

Nanostack Pulsed Laser Diode in Plastic Package 75 W Peak Power

Version 1.5

SPL PL90_3



Features:

- Optical peak power up to 75 W
- Laser wavelength 905 nm
- Suited for short laser pulses from 1 to 100 ns
- Nanostack laser technology including 3 epitaxially stacked emitters
- Laser aperture 200 μm x 10 μm
- Cost effective plastic package for high volume applications

Applications

- Hand-held Laser Range Finders (LRF) for golfers, hunters, civil engineers
- Traffic surveillance (Laser speed gun, traffic recording, vehicle classification, distance measurement, fog detection)
- Professional laser sensors for distance measuring, positioning, protection

Notes

Depending on the mode of operation, these devices emit highly concentrated non visible infrared light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 "Safety of laser products".

Ordering Information

Type:	Number of emitters	Peak wavelength λ_{peak} [nm]	Peak output power P_{opt} [W]	Ordering Code
SPL PL90_3	3	905	75	Q62702P5353

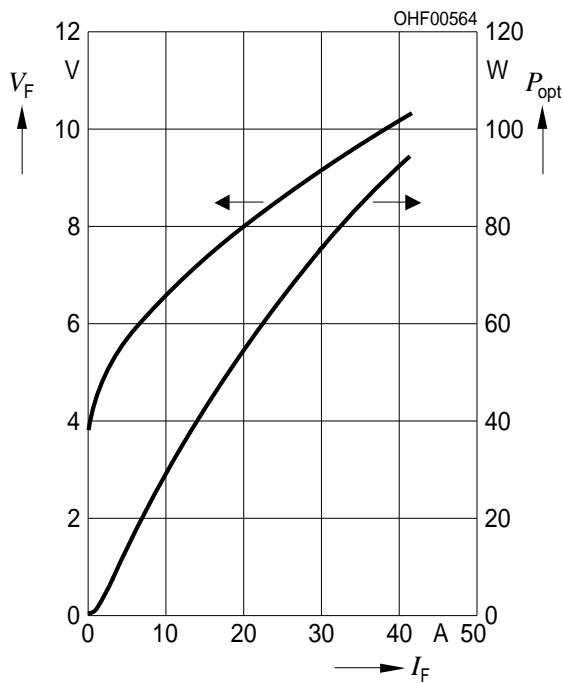
Maximum Ratings (short time operation / kurzzeitiger Betrieb, $T_A = 25^\circ\text{C}$)

Parameter	Symbol	Values		Unit
Peak output power	P_{peak}	90		W
Forward current	I_F	40		A
Pulse width (FWHM)	t_P	100		ns
Duty cycle	dc	0.1		%
Reverse voltage	V_R	3		V
Operating temperature	T_{op}	-40 ... 85		$^\circ\text{C}$
Storage temperature range	T_{stg}	-40 ... 100		$^\circ\text{C}$
Soldering temperature ^{1) page 5}	T_s	260		$^\circ\text{C}$

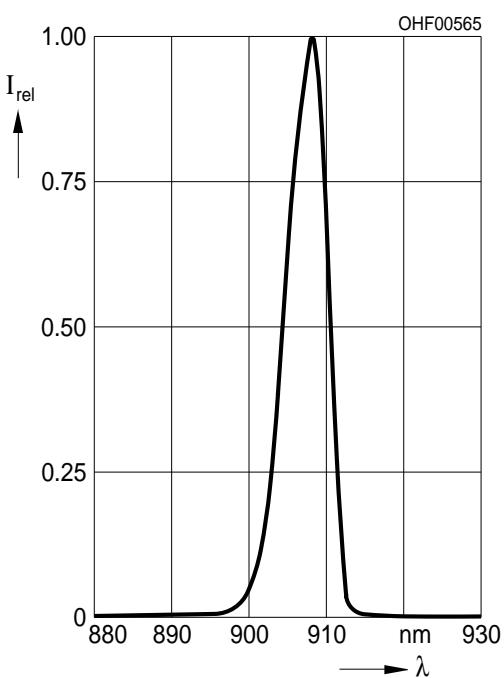
Characteristics ($T_A = 25^\circ\text{C}$)

