

Nanostack Impuls-Laserdiode im Plastikgehäuse 75 W Spitzenleistung

Nanostack Pulsed Laser Diode in Plastic Package 75 W Peak Power

SPL PL90_3



Besondere Merkmale

- Kostengünstiges Plastikgehäuse
- Zuverlässiges InGaAs/GaAs kompressiv verspanntes Halbleiter-Material
- Hochleistungslaser mit „Large-Optical-Cavity“ (LOC) Struktur für ein schmales Fernfeld
- Nanostack Lasertechnologie beinhaltet mehrere epitaktisch integrierte Emitter
- Austrittsöffnung $200\text{ }\mu\text{m} \times 10\text{ }\mu\text{m}$

Anwendungen

- Entfernungsmessung
- Sicherheit, Überwachung
- Beleuchtung, Zündung
- Test- und Messsysteme

Sicherheitshinweise

Je nach Betriebsart emittieren diese Bauteile hochkonzentrierte, nicht sichtbare Infrarot-Strahlung, die gefährlich für das menschliche Auge sein kann. Produkte, die diese Bauteile enthalten, müssen gemäß den Sicherheitsrichtlinien der IEC-Norm 60825-1 behandelt werden.

Features

- Low cost plastic package
- Reliable strained InGaAs/GaAs material
- High power large-optical-cavity (LOC) structure for a narrow far-field
- Nanostack laser technology including multiple epitaxially stacked emitters
- Laser aperture $200\text{ }\mu\text{m} \times 10\text{ }\mu\text{m}$

Applications

- Range finding
- Security, surveillance
- Illumination, ignition
- Test and measurement systems

Safety Advices

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"

Typ	Emitteranzahl	Opt. Spitzenausgangleistung	Wellenlänge	Bestellnummer
Type	Number of Emitters	Opt. Peak Power	Wavelength	Ordering Code
SPL PL90_3	3	75 W	905 nm	Q62702P5353

Grenzwerte (kurzzeitiger Betrieb) ($T_A = 25\text{ °C}$)**Maximum Ratings (short time operation)**

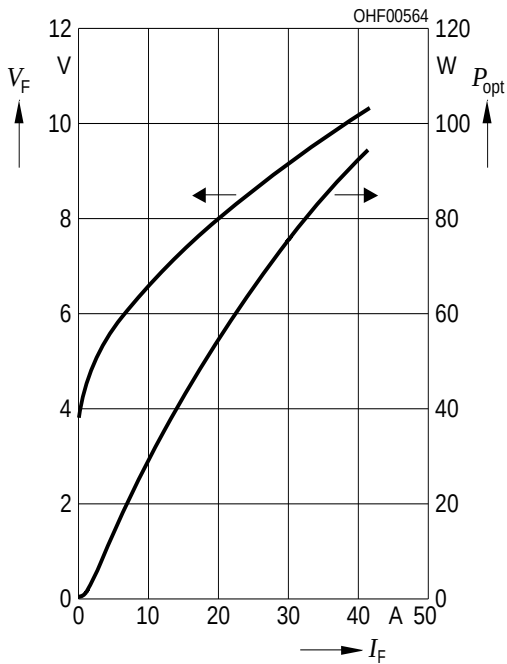
Parameter Parameter	Symbol Symbol	Werte Values		Einheit Unit
		min.	max.	
Spitzenausgangsleistung Peak output power	P_{peak}	–	90	W
Spitzendurchlaßstrom Peak forward current	I_F	–	40	A
Pulsbreite (Halbwertsbreite) Pulse width (FWHM)	t_p	–	100	ns
Tastverhältnis Duty cycle	$d.c.$	–	0.1	%
Sperrspannung Reverse voltage	V_R	–	3	V
Betriebstemperatur Operating temperature	T_{op}	– 40	+ 85	°C
Lagertemperatur Storage temperature	T_{stg}	– 40	+ 100	°C
Löttemperatur ($t_{\text{max}} = 10\text{ s}$, 2 mm von Gehäuseunterseite) Soldering temperature ($t_{\text{max}} = 10\text{ s}$, 2 mm from bottom edge of case)	T_s	–	+ 260	°C

