



ELD-650-523

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

	<p>Description</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>Applications</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

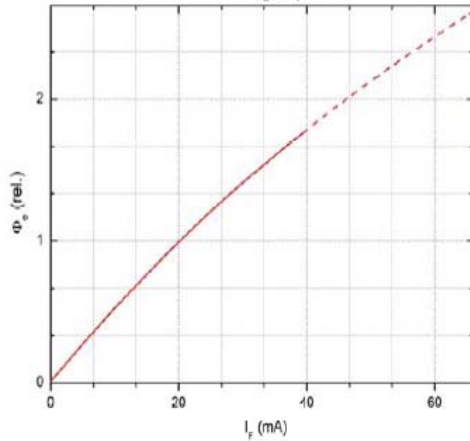
$T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

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	$I_F = 20 \text{ mA}$	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

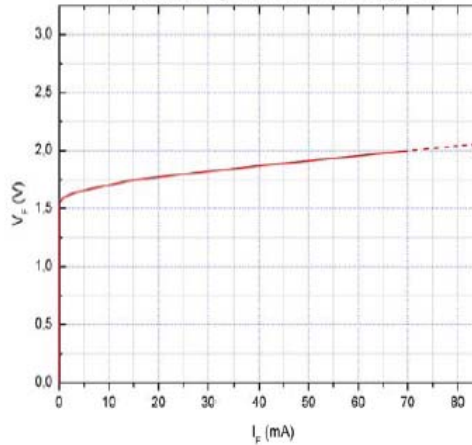
*measured after 30s current flow



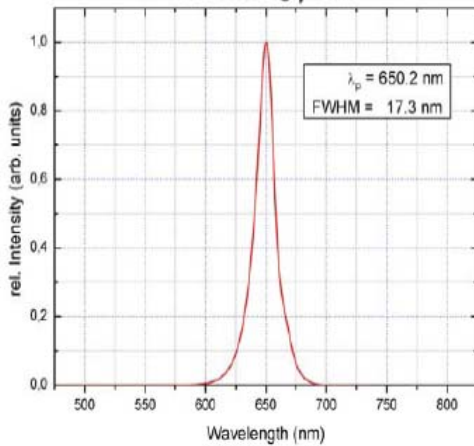
Radiant power vs. forward current (typical)
normalized to Φ_e @ $I_f = 20$ mA



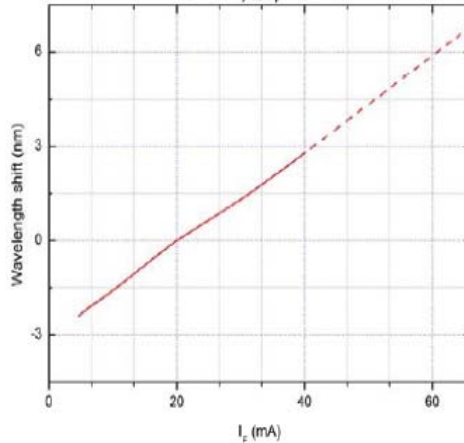
Forward voltage vs. forward current (typical)



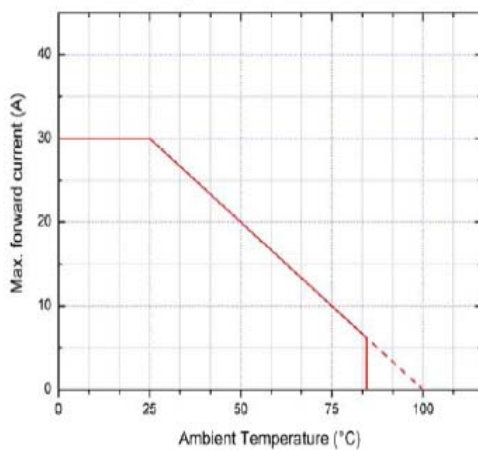
Spectral power distribution (typical)
of ELD-650-523 @ $I_f = 20$ mA



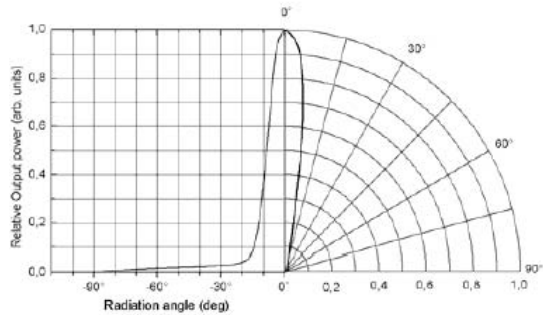
Typical wavelength shift vs. forward current
(rel. to λ_p @ $I_f = 20$ mA)



Ambient Temperature vs. maximal forward current



Typical radiant pattern





ROITHNER LASERTECHNIK

Wiedner Hauptstraße 76, A-1040 Vienna, Austria
Tel.: ++43 1 586 52 43-0, Fax -44, office@roithner-laser.com



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.