

Unmounted Laser Bars, 50% Fill Factor, 980nm

Version 0.1

SPL BK98-40



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Features

- Unmounted monolithic linear array
- 25 emitter design (50% fill factor)
- Recommended optical power 250W
- Typical conversion efficiency 67%
- High efficiency and reliable MOVPE-grown quantum-well structure
- Other center pulse wavelengths available upon request
- Solderable p- and n-side metallization
- N-side metallization suitable for wire bonding

Applications

- Recommended for continuous wave (cw)-applications
- Pumping of solid-state and fiber lasers
- Direct material processing
- Heating, illumination
- Medical applications
- Printing 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 found in IEC 60825-1 "Safety of laser products".

Ordering Information

Type	Power ¹⁾	Wavelength ²⁾	Ordering Code
SPL BK98-40	250 W	969 ± 5 nm	Q65111A7637

1) Recommended optical power implies a thermal resistance of $R_{th} < 0.3$ K/W.

2) Center pulse wavelength (wafer median) of unmounted laser bars at 1 μs pulse width and 4 kHz repetition rate. Other wavelengths or tolerances available upon request.

Characteristics¹⁾ ($T_A = 25\text{ °C}$)

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Recommended output power	P_{op}	-	250	-	W
Threshold current	I_{th}	-	24	28	A
Operating current ²⁾	I_{op}	-	256	280	A
Slope efficiency	η	0.97	1.07	-	W/A
Total conversion efficiency ²⁾³⁾	η_{tot}	-	67	-	%
Beam divergence fast-axis ²⁾⁴⁾	θ_{\perp}	-	40	-	°
Beam divergence slow-axis ²⁾³⁾⁴⁾	$\theta_{ }$	-	7.5	-	°
Center pulse wavelength (wafer median)	λ_{pulse}	964	969	974	nm
Spectral width (FWHM) ²⁾	$\Delta\lambda$	-	3	-	nm
TE Polarization ²⁾³⁾	P_{TE}	-	> 95	-	%

¹⁾ All characteristics and limitations refer to pulsed measurements (1 μ s pulse width at 4 kHz repetition rate) of unmounted laser bars. The realization of the specified values in cw-mode (continuous wave mode) implies a suitable mounting technology with a thermal resistance of $R_{th} < 0.3\text{ K/W}$. The operating emission wavelength depends on the **operating mode** (cw or pulsed, ambient temperature, thermal resistance R_{th}) and is in general higher than the specified center pulse wavelength λ_{pulse} . All characteristics obtained in the respective **operating mode** may differ from the characteristics specified herein.

²⁾ Specified at the typical optical output power $P_{op, typ}$.

³⁾ Parameter strongly depends on bar mounting.
Typical values for cw-operation of bars mounted with hard solder ($R_{th} = 0.3\text{ K/W}$, $T_A = 20\text{ °C}$).

⁴⁾ Full width at 95% power content.

Dimensions

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Number of emitters	n	-	25	-	
Single emitter contact width	w	-	200	-	μ m
Emitter pitch	p	-	400	-	μ m
Fill factor	F	-	50	-	%
Bar width	W	11.3	11.4	11.5	mm
Bar height	H	105	115	125	μ m
Resonator length	L	3990	4000	4010	μ m

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