

# Passively Cooled Diode Laser Bar

**SPL MNxx No Optics**

**SPL MYxx Fast-Axis Collimation**



SP-pack. (left), DL-pack. (right)

## Preliminary Data

### Features

- Uncollimated (MN-series) or fast-axis collimated radiation (MY-series)
- 1 cm-laser bar mounted on passive heat sink, no water required
- Highly reliable strained layer InGa(Al)As/GaAs material
- Standard wavelength selection is  $\pm 3$  nm, others on request
- Low smile ( $< 1 \mu\text{m}$ ) and low mechanical tolerances

### Applications

- Pumping of solid state lasers (Nd: YAG, Yb: YAG, ...)
- Direct industrial applications (soldering, surface treatment, marking, ...)
- Heating, illumination
- Medical and 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 given in IEC 60825-1 "Safety of laser products".

## Type Designation System

SPL M Y xx - G

## Y) Collimation

Beam Divergence /  $1/e^2$ 

|   |   |                       |                                                |
|---|---|-----------------------|------------------------------------------------|
| N | — | No optics             | $30^\circ \times 5^\circ$                      |
| Y | — | Fast axis collimation | $< 0.5^\circ (15 \text{ mrad}) \times 5^\circ$ |

## x) Wavelength

|    |   |        |
|----|---|--------|
| 81 | — | 808 nm |
| 83 | — | 830 nm |
| 94 | — | 940 nm |
| 98 | — | 975 nm |

## G) Package/Power

Package

Features

|   |   |                 |                                                                |
|---|---|-----------------|----------------------------------------------------------------|
| D | — | DL-type/30 W cw | compact size $12 \times 22 \times 8 \text{ mm}$                |
| G | — | SP-type/40 W cw | reduced thermal resistance $25 \times 25 \times 12 \text{ mm}$ |

| Recommended Types | Wavelength <sup>1)</sup> | Max. Output Power | Ordering Code |
|-------------------|--------------------------|-------------------|---------------|
| SPL MN81-D        | 808 nm                   | 30 W, cw          | Q62702-P3555  |
| SPL MN81-G        | 808 nm                   | 40 W, cw          | Q62702-P5312  |

Both packages are available on request with any other unmounted bar from data sheet SPL Byxx.

<sup>1)</sup> Other wavelengths in the range of 780 nm ... 980 nm are available on request.Maximum Ratings ( $T_A = 20^\circ\text{C}$  mount temperature)

| Parameter                           | Symbol           | Values |      | Unit             |
|-------------------------------------|------------------|--------|------|------------------|
|                                     |                  | min.   | max. |                  |
| Operating temperature <sup>1)</sup> | $T_{\text{op}}$  | − 10   | + 60 | $^\circ\text{C}$ |
| Storage temperature <sup>1)</sup>   | $T_{\text{stg}}$ | − 40   | + 85 | $^\circ\text{C}$ |

<sup>1)</sup> Condensation must be avoided.

