OSRAM SPL PL90AT03

Datasheet

Preliminary datasheet version

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OSRAM

Radial T1 3/4

SPL PL90AT03

Pulsed Laser Diode in Plastic Package 75 W Peak Power

Applications

- 3D Sensing
- Robotics

Features

- Laser wavelength 905 nm
- Suited for short laser pulses from 1 to 100 ns
- Contact width 70 µm
- Cost effective plastic package for high volume applications

Ordering Information

Type	Peak output power typ. I_F = 25 A; t_p = 30 ns; f = 1 kHz; T_A = 25 °C P_{opt}	Ordering Code
SPLPL90AT03	75 W	Q65113A5477

Maximum Ratings

T_A = 25 °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 [1)]	P_{opt}	max.	75 W
Forward current	I_F	max.	25 A
Pulse width (FWHM)	t_P	max.	30 ns
Duty cycle	D	max.	0.1 %
Soldering temperature t_{max} = 10 µs	T_S	max.	260 °C

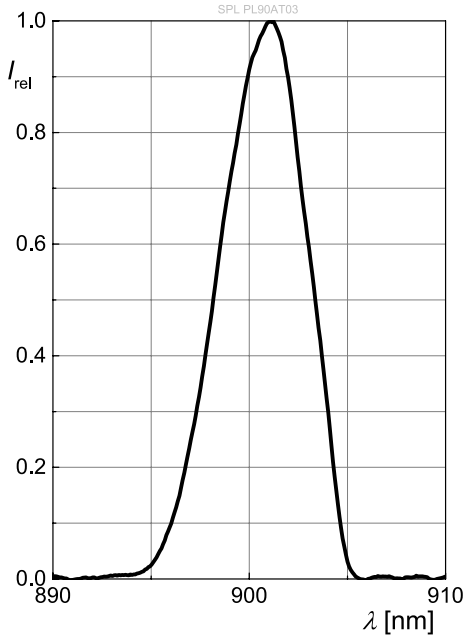
Characteristics

I_F = 8 A; t_p = 100 ns; T_A = 25 °C

Parameter	Symbol		Values
Operating voltage	V_{op}	typ.	6 V
Peak wavelength [2]	λ_{peak}	min. typ. max.	898 nm 905 nm 912 nm
Spectral bandwidth (FWHM)	$\Delta\lambda$	typ.	5 nm
Peak output power [1]	P_{opt}	min. typ. max.	20 W 25 W 30 W
Beam divergence (FWHM) parallel to pn-junction	$\Theta_{\parallel}$	typ.	12 °
Beam divergence (FWHM) perpendicular to pn-junction	$\Theta_{\perp}$	typ.	25 °
Threshold current	I_{th}	typ.	0.3 A
Temperature coefficient of wavelength	TC_{λ}	typ.	0.28 nm / K
Temperature coefficient of optical power	TC_P	typ.	-0.4 % / K
Thermal resistance junction ambient real	R_{thJA}	typ.	200 K / W

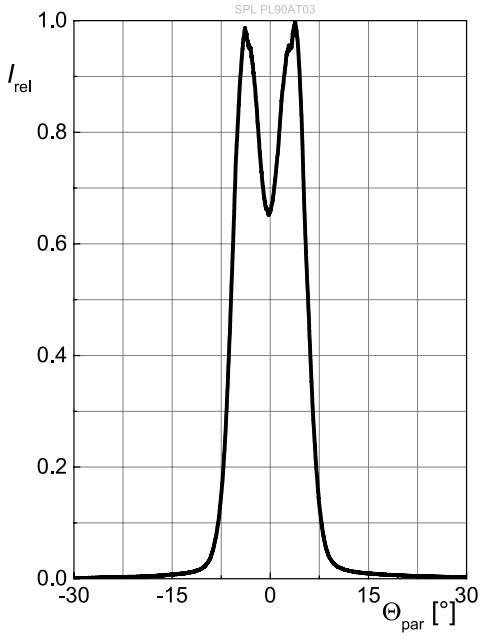
Relative Spectral Emission [3], [4]

$I_{e,rel} = f(\lambda)$; I_F = 25 A; P_{opt} = 75 W; t_p = 30 ns



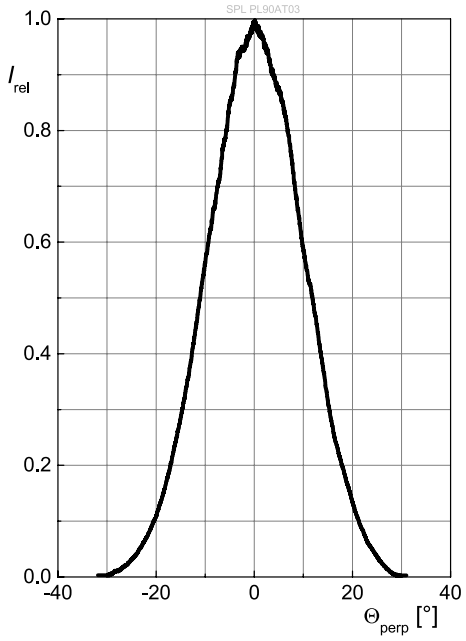
Far-Field Distribution Parallel to pn-Junction [3], [4]

