Pulsed Laser Diode in Plastic Package 25 W Peak Power
Version 1.5

SPL PL90



Features:

- Optical peak power up to 25 W
- Laser wavelength 905 nm
- Suited for short laser pulses from 1 to 100 ns
- Laser aperture 200 µm x 2 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:	Peak wavelength λ_{peak} [nm]	Peak output power P_{opt} [W]	Ordering Code
SPL PL90	905	25	Q62702P1760

Maximum Ratings (T_A = 25 °C)

Parameter	Symbol	Values	Unit
Peak output power	P_{peak}	30	W
Forward current	I_F	40	A
Pulse width (FWHM)	t_P	100	ns

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Parameter	Symbol	Values	Unit
Duty cycle	dc	0.1	%
Reverse voltage	V_R	3	V
Operating temperature	T_{op}	-40 ... 85	°C
Storage temperature range	T_{stg}	-40 ... 100	°C
Soldering temperature [1) page 5]	T_s	260	°C

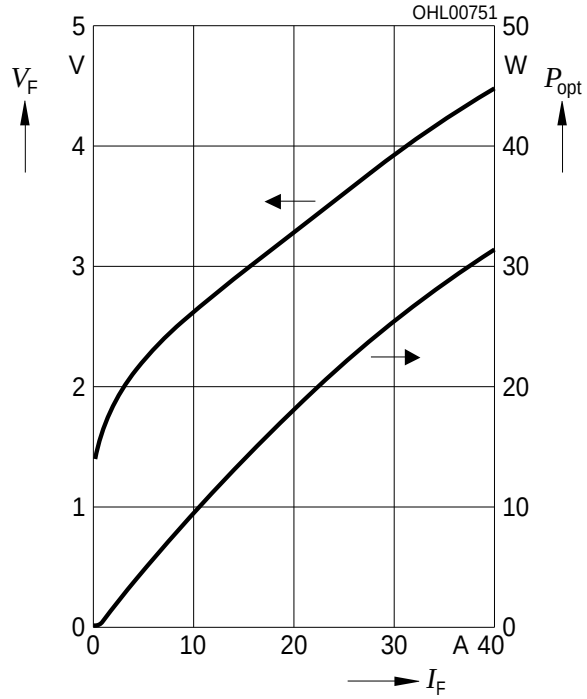
Characteristics (T_A = 25 °C)

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}	20	25	30	W
Threshold current	I_{th}	0.5	0.75	1	A
Operating voltage [2) page 5]	V_{op}	3.3	4.3	5.3	V
Rise and fall time	t_r, t_f		1		ns
Aperture size	w x h		200 x 2		µm x µm
Beam divergence (FWHM) parallel to pn-junction	$\Theta_{\parallel}$		9		°
Beam divergence (FWHM) perpendicular to pn-junction	$\Theta_{\perp}$		25		°
Temperature coefficient of wavelength	$\Delta\lambda / \Delta T$		0.28		nm / K
Temperature coefficient of optical power	$\partial P_{op} / P_{op} \partial T$		-0.4		% / K
Thermal resistance	$R_{th\ JA}$		160		K / W

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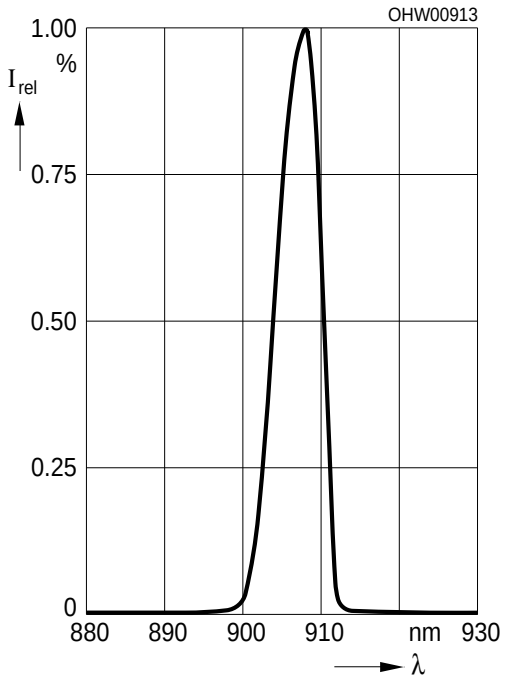
Opt. Peak Power and Forward Voltage vs. Forward Current [3] page 5