**Characteristics** ( $T_A = 20\text{ °C}$  mount temperature)

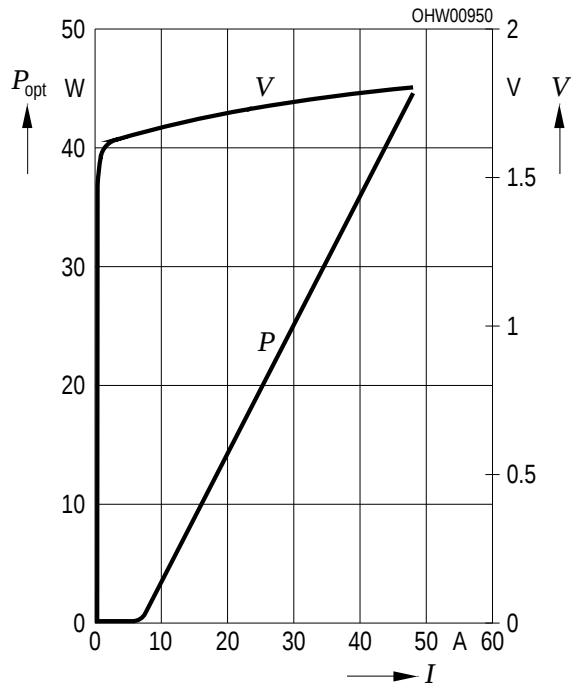
| Parameter                                             |                        | Symbol                                     | Values                      |                   |             | Unit |
|-------------------------------------------------------|------------------------|--------------------------------------------|-----------------------------|-------------------|-------------|------|
|                                                       |                        |                                            | min.                        | typ.              | max.        |      |
| Output power <sup>1)</sup>                            | DL-pack.<br>SP-pack.   | $P_{\text{op}}$                            | —<br>—                      | 25<br>35          | 30<br>40    | W    |
| Wavelength                                            |                        | $\lambda$                                  | —<br>—<br>—                 | 808<br>940<br>975 | —<br>—<br>— | nm   |
| Spectral width (FWHM)                                 |                        | $\Delta\lambda$                            | —                           | 3                 | —           | nm   |
| Threshold current <sup>1)</sup>                       | DL-pack.<br>SP-pack.   | $I_{\text{th}}$                            | 8<br>15                     | 10<br>17          | 12<br>20    | A    |
| Differential efficiency uncollimated <sup>1)</sup>    |                        | $\eta_{\text{d}}$                          | 0.8                         | 0.9               | 1           | W/A  |
| Fast-axis collimation efficiency into beam divergence | MY-series              | $\eta_{\text{col}}$                        | —                           | 93                | —           | %    |
| Operating current                                     | DL-pack.<br>SP-pack.   | $I_{\text{op}}$                            | —<br>—                      | 38<br>45          | 40<br>50    | A    |
| Operating voltage                                     |                        | $V_{\text{op}}$                            | —                           | 1.8               | —           | V    |
| Conversion efficiency <sup>1)</sup>                   |                        | $\eta_{\text{c}}$                          | 35                          | 43                | —           | %    |
| Beam divergence 1/e <sup>2</sup> <sup>2)</sup>        | MN-series<br>MY-series | $\theta_{\perp} \times \theta_{\parallel}$ | 30° × 5°<br>0.5° × 5°       |                   |             | deg. |
| Thermal resistance                                    | DL-pack.<br>SP-pack.   | $R_{\text{th}}$                            | 1<br>0.8                    |                   |             | K/W  |
| Temperature coefficient of wavelength                 |                        | $\Delta\lambda / \Delta T$                 | 0.27                        |                   |             | nm/K |
| Mount dimensions                                      | DL-pack.<br>SP-pack.   | $w \times d \times h$                      | 12 × 22 × 8<br>25 × 25 × 12 |                   |             | mm   |

<sup>1)</sup> Depending on wavelength.

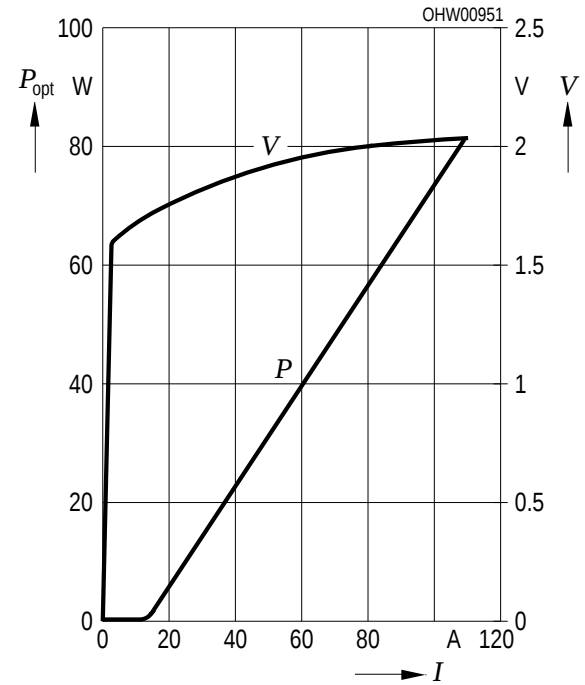
<sup>2)</sup> Far field divergence refers to half angle at  $1/e^2$  relative intensity.

