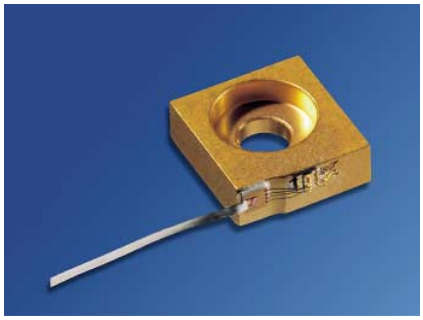
Laser Diode on Submount 2.0 W cw
Laser Diode in offener Bauform 2.0 W cw

SPL CG81
SPL CG94



Besondere Merkmale

- Effiziente Strahlungsquelle für Dauerstrich- und gepulstem Betriebsmodus
- Zuverlässige InGa(Al)As kompressiv verspannte Quantenfilm-Struktur
- Laterale Austrittsöffnung 200 µm
- Kleiner Kupfer-Kühlkörper (C-Typ) für OEM Design

Anwendungen

- Pumpen von Faser-Lasern und -verstärkern (Er, Yb, …)
- Pumpen von Festkörperlasern (Nd: YAG, Yb: YAG, …)
- Löten, Erwärmen, Beleuchten
- Drucken, Markieren, Oberflächenbearbeitung
- Medizinische Anwendungen
- 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 Sicherheits-richtlinien der IEC-Norm 60825-1 behandelt werden.

Features

- Efficient radiation source for cw and pulsed operation
- Reliable InGa(Al)As strained quantum-well structure
- Lateral laser aperture 200 µm
- Small C-type copper submount for OEM designs

Applications

- Pumping of fiber lasers and amplifiers (Er, Yb, …)
- Pumping of solid state lasers (Nd: YAG, Yb: YAG, …)
- Soldering, heating, illumination
- Printing, marking, surface processing
- Medical applications
- Testing and measurement applications

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”.

Opto Semiconductors

HY-LINE® POWER COMPONENTS

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OSRAM

Typ Type	Wellenlänge[1)] Wavelength[1)]	Bestellnummer Ordering Code
SPL CG81	808 nm	Q62702P358
SPL CG94	940 nm	Q62702P1617

[1)] Andere Wellenlängen im Bereich von 780 nm … 980 nm und andere Emittergrößen sind auf Anfrage erhältlich.
Other wavelengths in the range of 780 nm … 980 nm and other emitter sizes are available on request.

Grenzwerte (kurzzeitiger Betrieb) (T_A = 25 °C)
Maximum Ratings (short time operation)

Parameter Parameter	Symbol Symbol	Werte Values		Einheit Unit
		min.	max.	
Ausgangsleistung (Dauerstrichbetrieb)[1)] Output power (continuous wave)[1)]	P_{cw}	–	2.2	W
Ausgangsleistung (Quasi- Dauerstrichbetrieb)[1)] (t_p ≤150 µs, Tastverhältnis ≤30%) Output power (quasi-continuous wave)[1)] (t_p ≤150 µs, duty cycle ≤30%)	P_{qcw}	–	2.7	W
Sperrspannung Reverse voltage	V_R	–	3	V
Betriebstemperatur[2)] Operating temperature[2)]	T_{op}	– 10	+ 60	°C
Lagertemperatur[2)] Storage temperature[2)]	T_{stg}	– 40	+ 85	°C
Löttemperatur an der Lötfahne, max. 5 s Soldering temp. at solder flag, max. 5 s	T_{s1}	–	250	°C
Löttemperatur am Kupferträger, max. 10 s Soldering temp. at submount, max. 10 s	T_{s2}	–	140	°C

[1)] Zur Leistungsmessung wird die gesamte Lichtleistung in eine Ulbrichtkugel eingekoppelt.
Optical power is measured by coupling into an integrating sphere.

[2)] Die Entstehung von Kondensflüssigkeiten muß ausgeschlossen werden.
Bedewing has to be excluded.

