

Radiation	Type	Technology	Case
Infrared	DDH	AlGaAs/AlGaAs	5 mm plastic lens

	<p><b>Description</b></p> <p>High-power, high-speed infrared LED in standard 5 mm package, with lens for optimal beam focusing, housing without standoff leads</p> <p>Note: Special packages with standoff available on request</p> <p><b>Applications</b></p> <p>Optical communications, safety equipment, automation, optical sensors</p>
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### Maximum Ratings

$T_{amb} = 25^{\circ}\text{C}$ , unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current (DC)		$I_F$	150	mA
Peak forward current	$(t_p \leq 50 \mu\text{s}, t_p/T = 1/2)$	$I_{FM}$	200	mA
Power dissipation		$P_D$	240	mW
Operating temperature range		$T_{amb}$	-40 to +100	$^{\circ}\text{C}$
Storage temperature range		$T_{stg}$	-40 to +100	$^{\circ}\text{C}$
Junction temperature		$T_J$	100	$^{\circ}\text{C}$

### Optical and Electrical Characteristics

$T_{amb} = 25^{\circ}\text{C}$ , unless otherwise specified

Parameter	Test conditions	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F = 20 \text{ mA}$	$V_F$		1,35	1,5	V
Forward voltage*	$I_F = 100 \text{ mA}$	$V_F$		1,55		V
Reverse voltage	$I_R = 10 \mu\text{A}$	$V_F$	5			V
Radiant power	$I_F = 20 \text{ mA}$	$\Phi_e$	8,7	11,3		mW
Radiant power*	$I_F = 100 \text{ mA}$	$\Phi_e$		55		mW
Radiant intensity	$I_F = 20 \text{ mA}$	$I_e$	30	40		mW/sr
Radiant intensity*	$I_F = 100 \text{ mA}$	$I_e$		180		mW/sr
Peak wavelength	$I_F = 100 \text{ mA}$	$\lambda_p$	870	880	890	nm
Spectral bandwidth at 50%	$I_F = 100 \text{ mA}$	$\Delta\lambda_{0.5}$		55		nm
Viewing angle	$I_F = 100 \text{ mA}$	$\varphi$		20		deg.
Switching time	$I_F = 100 \text{ mA}$	$t_r, t_f$		10/20		ns

\*measured after 30s current flow

Note: All measurements carried out on *EPIGAP* equipment

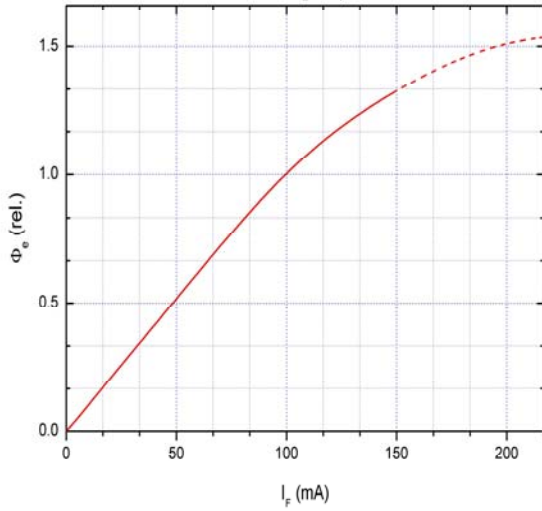
We reserve the right to make changes to improve technical design and may do so without further notice.

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

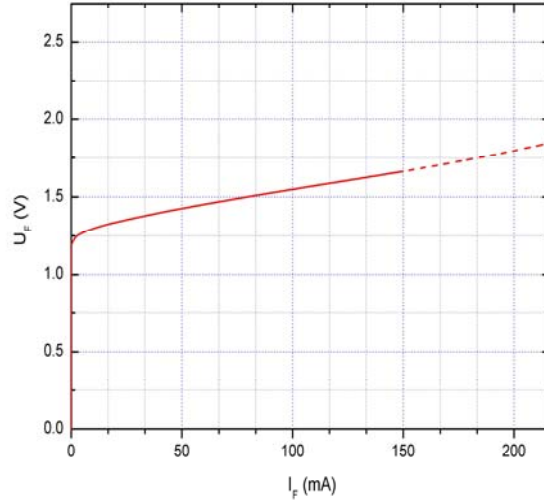
**EPIGAP** Optoelektronik GmbH, D-12555 Berlin, Köpenicker Str.325 b, Haus 201