**Optical Characteristics** ( $T_A = 20\text{ °C}$  mount temperature)

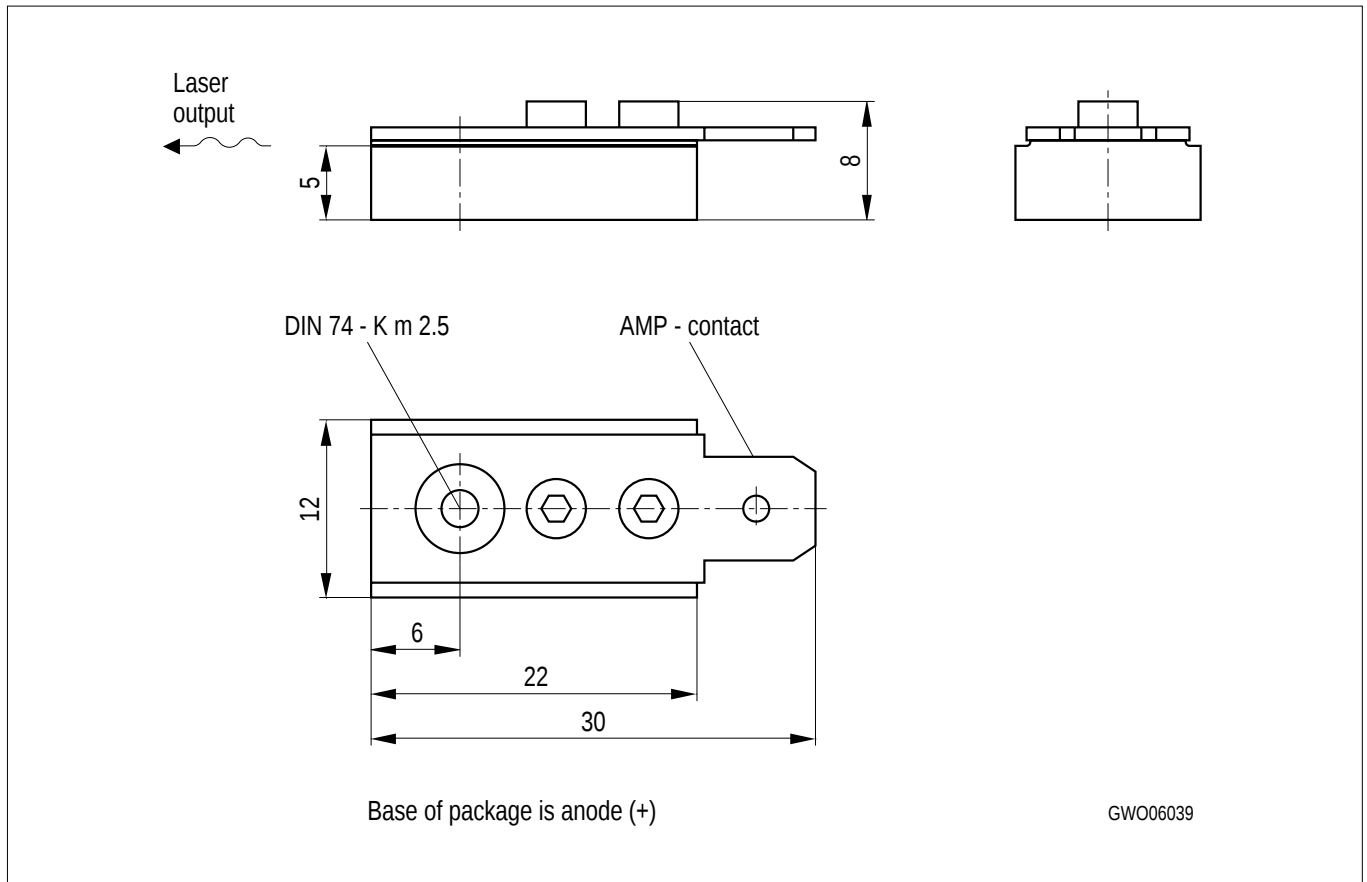
**Optical Output Power  $P_{\text{opt}}$  vs.  
Forward Current  $I_F$   
cw-device, Mount: SP**