Dioden Kennwerte (T_A = 25 °C)
Diode Characteristics

Parameter **Parameter**		**Symbol** **Symbol**	**Werte** **Values**			**Einheit** **Unit**
			min.	**typ.**	**max.**	
Zentrale Emissionswellenlänge[1] Emission wavelength[1]		λ_{peak}	805 930	808 940	811 950	nm
Spektrale Breite (Halbwertsbreite)[1] Spectral width (FWHM)[1]		$\Delta\lambda$	–	3.0	–	nm
Opt. Ausgangsleistung im Betriebspunkt[2] Output power[2]		P_{op}	–	2.0	–	W
Differentielle Effizienz[2] Differential efficiency[2]	808 nm 940 nm	η	0.90 0.80	1.10 1.05	1.30 1.30	W/A
Schwellstrom Threshold current	808 nm 940 nm	I_{th}	0.50 0.30	0.65 0.45	0.80 0.60	A
Betriebsstrom[1] Operating current[1]	808 nm 940 nm	I_{op}	2.20 2.10	2.50 2.35	3.00 2.90	A
Betriebsspannung[1)4)] Operating voltage[1)4)]	808 nm 940 nm	V_{op}	1.70 1.60	1.90 1.80	2.20 2.10	V
Differentieller Serienwiderstand Differential series resistance		R_s	–	0.15	0.4	Ω
Austrittsöffnung Aperture size		$w \times h$	–	200 × 1	–	µm²
Strahldivergenz (Halbwertsbreite) Beam divergence (FWHM)		$\theta_{\parallel} \times \theta_{\perp}$	–	8° × 38°	–	Grad deg.
Charakteristische Temperatur (Schwelle)[3] Characteristic temperature (threshold)[3]	808 nm 940 nm	T_0	–	140 220	–	K
Temperaturkoeffizient des Betriebsstroms Temperature coefficient of operating current		$\partial I_{op} / I_{op} \partial T$	–	0.5	–	%/K
Temperaturkoeffizient der Wellenlänge[4] Temperature coefficient of wavelength[4]		$\partial\lambda/\partial T$	–	0.3	–	nm/K

Dioden Kennwerte (T_A = 25 °C)
Diode Characteristics (cont'd)

Parameter **Parameter**	**Symbol** **Symbol**	**Werte** **Values**			**Einheit** **Unit**
		min.	**typ.**	**max.**	
Thermischer Widerstand (pn-Übergang →Wärmesenke) Thermal resistance (junction →heat sink)	R_{th}	–	8	–	K/W

1) Standardbetriebsbedingungen beziehen sich auf 2 W cw optische Ausgangsleistung.
Standard operating conditions refer to 2 W cw optical output power.

2) Optische Leistungen werden mit einer Ulbrichtkugel gemessen.
Optical power measurements refer to an integrating sphere.

3) Modelle zur Bestimmung des thermischen Verhaltens bzgl. des Schwellstroms:
Model for the thermal behavior of threshold current:
$I_{th}(T_2) = I_{th}(T_1) \times \exp\,(T_2 - T_1)/T_0$

4) Abhängig von der Emissionswellenlänge.
Depending on emission wavelength.

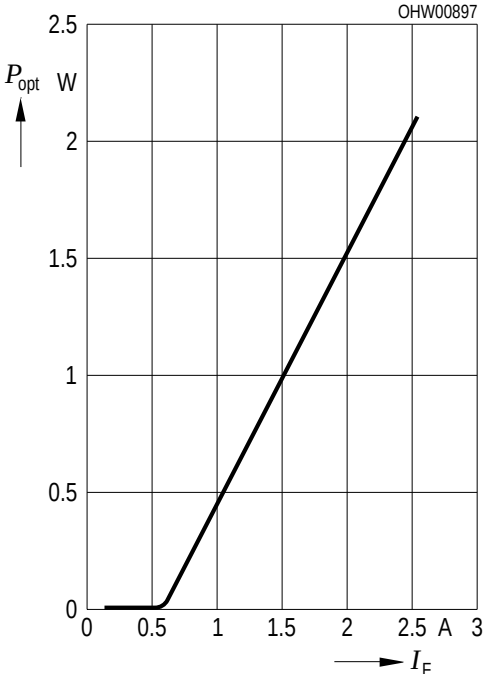
Optische Kennwerte SPL CG81

(Laser Kennwerte sind für alle Wellenlängen ähnlich, Parameter werden vorn detaillierter aufgeführt).

