

## Datasheet for #sbcw25941 DN

### Recommendations:

Please read the User Manual and have a look at the FAQ at <https://www.alpeslasers.ch/resources/#faq>

**WARNING:** Operating the laser with higher current or voltage than specified in this document may cause damage and will result in loss of warranty, unless Alpes Lasers has permitted to do so!

**WARNING:** Beware of the polarity of the laser. This laser has to be powered with negative current on the laser contact (= bonding pad, corresponding to the label "laser" on the LLH) and the positive current on the base contact (= submount, corresponding to the label "base" on the LLH). To be used with a high compliance CW laser driver capable of reaching the operating current and voltage indicated in this datasheet, or up to 2.5A/20V.

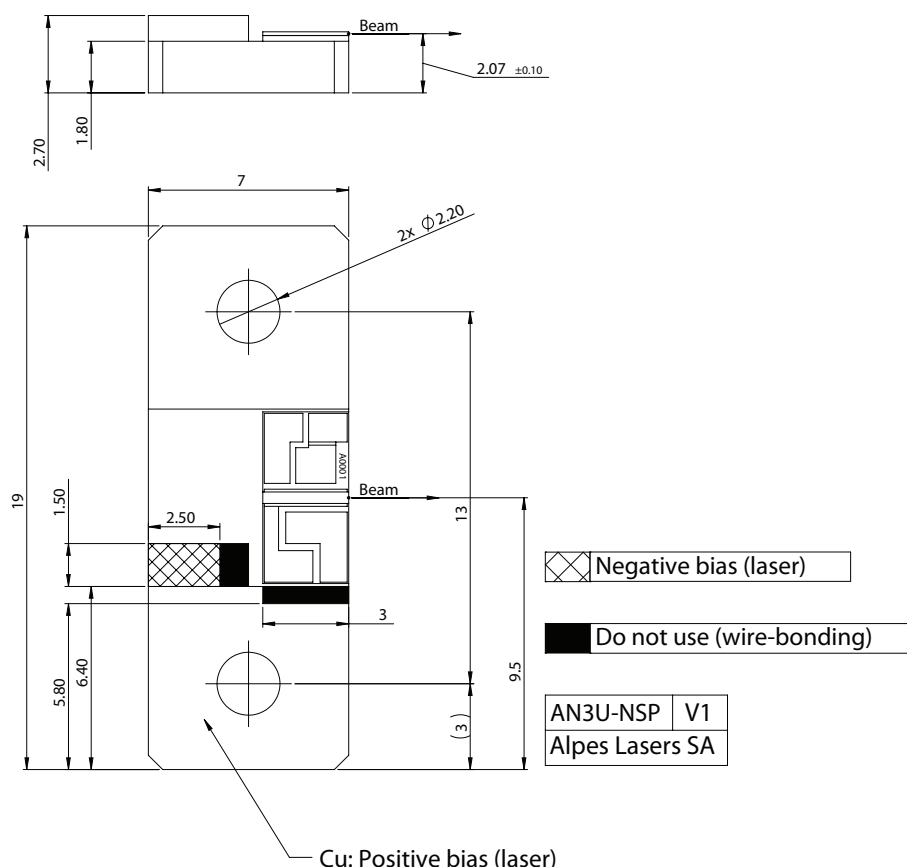


Figure 1: Mechanical and electrical interface for #sbcw25941 DN

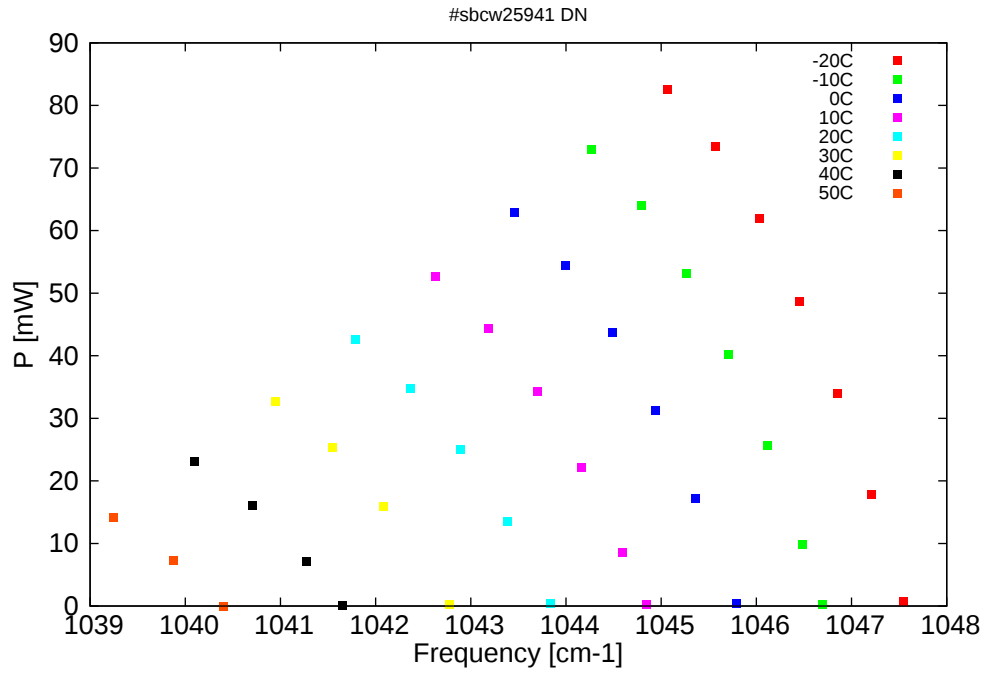


Figure 2: Output power as a function of the singlemode emission frequencies and temperatures

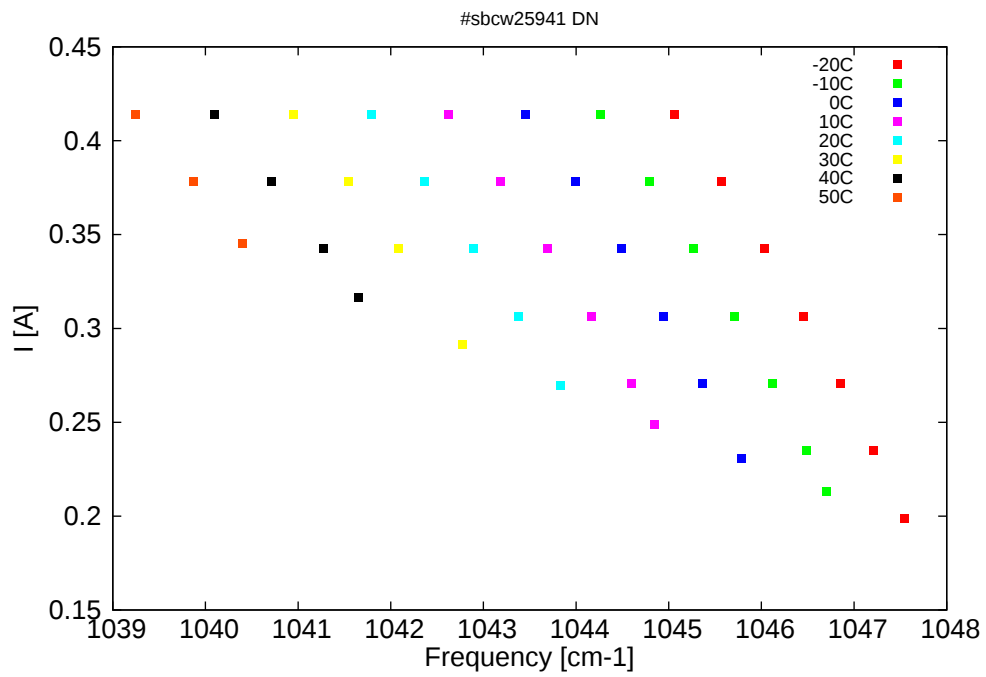


Figure 3: Applied DC current as a function of singlemode emission frequencies and temperatures

