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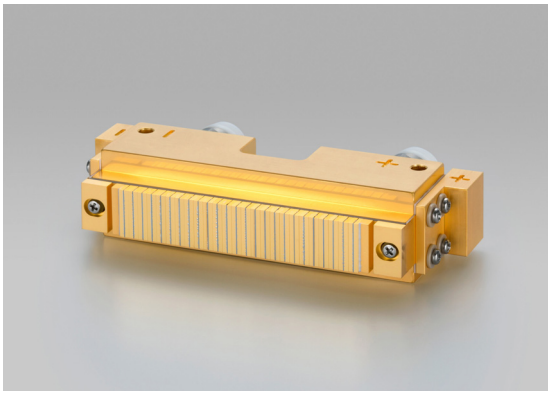
# Pulsed Laser Diode Bar Module L13713-25P940

## ■Features

- ●High output power: 10 kW
- ●High stability
- ●High reliability
- ●Lightweight, compact



## ■Applications

- ●Solid state laser pumping
- ●Fiber laser excitation

## ■Outline

The L13713-25P940 laser diode bar module features a light weight and compact size, and easily mounts into equipment. Laser diodes are eco-friendly since they deliver higher conversion efficiency at lower energy which reduces running costs. The L13713-25P940 can also be designed for fast axis collimation as an option on request.

## ■Absolute maximum ratings

| Parameter | | Symbol | Value | Unit |
|---|---|---|---|---|
| Pulsed forward current | | $I_{fp}$ | 400 | A |
| Peak output power | | $\Phi_{ep}$ | 10.0 | kW |
| Pulsed width | | $t_w$ | 1.0 | ms |
| Duty ratio | | DR | 1.5 | % |
| Reverse voltage | | $V_r$ | 2.0 | V |
| Operating temperature | | $T_{op(a)}$ | +5 to +40 *1) | °C |
| Storage temperature | | $T_{stg}$ | -20 to +55 *1) *2) | °C |
| Operating / storage humidity | | - | +60 *1) | % |
| Cooling water conditions | Coolant | - | Tap water | - |
| | Temperature (coolant inlet) | - | +15 to +30 | °C |
| | Water pressure (at heat sink) | - | 0.3 *3) | MPa |
| | Water flow rate (total) | - | 0.8 to 1.8 | L/min |

*1) No condensation. (use dry nitrogen atomosphere, under the dew point)
*2) No water remain in the products.
*3) Including surge pressure.

## ■Electical and optical characteristics

$t_w$ = 400 µs, $f_r$ *1) = 25 Hz, temperature of coolant (IN): 20 °C, flow rate: 1.0 L/min

| Parameter | | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Operating current | | $I_{op}$ | $\Phi_{ep}$= 8.0 kW | - | 310 | 330 | A |
| Center wavelength | | $\lambda_c$ | $\Phi_{ep}$= 8.0 kW | 935 | 940 | 945 | nm |
| Spectral radiation half bandwidth | | $\Delta\lambda$ | FWHM, $\Phi_{ep}$= 8.0 kW | - | 5 | 8 | nm |
| Operating voltage | | $V_{op}$ | $\Phi_{ep}$= 8.0 kW | - | 45 | 60 | V |
| Beam spread angle | Horizontal | $\theta_{//}$ | 1/$e^2$, $I_{fp}$= 300 A *2) | - | 15 | 20 | ° |
| | Vertical | $\theta_{\perp}$ | 1/$e^2$, $I_{fp}$= 300 A *2) | - | 58 | 68 | |
| Lasing threshold current | | $I_{th}$ | - | - | 33 | 40 | A |

*1) Repetition frequency
*2) Measured with one bar ($t_w$ = 1 ms, $f_r$ = 10 Hz, $T_{op(c)}$ = 25 °C)

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## ■Other characteristics

| Parameter | | Designed value | Unit |
|---|---|---|---|
| Emitter pitch | | 2.14 | mm |
| Emitting area | Horizontal | 10 | mm |
| | Vertical | 51.36 | mm |

Figure 1: Radiant output power vs. Forward current (typ.)

