

Radiation	Type	Technology	Case
Red	Standard	AllnGaP/GaAs	5 mm plastic lens

	Description Reliable high-speed red LED in standard 5 mm package, with lens for optimal beam focusing, housing without standoff leads Note: Special packages with standoff available on request
	Applications Optical communications, safety equipment, automation, optical sensors

Maximum Ratings

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

Parameter	Test conditions	Symbol	Value	Unit
Forward current (DC)		I_F	40	mA
Peak forward current	$(t_p \leq 50 \mu\text{s}, t_p/T = 1/2)$	I_{FM}	100	mA
Power dissipation		P_D	100	mW
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
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		1.9	2.4	V
Forward voltage*	$I_F = 40 \text{ mA}$	V_F		1.95		V
Reverse voltage	$I_R = 100 \mu\text{A}$	V_F	5			V
Radiant power	$I_F = 20 \text{ mA}$	Φ_e	1.0	1.4		mW
Radiant power*	$I_F = 40 \text{ mA}$	Φ_e		2.4		mW
Radiant intensity	$I_F = 20 \text{ mA}$	I_e	3.0	5.0		mW/sr
Luminous intensity	$I_F = 20 \text{ mA}$	I_v	350	500		mcd
Peak wavelength	$I_F = 20 \text{ mA}$	λ_p	640	650	660	nm
Dominant wavelength	$I_F = 20 \text{ mA}$	λ_p		631		nm
Viewing angle	$I_F = 20 \text{ mA}$	φ		20		deg.
Switching time	$I_F = 20 \text{ mA}$	t_r, t_f		35		ns

*measured after 30s current flow

Note: All measurements carried out on *EPIGAP* equipment

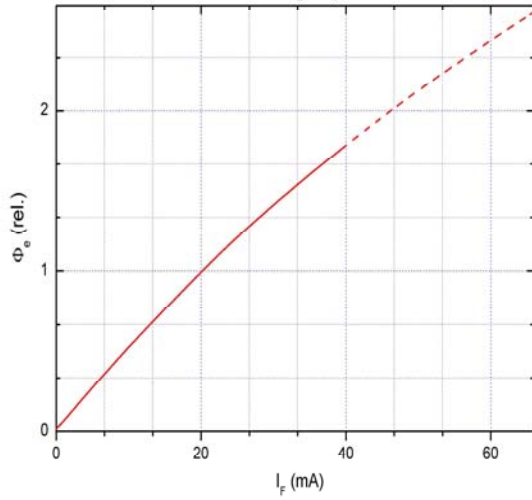
We reserve the right to make changes to improve technical design and may do so without further notice.

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

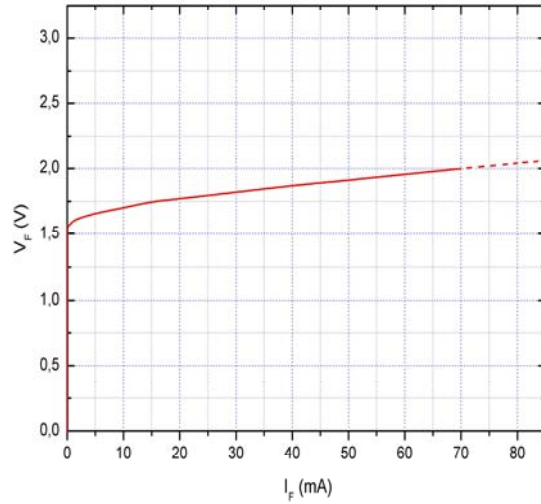
EPIGAP Optoelektronik GmbH, D-12555 Berlin, Köpenicker Str.325 b, Haus 201

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

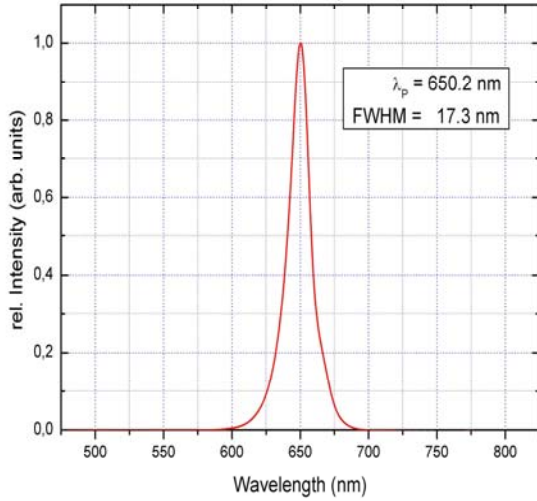
Radiant power vs. forward current (typical)
normalized to $\Phi_e @ I_F = 20$ mA



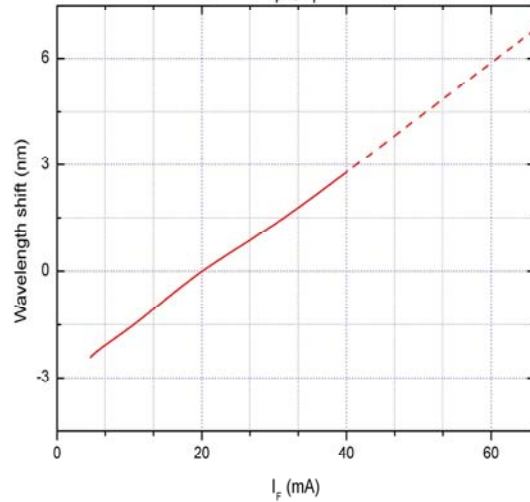
Forward voltage vs. forward current (typical)



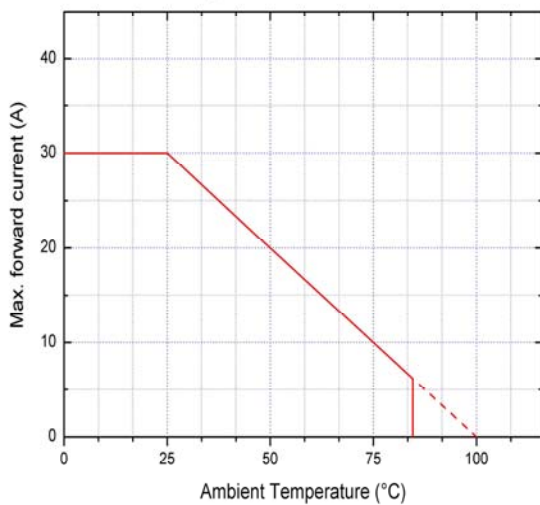
Spectral power distribution (typical)
of ELD-650-523 @ $I_F = 20$ mA



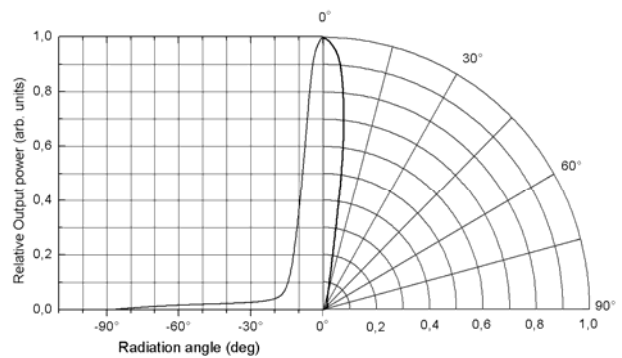
Typical wavelength shift vs. forward current
(rel. to $\lambda_p @ I_F = 20$ mA)



Ambient Temperature vs. maximal forward current



Typical radiant pattern



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Remarks concerning optical radiation safety*

Up maximum forward current and 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.