P_{opt}, $V_F = f(I_F)$, T_A = 25 °C



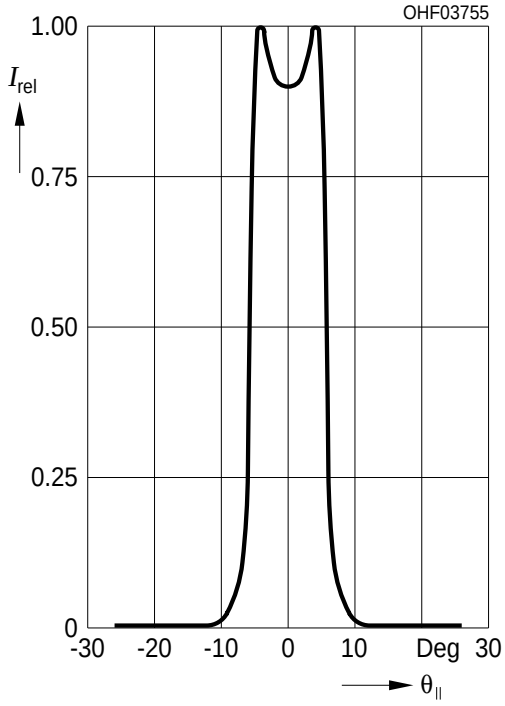
Relative Spectral Emission [3] page 5

(typ) $I_{rel} = f(\lambda)$, T_A = 25 °C, P_{opt} = 25 W



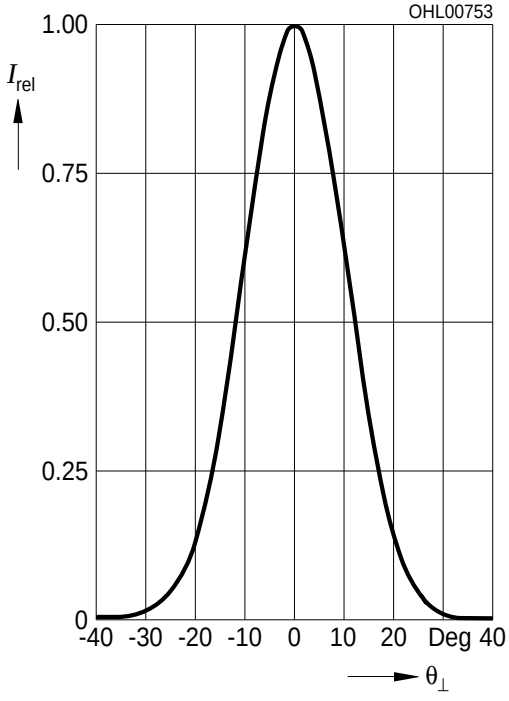
Far-Field Distribution Parallel to pn-Junction [3] page 5

$I_{rel} = f(\Theta_{II})$, T_A = 25 °C, P_{opt} = 25 W



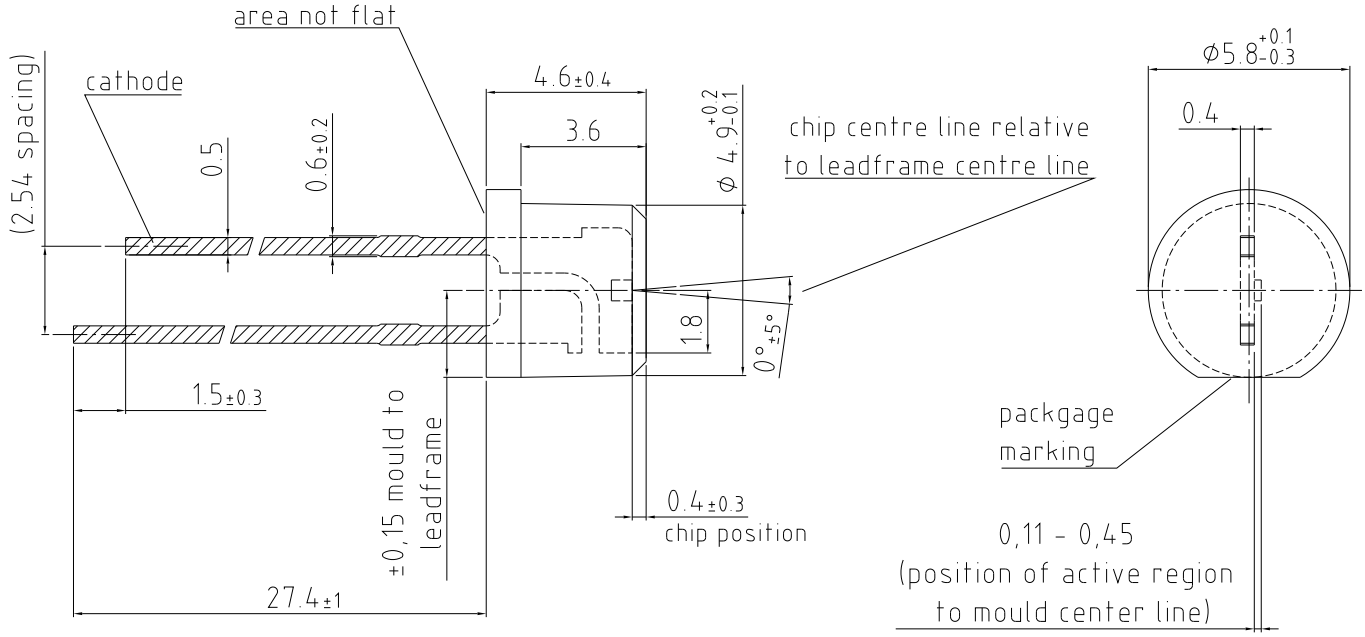
Far-Field Distribution Perpendicular to pn-Junction [3] page 5

$I_{rel} = f(\Theta_{\perp})$, T_A = 25 °C, P_{opt} = 25 W



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Package Outline



Dimensions in mm.

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.

Glossary

[1] **Soldering temperature:** 2 mm from bottom edge of case

[2] **Standard operating conditions:** Standard operating conditions refer to pulses of 100 ns width at 1 kHz rate with 30 A operating current at T_A = 25 °C.

[3] **Typical Values:** Due to the special conditions of the manufacturing processes of LED, the typical data or calculated correlations of technical parameters can only reflect statistical figures. These do not necessarily correspond to the actual parameters of each single product, which could differ from the typical data and calculated correlations or the typical characteristic line. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice.

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