$I_{rel} = f(\Theta II)$; P_{opt} = 75W; t_p = 30ns; f = 1kHz



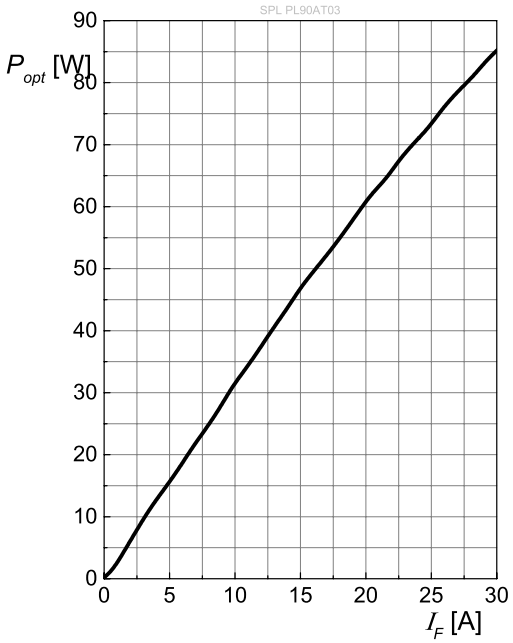
Far-Field Distribution Perpendicular to pn-Junction 3), 4)

$I_{rel} = f(\Theta\perp)$; P_{opt} = 75W; t_p = 30ns; f = 1kHz



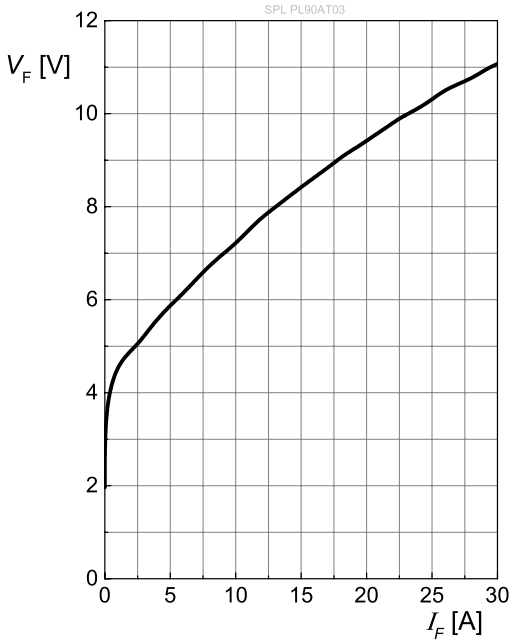
Optical Output Power 3), 4)

$P_{opt} = f(I_F)$; t_p = 30 ns; f = 1 kHz

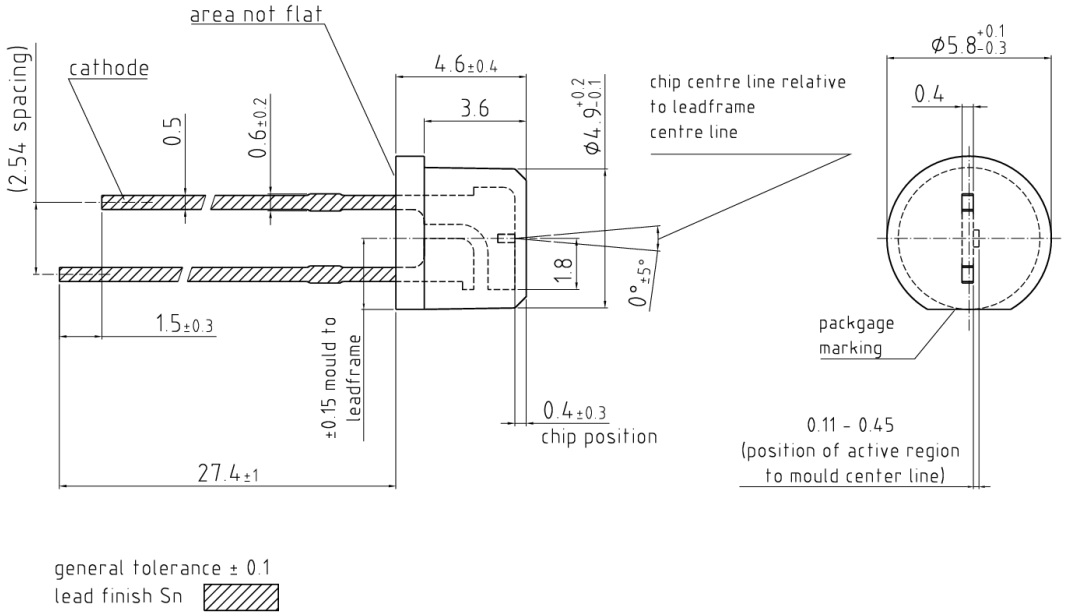


Forward Voltage 3), 4)

$V_F = f(I_F)$; t_p = 30 ns; f = 1 kHz



Dimensional Drawing [5)]



C67062-A0447-A1-01

Further Information:

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.

Subcomponents of this device contain, in addition to other substances, metal filled materials including silver. Metal filled materials can be affected by environments that contain traces of aggressive substances. Therefore, we recommend that customers minimize device exposure to aggressive substances during storage, production, and use. Devices that showed visible discoloration when tested using the described tests above did show no performance deviations within failure limits during the stated test duration. Respective failure limits are described in the IEC60810.

For further application related information please visit www.osram-os.com/appnotes

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Glossary

1) **Brightness:** The brightness values are measured with a tolerance of ±11%.

2) **Wavelength:** The wavelengths are measured with a tolerance of ±1 nm.

3) **Typical Values:** Due to the special conditions of the manufacturing processes of semiconductor devices, 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.

4) **Testing temperature:** TA = 25°C (unless otherwise specified)

5) **Tolerance of Measure:** Unless otherwise noted in drawing, tolerances are specified with ±0.1 and dimensions are specified in mm.

Revision History

Version	Date	Change
0.0	2023-01-18	Initial Version

Preliminary datasheet version

EU RoHS and China RoHS compliant product
此产品符合欧盟 RoHS 指令的要求；
按照中国的相关法规和标准，
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