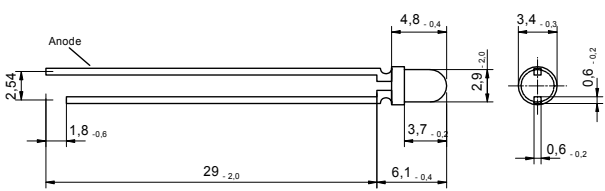


Radiation	Type	Technology	Case
Red	DH	AlGaAs/GaAs	3 mm plastic lens

	Description Amber LED in standard 3 mm housing, small package allows compact design, housing without standoff leads Note: Special packages with standoff available on request Applications Illumination, safety equipment, automation, optical sensors
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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	30	mA
Peak forward current	$(t_p \leq 50 \mu\text{s}, t_p/T = 1/2)$	I_{FM}	100	mA
Power dissipation		P_D	120	mW
Operating temperature range		T_{amb}	-20 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +100	$^{\circ}\text{C}$
Junction temperature		T_J	100	$^{\circ}\text{C}$
Soldering temperature	$t \leq 5 \text{ s}$, 3 mm from case	T_{Sd}	260	$^{\circ}\text{C}$

Optical and Electrical Characteristics

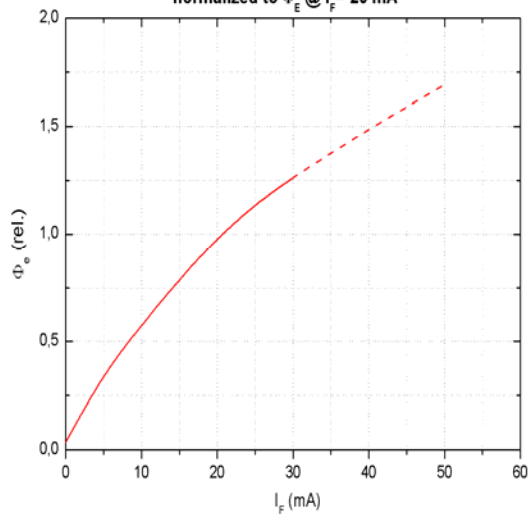
$T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F = 20 \text{ mA}$	V_F		2	2.4	V
Reverse voltage	$I_R = 10 \mu\text{A}$	V_F	5			V
Radiant power*	$I_F = 20 \text{ mA}$	Φ_e	1	1.4		mW
Luminous intensity*	$I_F = 20 \text{ mA}$	I_v	30	60		mcd
Peak wavelength	$I_F = 20 \text{ mA}$	λ_p	650	660	670	nm
Spectral bandwidth at 50%	$I_F = 20 \text{ mA}$	$\Delta\lambda_{0.5}$		20		nm
Viewing angle	$I_F = 20 \text{ mA}$	φ		30		deg.
Switching time	$I_F = 20 \text{ mA}$	t_r, t_f		60		ns

