

Nanostack Impuls-Laserdiode im Plastikgehäuse, 10 W Spitzenleistung Nanostack Pulsed Laser Diode in Plastic Package, 10 W Peak Power

Lead (Pb) Free Product - RoHS Compliant

SPL PL85



Besondere Merkmale

- Optische Spitzenleistung bis zu 10 W
- Laserwellenlänge 850 nm
- Geeignet für kurze Laserpulse von 1 bis 100 ns
- Austrittsöffnung 200 μm \times 2 μm
- Kostengünstiges Plastikgehäuse für hochvolumige Anwendungen

Anwendungen

- Tragbare Laserentfernungsmessgeräte für Golfer, Jäger, Bauingenieure
- Automobilanwendungen (Intelligenter Tempomat, Aufprall-Vorerkennung, Kollisionsvermeidung, adaptive Rückleuchten)
- Verkehrsüberwachung (Laserradarpistole, Verkehrszählung, Fahrzeug-Klassifizierung, Abstandsmessung, Nebelerkennung)
- Professionelle Lasersensoren für Abstandsmessung, Positionierung, Sicherheit

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

- Optical peak power up to 10 W
- Laser wavelength 850 nm
- Suited for short laser pulses from 1 to 100 ns
- Laser aperture 200 μm \times 2 μm
- Cost effective plastic package for high volume applications

Applications

- Hand-held Laser Range Finders (LRF) for golfers, hunters, civil engineers
- Automotive applications (Adaptive Cruise Control (ACC), pre-crash detection, collision avoidance, adaptive rear lighting)
- Traffic surveillance (Laser speed gun, traffic recording, vehicle classification, distance measurement, fog detection)
- Professional laser sensors for distance measuring, positioning, protection

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 Type | Opt. Spitzenausgangsleistung Opt. Peak Power | Wellenlänge Wavelength | Bestellnummer Ordering Code |
|-------------|---|---------------------------|--------------------------------|
| SPL PL85 | 10 W | 850 nm | Q62702P1759 |

Grenzwerte (kurzzeitiger Betrieb) (Umgebungstemperatur $T_A = 25\text{ °C}$)

Maximum Ratings (short time operation) (Ambient temperature $T_A = 25\text{ °C}$)

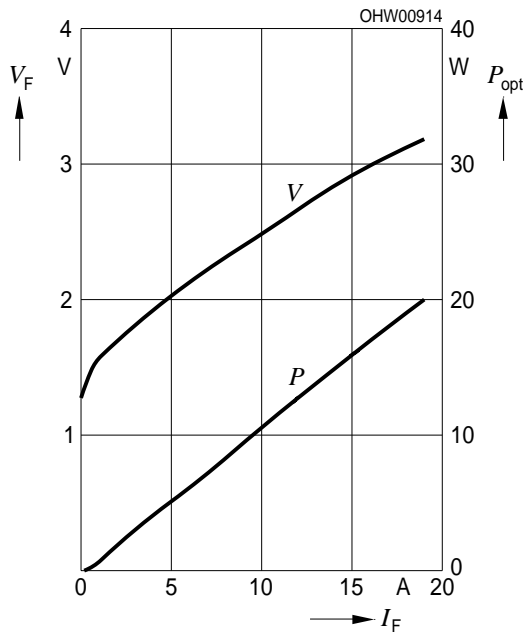
| Parameter Parameter | Symbol Symbol | Werte Values | | Einheit Unit |
|---|-------------------|-----------------|-------|-----------------|
| | | min. | max. | |
| Spitzenausgangsleistung Peak output power | P_{peak} | – | 13 | W |
| Spitzendurchlaßstrom Peak forward current | I_F | – | 12 | A |
| 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 (Umgebungstemperatur $T_A = 25\text{ °C}$)
Optical Characteristics (Ambient temperature $T_A = 25\text{ °C}$)