Optische Kennwerte ($T_A = 25\text{ °C}$)
Optical Characteristics

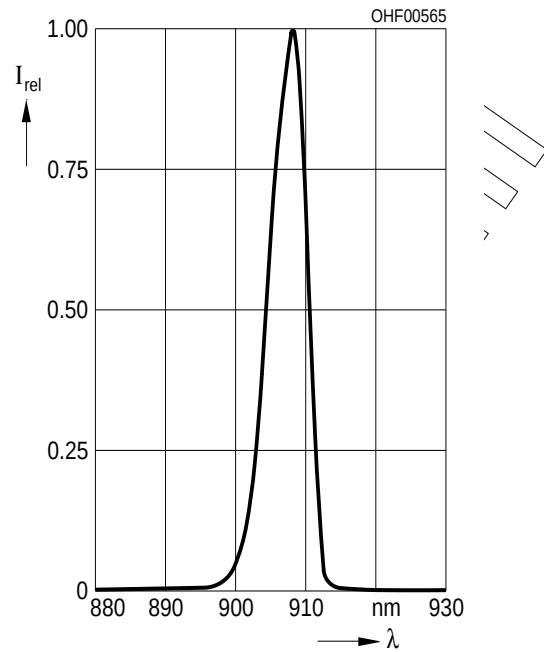
Parameter Parameter	Symbol Symbol	Werte Values			Einheit Unit
		min.	typ.	max.	
Zentrale Emissionswellenlänge ¹⁾ Emission wavelength ¹⁾	λ_{peak}	895	905	915	nm
Spektralbreite (Halbwertsbreite) ¹⁾ Spectral width (FWHM) ¹⁾	$\Delta\lambda$	–	7	–	nm
Spitzenausgangsleistung ¹⁾ Peak output power ¹⁾	P_{op}	65	75	85	W
Schwellstrom Threshold current	I_{th}	0.5	0.75	1.0	A
Betriebsspannung ¹⁾ Operating voltage ¹⁾	V_{op}	8	9	11	V
Minimale Anstiegs- und Abfallzeit (10% ...90%) Minimum rise and fall time (10% ... 90%)	t_r, t_f	–	1	–	ns
Austrittsöffnung Aperture size	$w \times h$	–	200×10	–	μm
Strahldivergenz (Halbwertsbreite) Beam divergence (FWHM)	$\theta_{\parallel} \times \theta_{\perp}$	–	$11^\circ \times 25^\circ$	–	Grad deg.
Temperaturkoeffizient der Wellenlänge Temperature coefficient of wavelength	$\partial\lambda / \partial T$	–	0.28	–	nm/K
Temperaturkoeffizient der opt. Ausgangsleistung Temperature coefficient of optical power	$\partial P_{\text{op}} / P_{\text{op}} \partial T$	–	-0.4	–	%/K
Thermischer Widerstand Thermal resistance	$R_{\text{th JS}}$	–	160	–	K/W

¹⁾ Standardbetriebsbedingungen beziehen sich auf eine Pulsbreite von 100 ns bei einer Frequenz von 1 kHz und einem Betriebsstrom von 30 A bei $T_A = 25\text{ °C}$.
Standard operating conditions refer to pulses of 100 ns pulse width at 1 kHz rate with 30 A operating current at $T_A = 25\text{ °C}$.

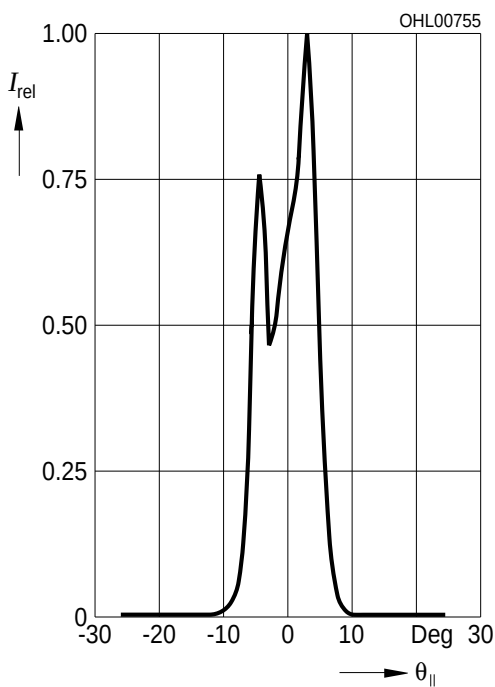
Optical output power P_{opt} and forward voltage V_F vs. forward current I_F ($T_A = 25^\circ\text{C}$)



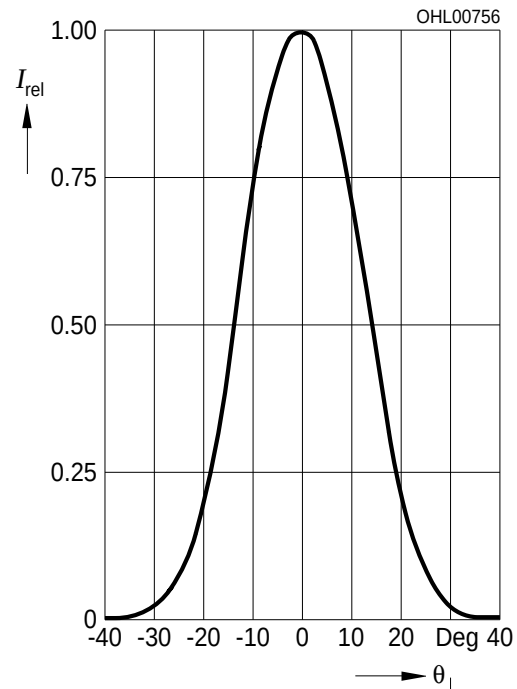
Optical spectrum, relative intensity I_{rel} vs. wavelength λ ($T_A = 25^\circ\text{C}$, $P_{\text{opt}} = 75\text{ W}$)