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

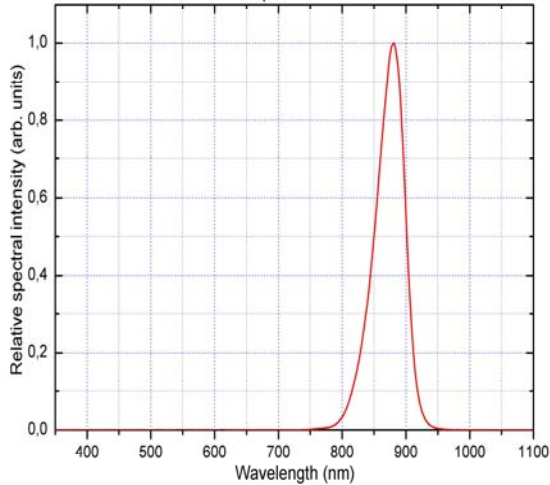
Radiant power vs. forward current (typical)  
normalized to  $\Phi_E @ I_F = 100 \text{ mA}$



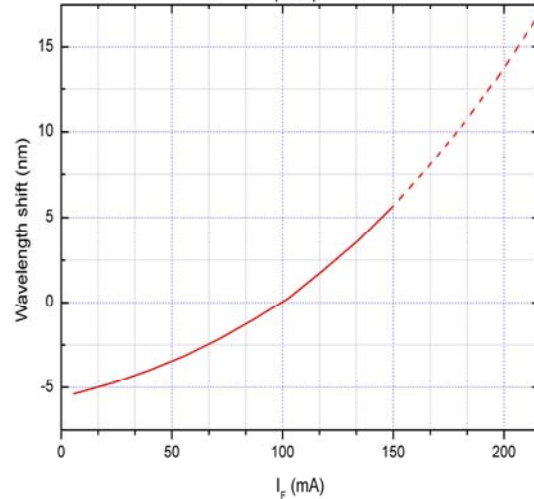
Forward voltage vs. forward current (typical)



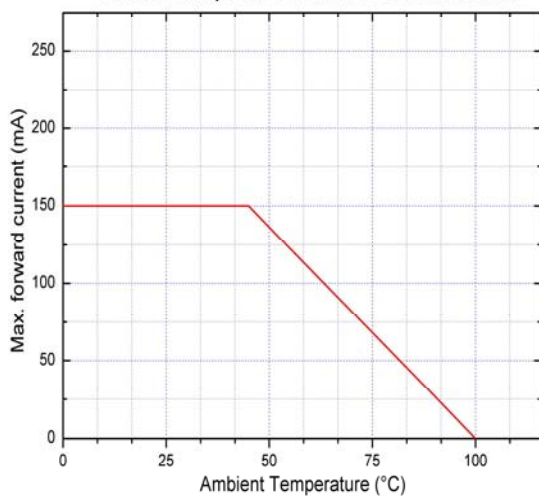
Typical spectral power distribution  
( $I_F = 100 \text{ mA}$ )



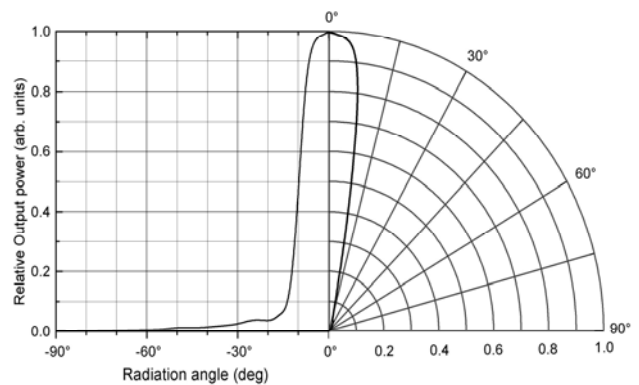
Typical wavelength shift vs. forward current  
(rel. to  $\lambda_p @ I_F = 100 \text{ mA}$ )



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 predicable 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 should 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.