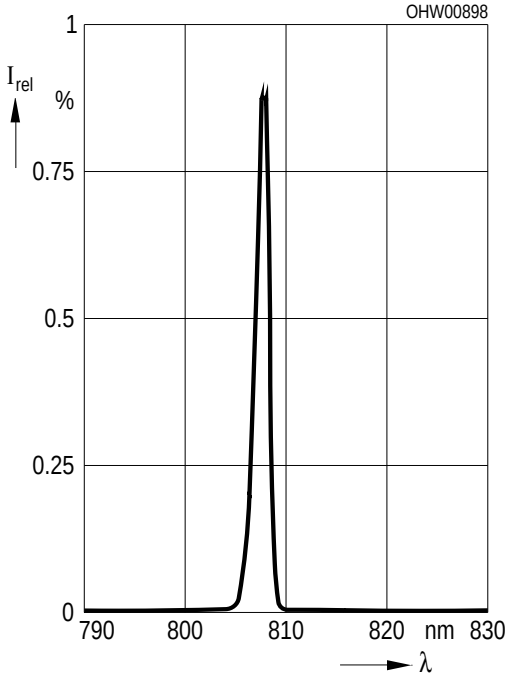
Optical Characteristics SPL CG81

(Laser characteristics are similar for all wavelengths, parameters are listed on previous page in detail).

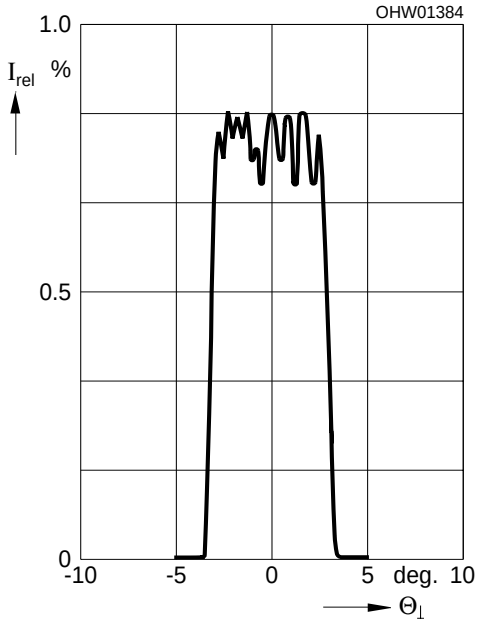
Optical Output Power P_{opt} vs. Forward Current I_F (T_A = 25 °C)



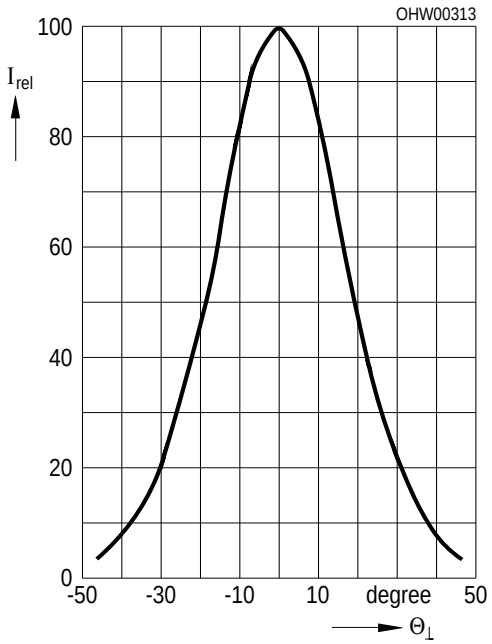
Optical Spectrum, Relative Intensity I_{rel} vs. Wavelength λ (T_A = 25 °C, P_{opt} = 2 W)



