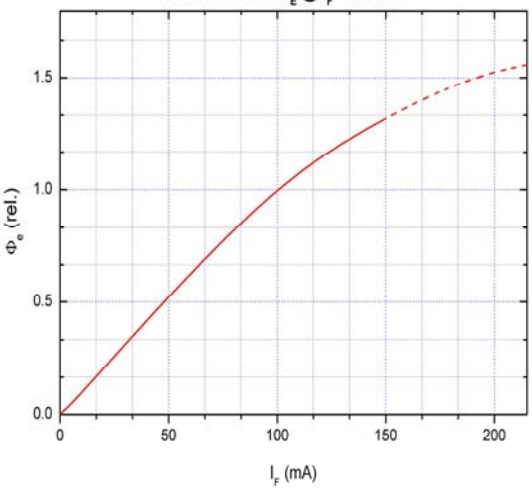
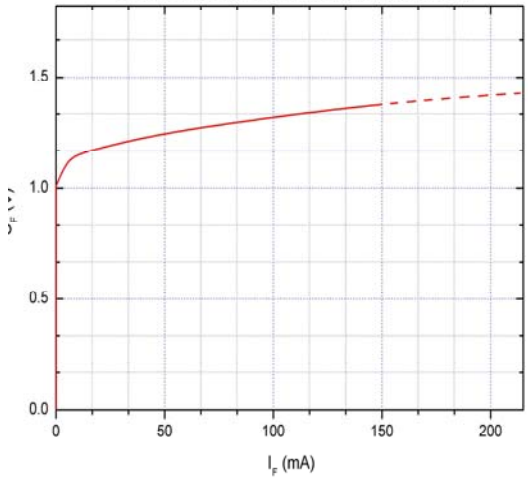
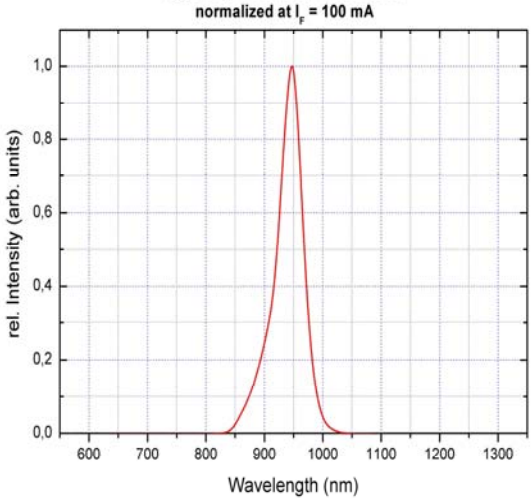
Radiant power vs. forward current (typical)
normalized to Φ_E @ I_F= 100 mA



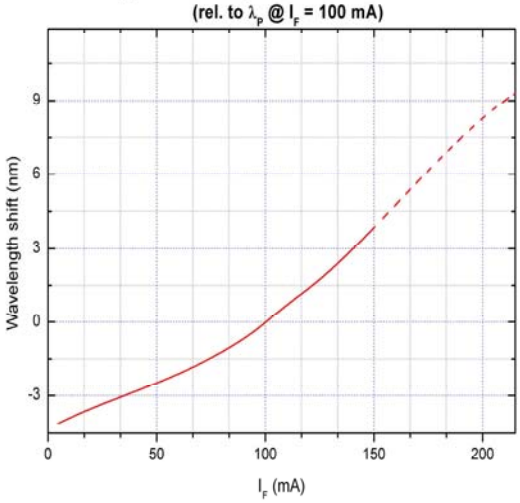
Forward voltage vs. forward current (typical)



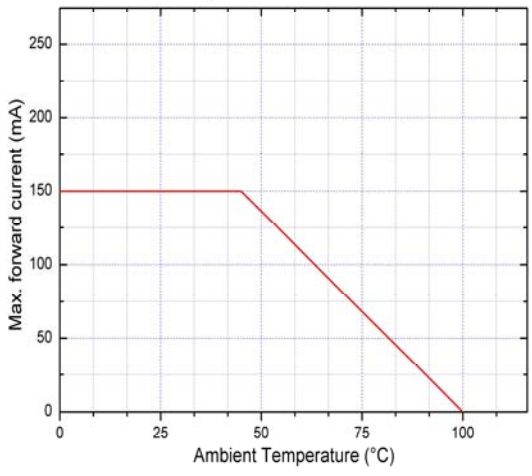
Typical spectral power distribution
normalized at I_F = 100 mA



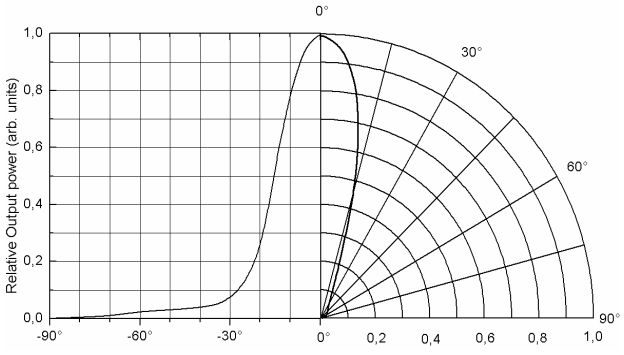
Typical wavelength shift vs. forward current
(rel. to λ_p @ I_F = 100 mA)



Ambient Temperature vs. maximal forward current



Typical radiant pattern



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Remarks concerning optical radiation safety*

Up to a forward current of 85 mA, 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.

If intended to operate at higher continuous current, this product would 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, these LED 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.

*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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