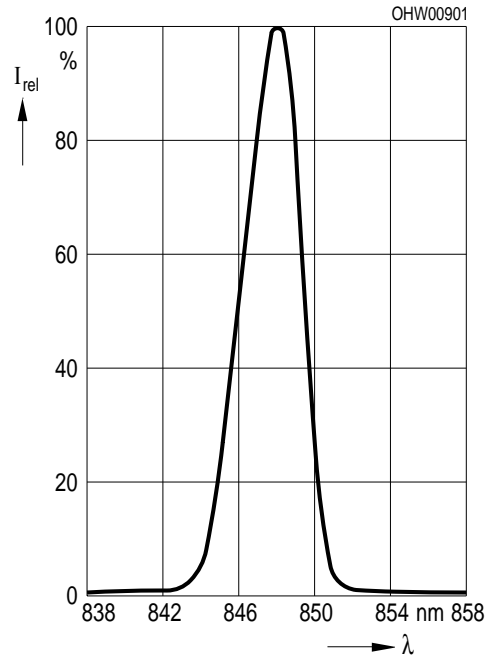
| Parameter Parameter | Symbol Symbol | Werte Values | | | Einheit Unit |
|--|---|-----------------|---------|------|-----------------|
| | | min. | typ. | max. | |
| Zentrale Emissionswellenlänge ¹⁾ Emission wavelength ¹⁾ | λ_{peak} | 840 | 850 | 860 | nm |
| Spektralbreite (Halbwertsbreite) ¹⁾ Spectral width (FWHM) ¹⁾ | $\Delta\lambda$ | – | 4 | – | nm |
| Spitzenausgangsleistung ¹⁾ Peak output power ¹⁾ | P_{op} | 7 | 10 | 13 | W |
| Schwellstrom Threshold current | I_{th} | 0.5 | 0.75 | 1.0 | A |
| Betriebsspannung ¹⁾ Operating voltage ¹⁾ | V_{op} | 2.0 | 2.5 | 3.0 | 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 × 2 | – | μm |
| Strahldivergenz (Halbwertsbreite) Beam divergence (FWHM) | $\theta_{\parallel} \times \theta_{\perp}$ | – | 9 × 25 | – | Grad deg. |
| Temperaturkoeffizient der Wellenlänge Temperature coefficient of wavelength | $\partial\lambda / \partial T$ | – | 0.25 | – | 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 | $R_{\text{th JA}}$ | – | 160 | – | K/W |

¹⁾ Standardbetriebsbedingungen beziehen sich auf eine Pulsbreite von 100 ns bei einer Frequenz von 1 kHz und einem Betriebsstrom von 10 A bei $T_A = 25\text{ °C}$.
Standard operating conditions refer to pulses of 100 ns pulse width at 1 kHz rate with 10 A operating current at $T_A = 25\text{ °C}$.

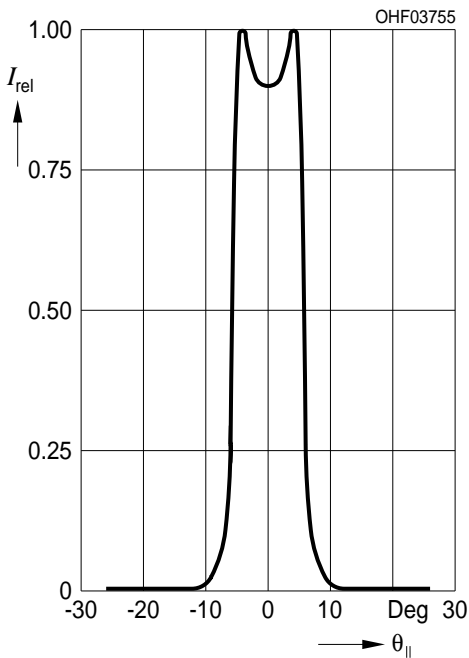
Optical output power P_{opt} and forward voltage V_F vs. forward current I_F ($T_A = 25\text{ }^\circ\text{C}$)



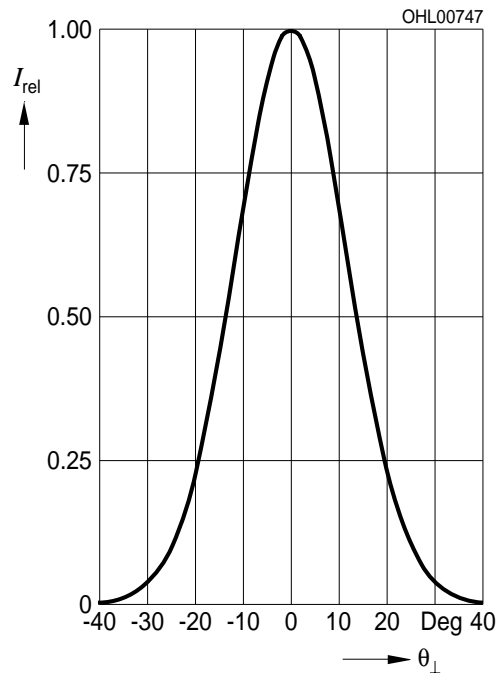
Optical spectrum, relative intensity I_{rel} vs. wavelength λ ($T_A = 25\text{ }^\circ\text{C}$, $P_{op} = 10\text{ W}$)



Far-field distribution parallel to junction I_{rel} vs. $\theta_{||}$ ($T_A = 25\text{ }^\circ\text{C}$, $P_{op} = 10\text{ W}$)



Far-field distribution perpendicular to junction I_{rel} vs. θ_{\perp} ($T_A = 25\text{ }^\circ\text{C}$, $P_{op} = 10\text{ W}$)



Published by
OSRAM Opto Semiconductors GmbH
Leibnizstrasse 4, D-93055 Regensburg
www.osram-os.com

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EU RoHS and China RoHS compliant product



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