| $\lambda[\text{nm}]$ | $\nu[\text{cm}^{-1}]$ | P[mW] | Temp[°C] | $U_{LASER}[\text{V}]$ | I[A]  |
|----------------------|-----------------------|-------|----------|-----------------------|-------|
| 9546.1               | 1047.5                | 0.7   | -20      | 9.12                  | 0.199 |
| 9549.2               | 1047.2                | 17.8  | -20      | 9.47                  | 0.235 |
| 9552.5               | 1046.9                | 33.9  | -20      | 9.8                   | 0.271 |
| 9556.1               | 1046.5                | 48.6  | -20      | 10.13                 | 0.306 |
| 9560                 | 1046                  | 61.9  | -20      | 10.45                 | 0.342 |
| 9564.2               | 1045.6                | 73.4  | -20      | 10.77                 | 0.378 |
| 9568.8               | 1045.1                | 82.6  | -20      | 11.09                 | 0.414 |
| 9553.8               | 1046.7                | 0.2   | -10      | 9.19                  | 0.213 |
| 9555.8               | 1046.5                | 9.8   | -10      | 9.4                   | 0.235 |
| 9559.2               | 1046.1                | 25.7  | -10      | 9.74                  | 0.271 |
| 9562.9               | 1045.7                | 40.2  | -10      | 10.07                 | 0.306 |
| 9566.9               | 1045.3                | 53.1  | -10      | 10.39                 | 0.342 |
| 9571.3               | 1044.8                | 64.1  | -10      | 10.71                 | 0.378 |
| 9576.1               | 1044.3                | 72.9  | -10      | 11.04                 | 0.414 |
| 9562.1               | 1045.8                | 0.3   | 0        | 9.29                  | 0.231 |
| 9566                 | 1045.4                | 17.1  | 0        | 9.67                  | 0.271 |
| 9569.9               | 1044.9                | 31.3  | 0        | 10                    | 0.306 |
| 9574.1               | 1044.5                | 43.8  | 0        | 10.33                 | 0.342 |
| 9578.6               | 1044                  | 54.4  | 0        | 10.66                 | 0.378 |
| 9583.5               | 1043.5                | 62.9  | 0        | 10.98                 | 0.414 |
| 9570.8               | 1044.8                | 0.2   | 10       | 9.4                   | 0.249 |
| 9573.1               | 1044.6                | 8.6   | 10       | 9.6                   | 0.271 |
| 9577                 | 1044.2                | 22.1  | 10       | 9.94                  | 0.306 |
| 9581.3               | 1043.7                | 34.2  | 10       | 10.27                 | 0.342 |
| 9586                 | 1043.2                | 44.4  | 10       | 10.6                  | 0.378 |
| 9591.2               | 1042.6                | 52.6  | 10       | 10.93                 | 0.414 |
| 9580                 | 1043.8                | 0.4   | 20       | 9.53                  | 0.27  |
| 9584.2               | 1043.4                | 13.5  | 20       | 9.88                  | 0.306 |
| 9588.7               | 1042.9                | 25    | 20       | 10.21                 | 0.342 |
| 9593.6               | 1042.4                | 34.8  | 20       | 10.55                 | 0.378 |
| 9598.8               | 1041.8                | 42.5  | 20       | 10.88                 | 0.414 |
| 9589.8               | 1042.8                | 0.2   | 30       | 9.68                  | 0.292 |
| 9596.1               | 1042.1                | 15.9  | 30       | 10.16                 | 0.342 |
| 9601.1               | 1041.5                | 25.3  | 30       | 10.5                  | 0.378 |
| 9606.6               | 1040.9                | 32.6  | 30       | 10.83                 | 0.414 |
| 9600.2               | 1041.6                | 0.1   | 40       | 9.85                  | 0.316 |
| 9603.6               | 1041.3                | 7.1   | 40       | 10.1                  | 0.342 |
| 9608.8               | 1040.7                | 16    | 40       | 10.44                 | 0.378 |
| 9614.5               | 1040.1                | 23    | 40       | 10.77                 | 0.414 |
| 9611.7               | 1040.4                | 0     | 50       | 10.06                 | 0.345 |
| 9616.5               | 1039.9                | 7.3   | 50       | 10.37                 | 0.378 |
| 9622.3               | 1039.2                | 14.1  | 50       | 10.72                 | 0.414 |