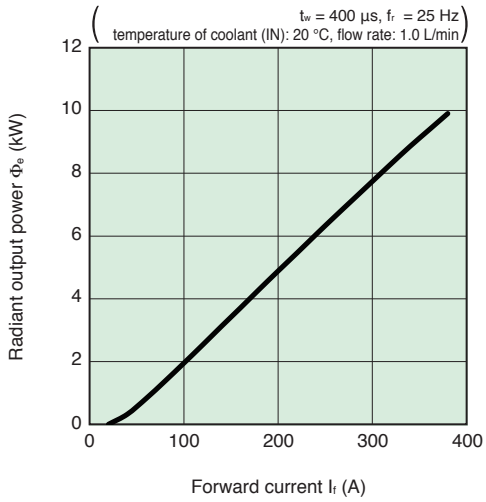



Figure 2: Typical emission spectrum

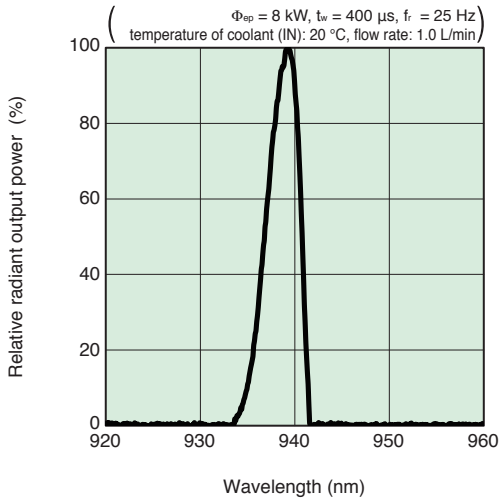
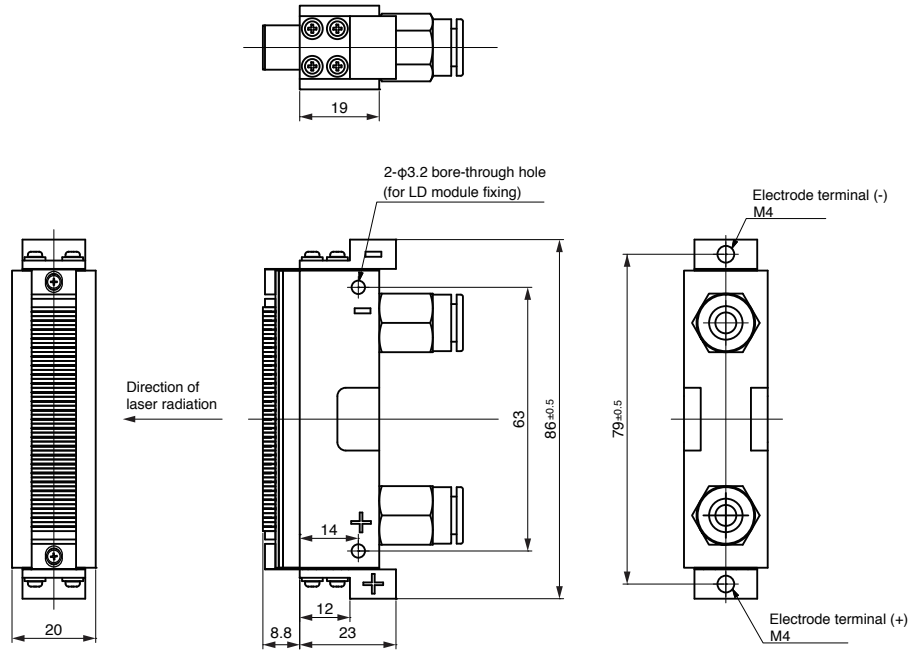



Figure 3: Dimensional outline (unit: mm)




*) Tolerance is +/- 0.1 mm unless specified.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