

# SPL PL90\_3

## Radial T1 3/4

Nanostack Pulsed Laser Diode in Plastic Package  
75 W Peak Power



### Applications

- Electronic Equipment
- Equipment Illumination (e.g. Curing, Endoscope)
- Highbay Industrial
- Industrial Automation (Machine Controls, Light Barriers, Vision Controls)
- Safety and Security, CCTV

### Features:

- 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

### Ordering Information

Type	Peak output power typ. $I_F = 30 \text{ A}; t_p = 100 \text{ ns}; f = 1 \text{ kHz}; T_A = 25 \text{ }^\circ\text{C}$ $P_{opt}$	Ordering Code
SPL PL90_3	75 W	Q62702P5353

## Maximum Ratings

short time operation,  $T_A = 25\text{ °C}$

Parameter	Symbol		Values
Operating Temperature	$T_{op}$	min. max.	-40 °C 85 °C
Storage Temperature	$T_{stg}$	min. max.	-40 °C 100 °C
Peak output power	$P_{opt}$	max.	90 W
Forward current	$I_F$	max.	40 A
Pulse width (FWHM)	$t_p$	max.	100 ns
Duty cycle	dc	max.	0.1 %
Reverse voltage	$V_R$	max.	3 V
Soldering temperature (2 mm from bottom edge of case)	$T_S$	max.	260 °C

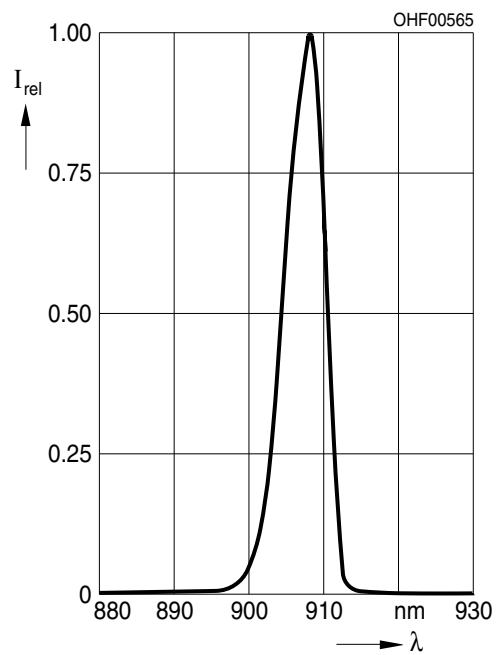
## Characteristics

$I_F = 30 \text{ A}$ ;  $t_p = 100 \text{ ns}$ ;  $f = 1 \text{ kHz}$ ;  $T_A = 25 \text{ °C}$

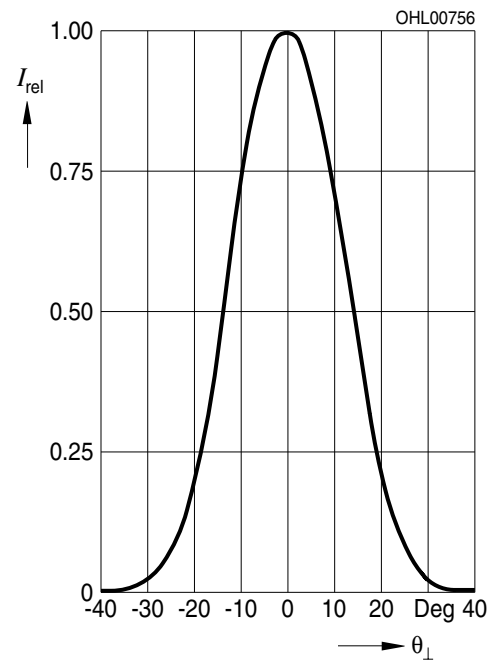
Parameter	Symbol		Values
Number of emitters	n	typ.	3
Operating voltage	$V_{op}$	min.	8 V
		typ.	9 V
		max.	11 V
Peak Wavelength	$\lambda_{peak}$	min.	895 nm
		typ.	905 nm
		max.	915 nm
Spectral Bandwidth at 50% $I_{rel,max}$	$\Delta\lambda$	typ.	7 nm
Peak output power	$P_{opt}$	min.	65 W
		typ.	75 W
		max.	85 W
Beam divergence (FWHM) parallel to pn-junction	$\Theta_{  }$	typ.	9 °
Beam divergence (FWHM) perpendicular to pn-junction	$\Theta_{\perp}$	typ.	25 °
Threshold current	$I_{th}$	min.	0.5 A
		typ.	0.75 A
		max.	1 A
Rise time	$t_r$	typ.	1 ns
Fall time	$t_f$	typ.	1 ns
Aperture size	w x h	typ.	200 X 10 $\mu\text{m}^2$
Temperature coefficient of wavelength	$TC_{\lambda}$	typ.	0.28 nm / K
Temperature coefficient of optical power	$TC_P$	typ.	-0.4 % / K
Thermal resistance junction ambient real	$R_{thJA}$	typ.	160 K / W