**Optical Output Power  $P_{\text{opt}}$  vs.  
Forward Current  $I_F$   
qcw-device, Mount: DL**

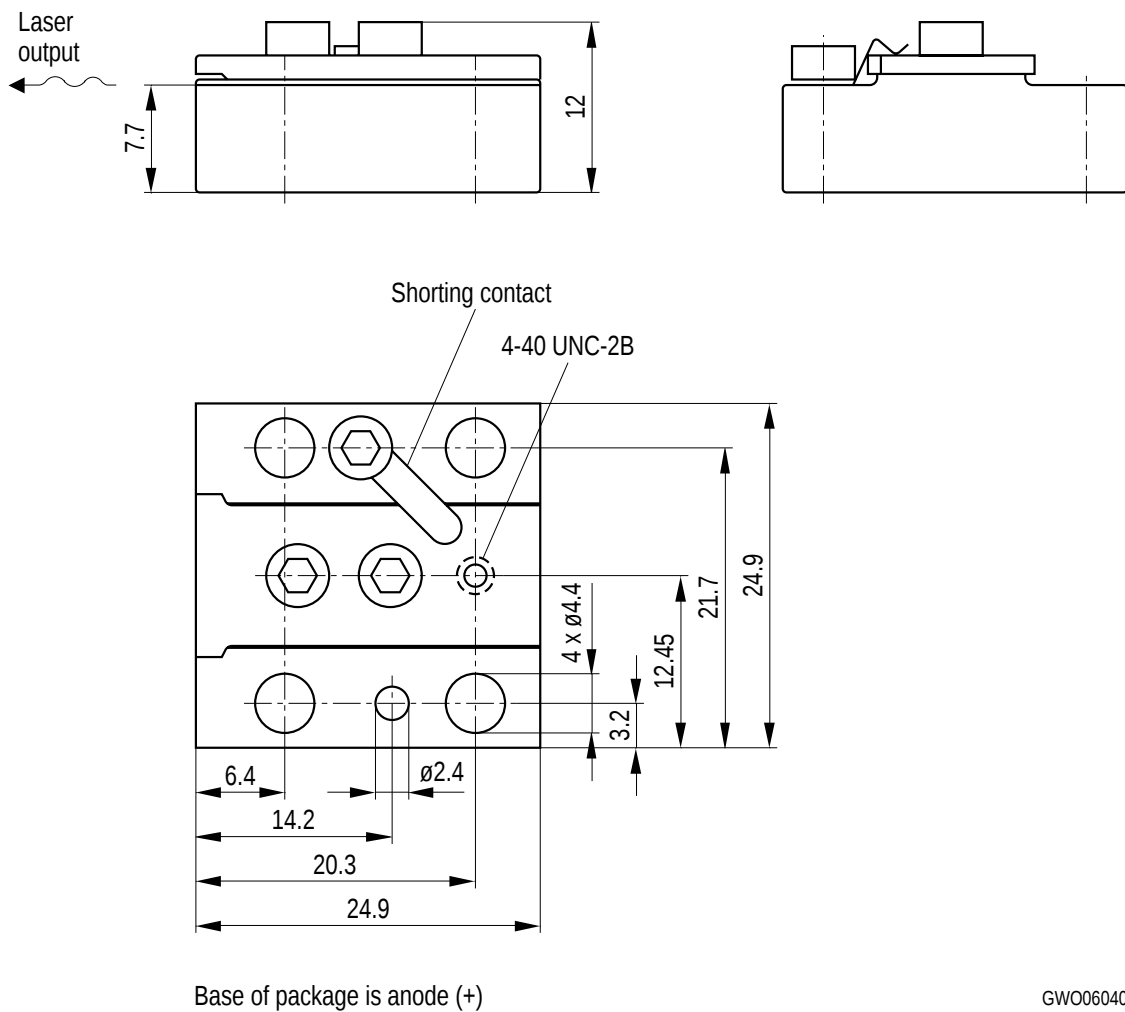


Package Outlines (DL-type package)



Dimensions in mm, unless otherwise specified (10 mm = 0.39 inch / 1 inch = 25.4 mm).

## Package Outlines (SP-type package)



Dimensions in mm, unless otherwise specified (10 mm = 0.39 inch / 1 inch = 25.4 mm).

For safety, unpacking, handling, mounting and operating issues, please carefully read our **“Notes For Operation II”**.