Parameter	Symbol	Values			Unit
		min	typ	max	
Emission wavelength ^{2) page 5}	λ_{peak}	895	905	915	nm
Spectral width (FWHM) ^{2) page 5}	$\Delta\lambda$		7		nm
Peak output power ^{2) page 5}	P_{opt}	65	75	85	W
Threshold current	I_{th}	0.5	0.75	1	A
Operating voltage ^{2) page 5}	V_{op}	8	9	11	V
Fall Time	t_f		1		ns
Rise time	t_r		1		ns
Aperture size	w x h		200 x 10		$\mu\text{m} \times \mu\text{m}$
Beam divergence (FWHM) parallel to pn-junction	Θ_{\parallel}		9		$^\circ$
Beam divergence (FWHM) perpendicular to pn-junction	Θ_{\perp}		25		$^\circ$
Temperature coefficient of wavelength	$\Delta\lambda / \Delta T$		0.28		nm / K
Temperature coefficient of optical power	$\partial P_{\text{op}} / P_{\text{op}} \partial T$		-0.4		% / K
Thermal resistance	$R_{\text{th JA}}$		160		K / W

Opt. Peak Power and Forward Voltage vs. Forward Current ^{3) page 5}
 $P_{\text{opt}}, V_F = f(I_F), T_A = 25^\circ\text{C}$

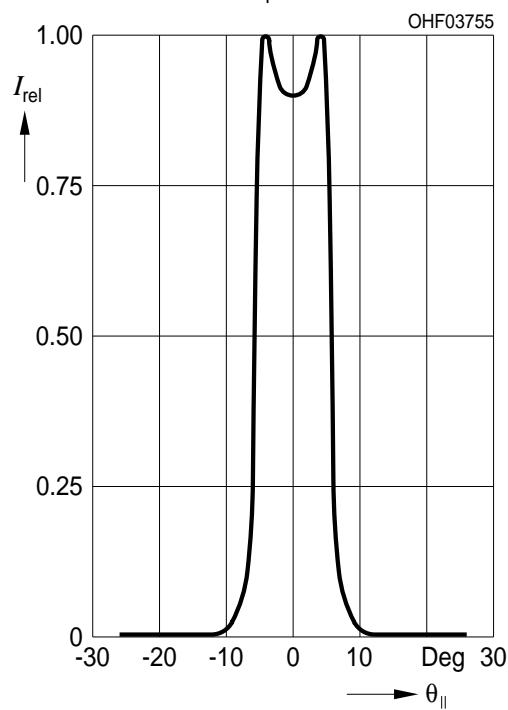


Relative Spectral Emission ^{3) page 5}
 $(\text{typ}) I_{\text{rel}} = f(\lambda), T_A = 25^\circ\text{C}, P_{\text{opt}} = 75\text{ W}$



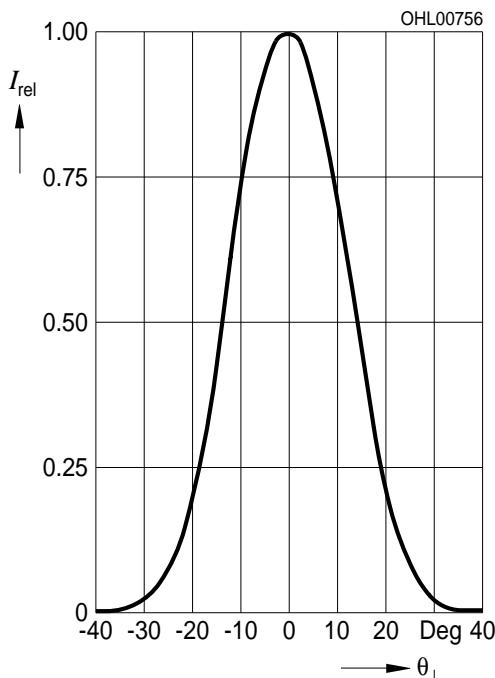
Far-Field Distribution Parallel to pn-Junction ^{3) page 5}