**Relative Spectral Emission** <sup>1), 2)</sup>

$$I_{\text{rel}} = f(\lambda); I_{\text{F}} = 30 \text{ A}; P_{\text{opt}} = 75 \text{ W}; t_{\text{p}} = 100 \text{ ns}$$

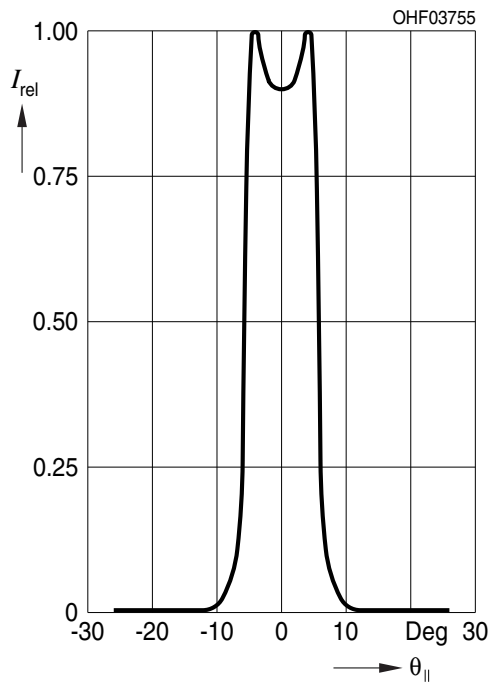
**Far-Field Distribution Perpendicular to pn-Junction** <sup>1), 2)</sup>

$$I_{\text{rel}} = f(\Theta_{\perp}); P_{\text{opt}} = 75 \text{ W}$$



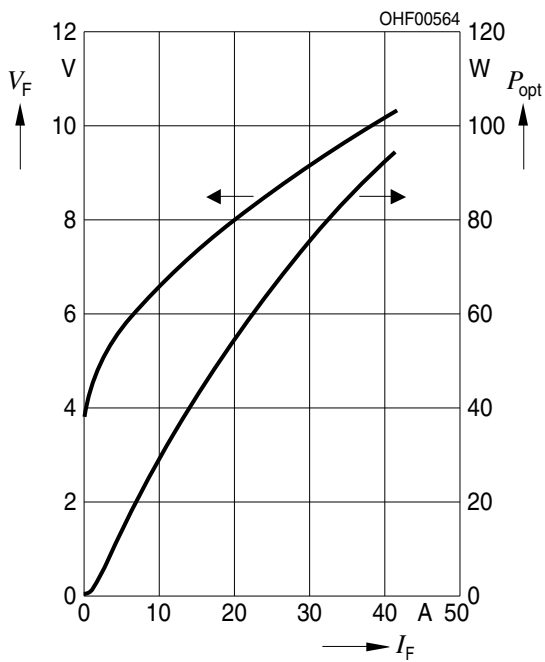
### Far-Field Distribution Parallel to pn-Junction <sup>1), 2)</sup>