Table 1: Singlemode optical output power as function of operating parameters.

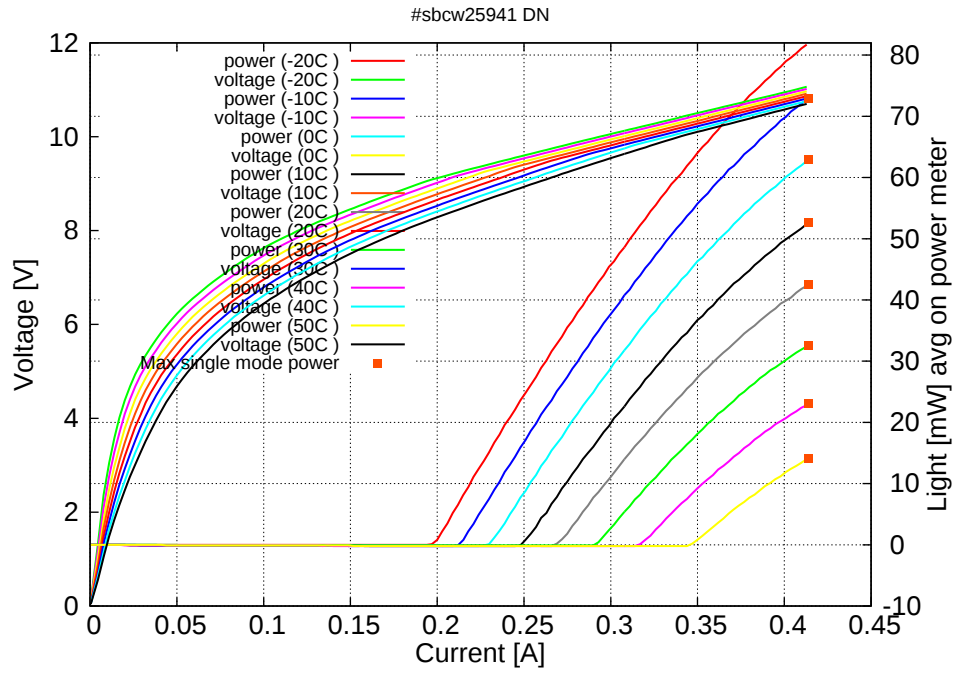


Figure 4: voltage and avg power vs current in continuous-wave operation (the solid squares indicate the maximum singlemode emitted power)

Note: at -20C:  $I_{th}=0.19A$  /  $V_{th}=9.1V$  (2-wires measurements). Maximum operation current: 0.415A for all temperatures.

Figure 1 displays 1000 simulated spectra, each represented by a line of a different color. The x-axis is labeled 'Wavenumber [cm-1]' and ranges from 1039 to 1048. The y-axis is labeled 'Spectral density (normalized to 1)' and ranges from -0.2 to 1.2. Each spectrum is labeled on the left with its corresponding temperature (T) and anisotropy (A) parameters, such as '50C 0.414A' or '-20C 0.199A'. The spectra show various absorption peaks, with some being more prominent than others. A vertical dashed line is drawn at approximately 1044.5 cm-1.