$I_{\text{rel}} = f(\Theta_{\parallel}), T_A = 25^\circ\text{C}, P_{\text{opt}} = 75\text{ W}$

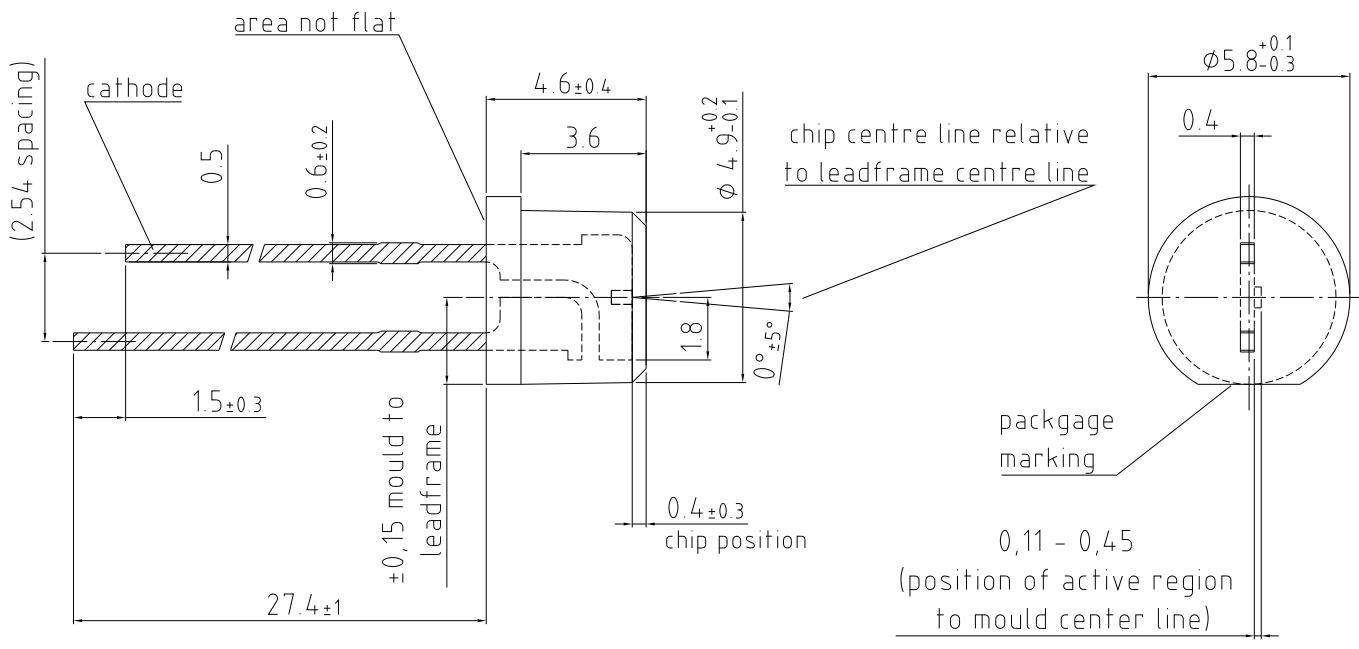


Far-Field Distribution Perpendicular to pn-Junction ^{3) page 5}

$I_{\text{rel}} = f(\Theta_{\perp}), T_A = 25^\circ\text{C}, P_{\text{opt}} = 75\text{ W}$



Package Outline



general tolerance ± 0.1

lead finish Sn 

Dimensions in mm.

C63062-A3440-A4-02

Disclaimer

Language english will prevail in case of any discrepancies or deviations between the two language wordings.

Attention please!

The information describes the type of component and shall not be considered as assured characteristics.

Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances.

For information on the types in question please contact our Sales Organization.

If printed or downloaded, please find the latest version in the Internet.

Packing

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

Components used in life-support devices or systems must be expressly authorized for such purpose!

Critical components* may only be used in life-support devices** or systems with the express written approval of OSRAM OS.

*) A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or the effectiveness of that device or system.

**) Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health and the life of the user may be endangered.