



## ELD-650-523

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

	<p><b>Description</b></p> <p>Reliable high-speed red 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)		$I_F$	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

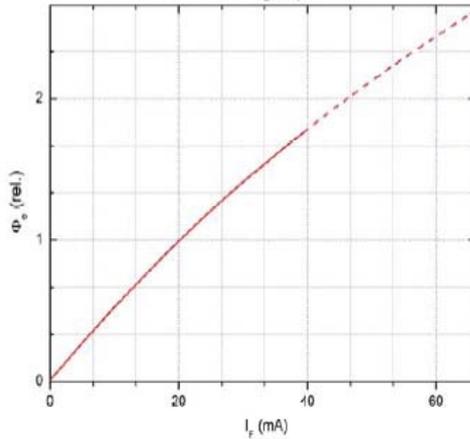
$T_{amb} = 25^{\circ}\text{C}$ , unless otherwise specified

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	$I_F = 20 \text{ mA}$	$\Phi_e$	1.0	1.4		mW
Radiant power*	$I_F = 40 \text{ mA}$	$\Phi_e$		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	$I_F = 20 \text{ mA}$	$\lambda_p$	640	650	660	nm
Dominant wavelength	$I_F = 20 \text{ mA}$	$\lambda_p$		631		nm
Viewing angle	$I_F = 20 \text{ mA}$	$\varphi$		20		deg.
Switching time	$I_F = 20 \text{ mA}$	$t_r, t_f$		35		ns

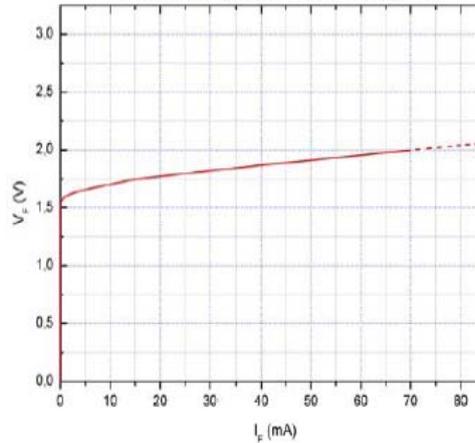
\*measured after 30s current flow



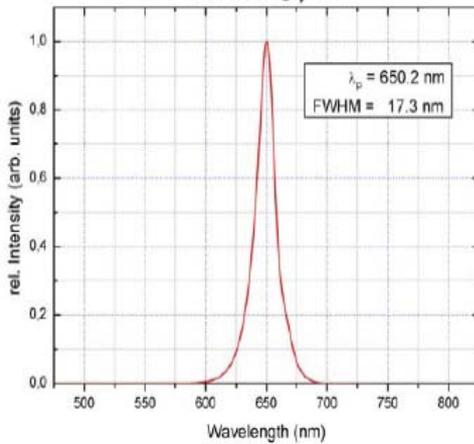
Radiant power vs. forward current (typical)  
normalized to  $\Phi_e$  @  $I_f = 20$  mA



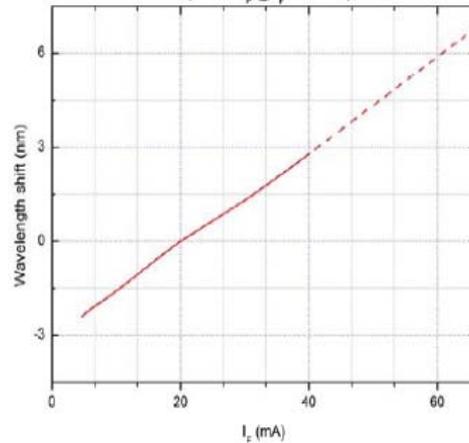
Forward voltage vs. forward current (typical)



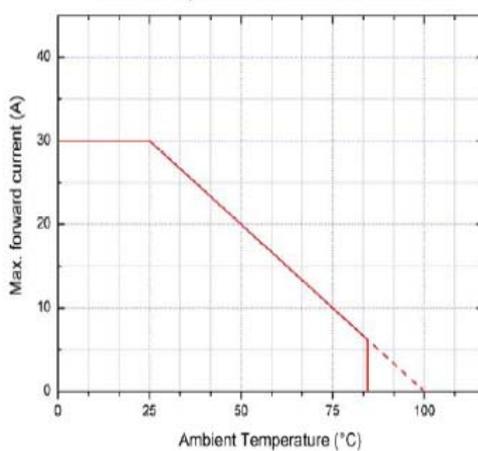
Spectral power distribution (typical)  
of ELD-650-523 @  $I_f = 20$  mA



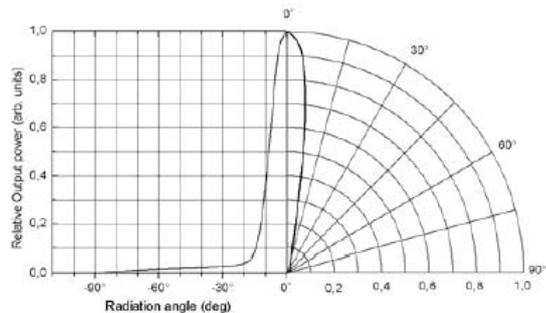
Typical wavelength shift vs. forward current  
(rel. to  $\lambda_p$  @  $I_f = 20$  mA)



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.