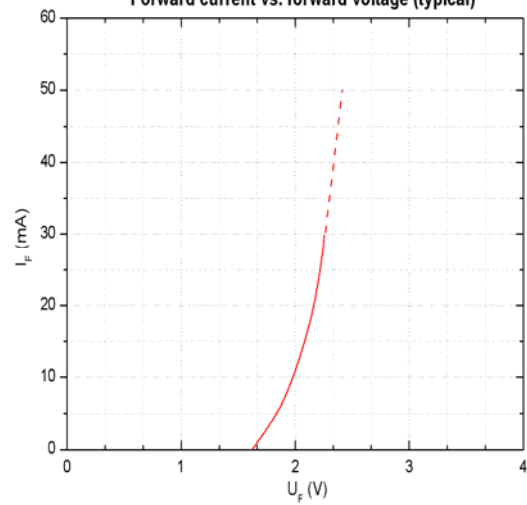
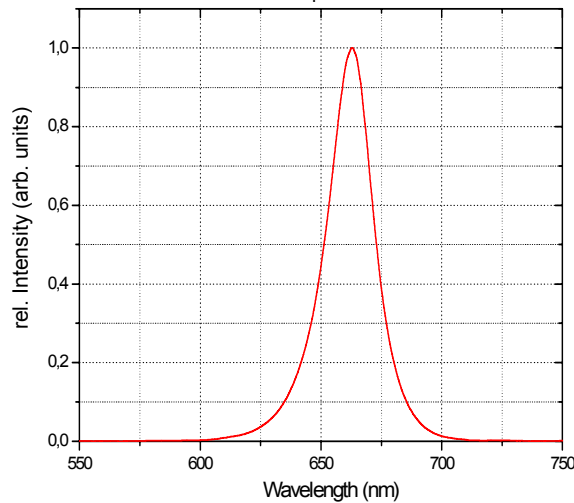
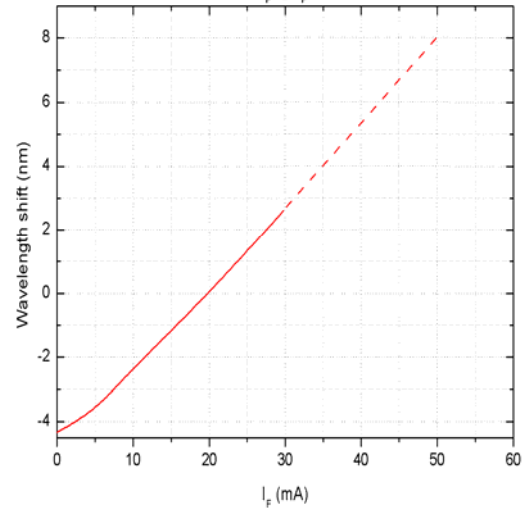
*measured after 30s current flow

Note: All measurements carried out on *EPIGAP* equipment

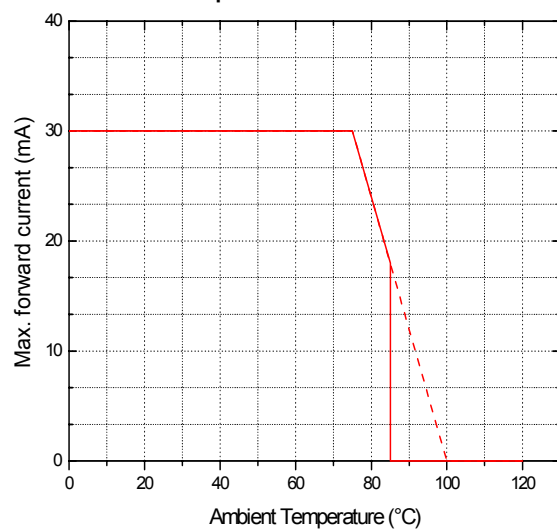
We reserve the right to make changes to improve technical design and may do so without further notice.
Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

Radiant power vs. forward current (typical)
normalized to $\Phi_e @ I_F = 20 \text{ mA}$ 

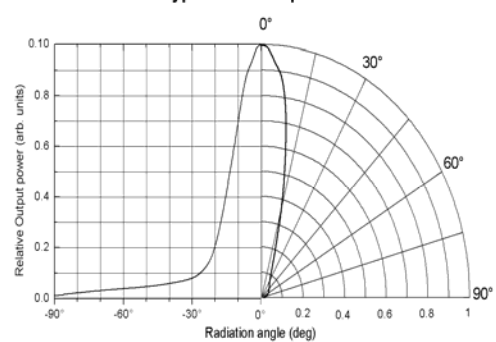
Forward current vs. forward voltage (typical)

Spectral power distribution (typical)
at $I_F = 20 \text{ mA}$ Typical wavelength shift vs. forward current
(rel. to $\lambda_p @ I_F = 20 \text{ mA}$)

Ambient Temperature vs. maximal forward current



Typical radiant pattern



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.

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.