Farfield Distribution Parallel to Junction I_{rel} vs. $\theta_{||}$



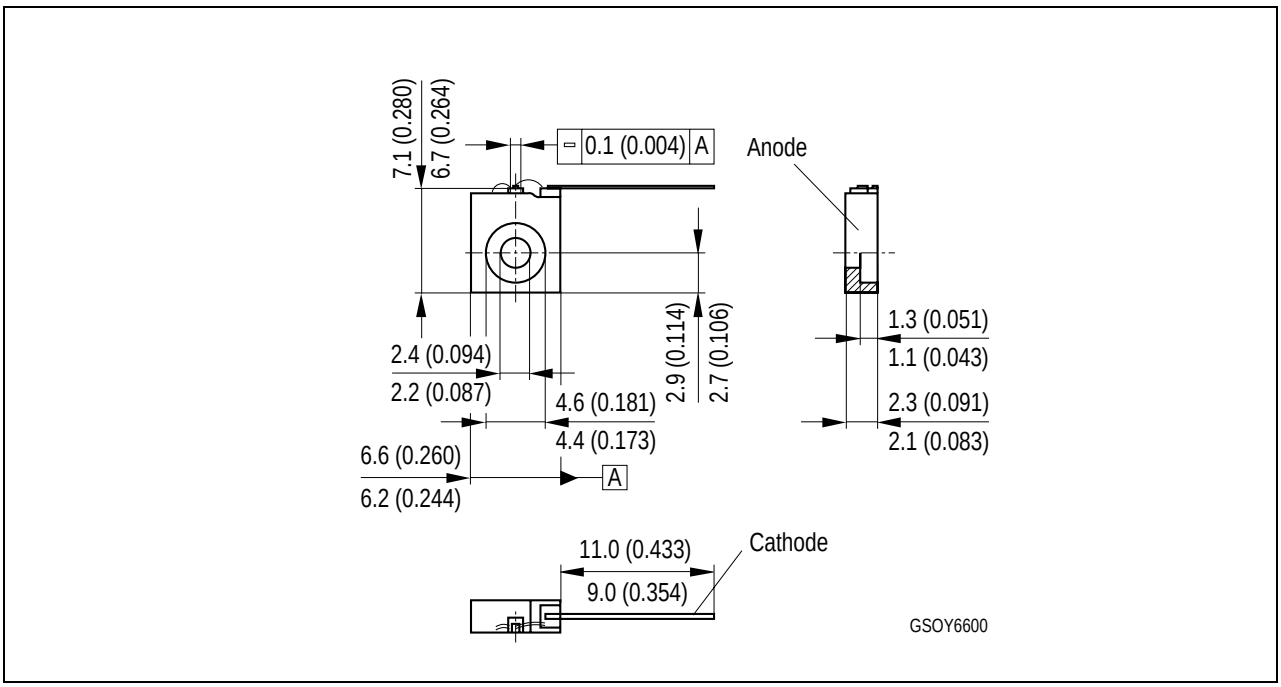
Farfield Distribution Perpendicular to Junction I_{rel} vs. $\theta_\perp$



Alle Laser werden vorgetestet und gemäß den gemessenen Kennwerten ausgeliefert.
Bezüglich Sicherheit, Verpackung, Behandlung, Montage und Betriebsbedingungen lesen Sie bitte sorgfältig unsere **„Notes for Operation I“**.

All devices are pre-tested and will be delivered including measured laser characteristics.
For safety, unpacking, handling, mounting, and operating issues, please read carefully our “**Notes for Operation I**”.

Maßzeichnung
Package Outlines



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

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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.

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 [1] , may only be used in life-support devices or systems [2] with the express written approval of OSRAM OS.

[1] A critical component is a component usedin 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.

[2] 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 of the user may be endangered.