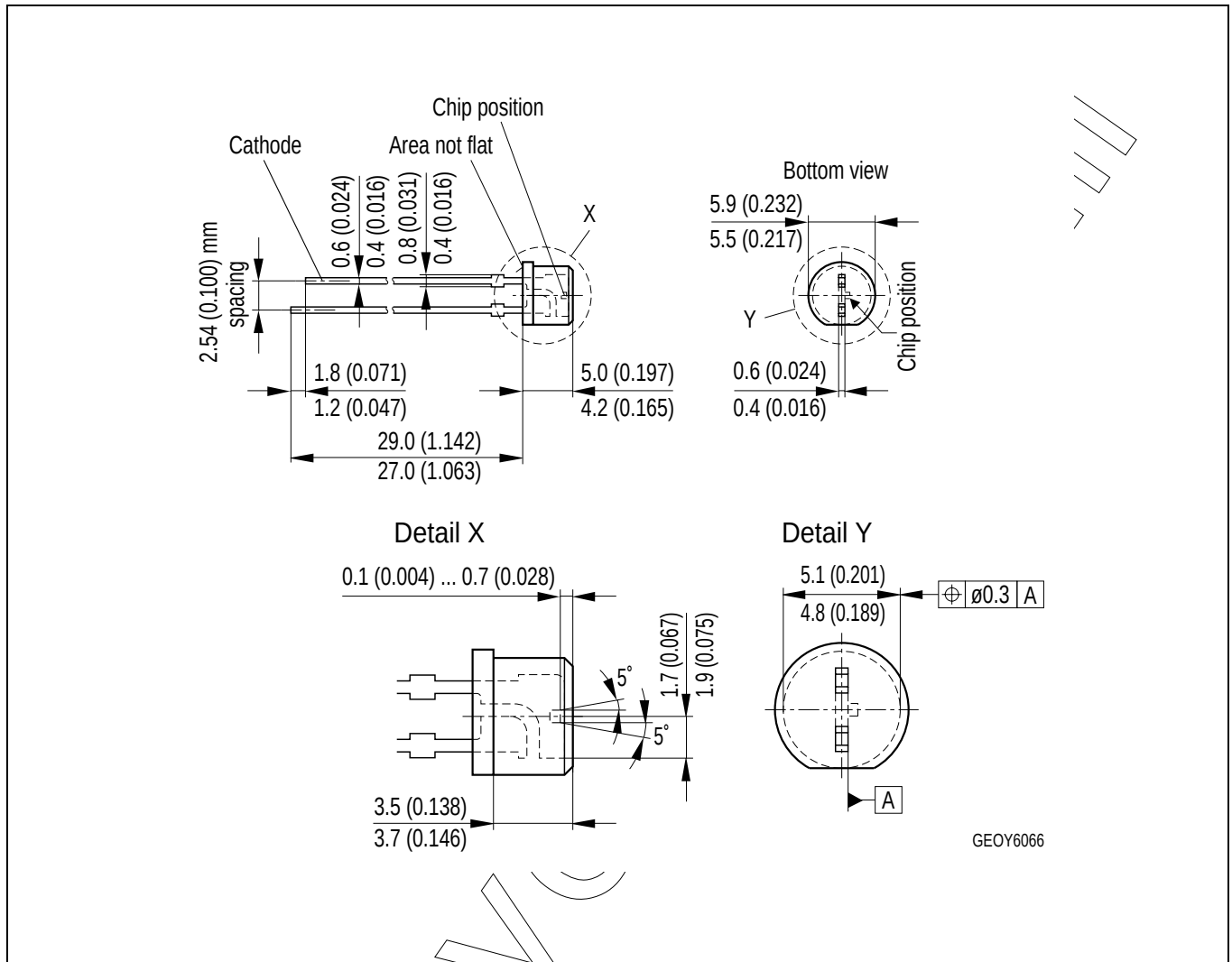
Far-field distribution parallel to junction I_{rel} vs. $\theta_{\parallel}$ ($T_A = 25^\circ\text{C}$, $P_{\text{opt}} = 75\text{ W}$)



Far-field distribution perpendicular to junction I_{rel} vs. $\theta_{\perp}$ ($T_A = 25^\circ\text{C}$, $P_{\text{opt}} = 75\text{ W}$)



Maßzeichnung Package Outlines



Maße werden wie folgt angegeben: mm (inch) / Dimensions are specified as follows: mm (inch).

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Components used in life-support devices or systems must be expressly authorized for such purpose! Critical components¹, may only be used in life-support devices or systems² with the express written approval of OSRAM OS.

¹ 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 effectiveness of that device or system.

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