$I_{rel} = f(\Theta_{||}); P_{opt} = 75 \text{ W}$

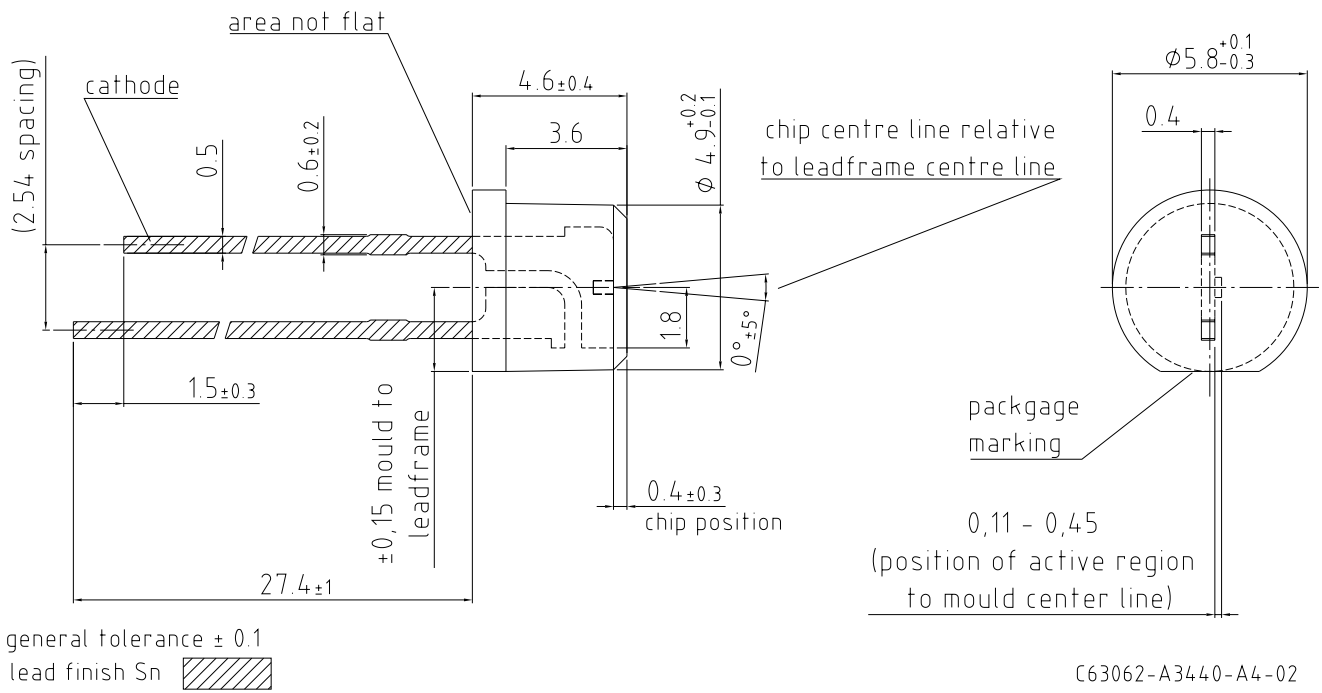


### Opt. Power / Forward Voltage <sup>1), 2)</sup>

$P_{opt}, V_F = f(I_F)$



**Dimensional Drawing** <sup>3)</sup>



**Approximate Weight:** 241.0 mg

**Package marking:** Anode

## Notes

Depending on the mode of operation, these devices emit highly concentrated visible and non visible 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.

For further application related informations please visit [www.osram-os.com/appnotes](http://www.osram-os.com/appnotes)

## Disclaimer

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

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## Glossary

- 1) **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.
- 2) **Testing temperature:**  $T_A = 25^\circ\text{C}$
- 3) **Tolerance of Measure:** Unless otherwise noted in drawing, tolerances are specified with  $\pm 0.1$  and dimensions are specified in mm.

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