

SIEMENS

Pulsed Laser Diode in Plastic Package 10 W Peak (Class 3 Laser Product)

SPL PLxx
(SFH 4884xx)

Preliminary

Features

- Low cost plastic package
- Reliable strained InGaAs/GaAs material
- High power large-optical-cavity structure
- Single emitting area $200\ \mu\text{m} \times 2\ \mu\text{m}$

Applications

- Range finding
- Security, surveillance
- Illumination, ignition
- Testing and measurement



Type	Old Type (as of Oct. 1996)	Wavelength ^{*)}	Ordering Code
SPL PL85 SPL PL90	SFH 488425 —	850 nm 904 nm	Q62702-P1759 on request

*) Other wavelengths in the range of 780 nm ... 980 nm are available on request.

Maximum Ratings

($T_A = 25\ ^\circ\text{C}$)

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Forward current	I_F	—	—	20	A
Pulse width (FWHM)	t_p	—	—	100	ns
Duty factor	D	—	0.1	—	%
Reverse voltage	V_R	—	—	3	V
Operating temperature	T_{op}	— 20	...	+ 85	$^\circ\text{C}$
Storage temperature	T_{stg}	— 40	...	+ 100	$^\circ\text{C}$
Soldering temperature ($t_{m,ax} = 5\ \text{s}$, 2 mm from bottom edge of case)	T_s	—	—	260	$^\circ\text{C}$

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

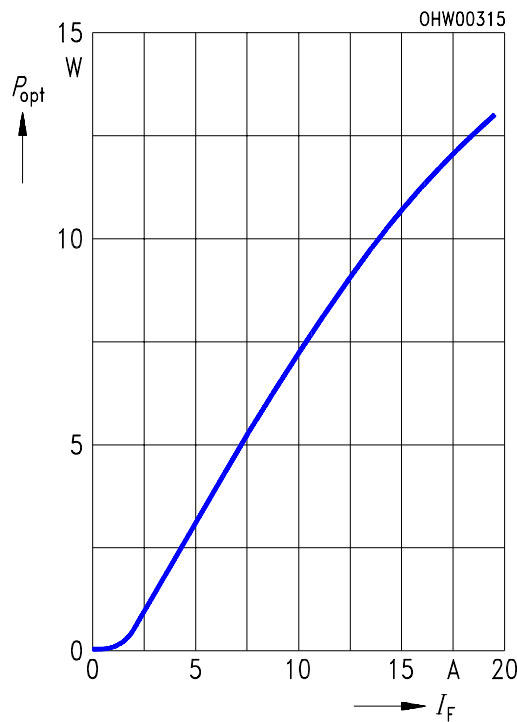
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Emission wavelength ¹⁾	λ	830	850	870	nm
Spectral width (FWHM) ¹⁾	$\Delta\lambda$	4			nm
Forward current (10 W) ¹⁾	I_f	–	–	14	A
Threshold current	I_{th}	–	1	–	A
Forward voltage (0.1 A)	V_F	–	1.6	–	V
Forward voltage (20 A)	V_F	–	6	10	V
Rise and fall time (10% ... 90%)	t_r, t_f	2	10	–	ns
Beam spread at 20 A (FWHM)	$\theta_{ } \times \theta_{\perp}$	–	10×30	–	°
Temperature coefficient of wavelength ²⁾	$\partial\lambda / \partial T$	0.25	0.27	0.30	nm/K
Temperature coefficient of optical power	$\partial P / \partial T$	–	– 0.5	–	%/K
Thermal resistance	$R_{th JA}$	–	160	–	K/W

1) Standard operating conditions refer to pulses of 50 ns at 10 kHz rate with 10 W peak power into NA = 0.5

2) Depending on emission wavelength.

Optical Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)

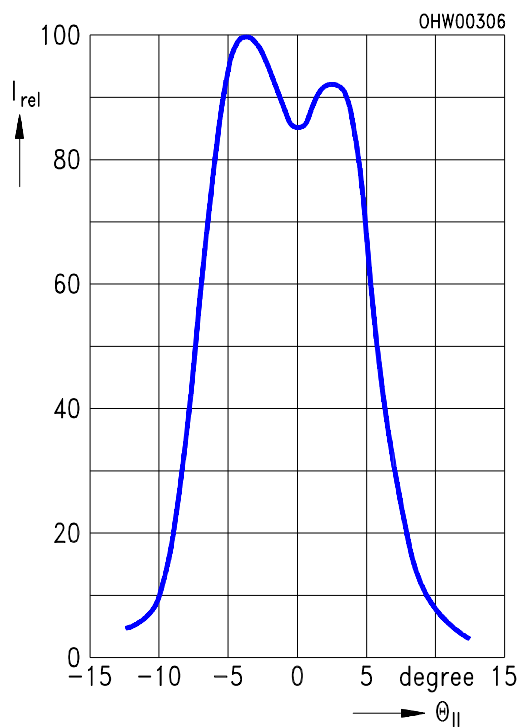
Radiant Power P_{cw} vs. I_F



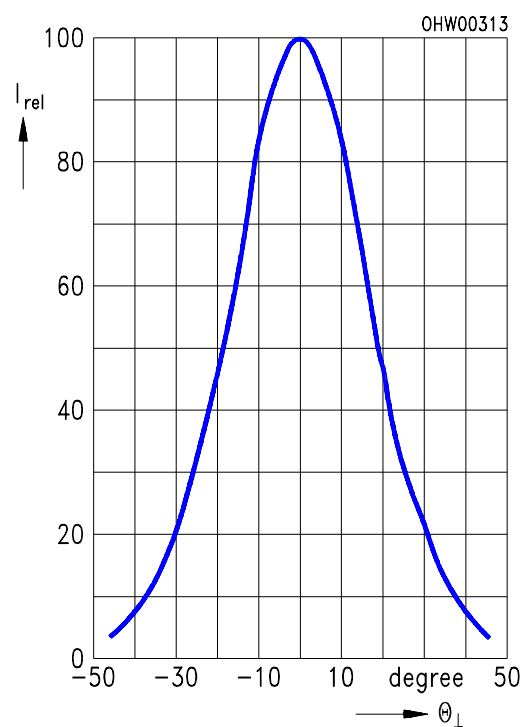
Permissible pulse handling capability;
 I_F vs. t ; Parameter D (duty cycle)

Max. forward current vs pulse length I_F vs. τ ; parameter D duty cycle is under evaluation

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



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



Package Outlines
(Dimensions in mm, unless specified)

