

# Preliminary Data Sheet

## Introducing the 640.22 nm IPSSL Laser\* With Embedded Atomic Standard (EAS)

IPSSL is an atomic resonant laser. The wavelength (centroid) of the spectral line is fixed at an atomic transition by virtue of EAS. Resulting stability of typically about 0.5 picometers over 12 hours is comparable to a He:Ne laser, and is temperature-independent over a broad temperature range. Wavelength accuracy is about  $\pm 1$  picometer. Compared to commercial semiconductor devices, IPSSL has no external servo (VBG or other opto-mechanical device), and is compact

- **High wavelength stability<sup>a</sup>**
- **High wavelength accuracy**
- **Competitive output power**
- **Compact design**



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\* Patent Pending

in design based on the relative level of wavelength stability and power performance. Applications include optical pumps requiring high-efficiency energy conversion and chemical analytical instrumentation requiring high wavelength accuracy, such as Raman spectroscopy and atomic fluorescence. The wavelength invariance of IPSSL, when integrated in instrumentation, assures calibration transfer thereby reducing system operating costs.

| Operating Specifications |        |     |           |     |
|--------------------------|--------|-----|-----------|-----|
| Parameter                | Unit   | Min | Typical   | Max |
| Wavelength               | nm     |     | 640.22(4) |     |
| Wavelength accuracy      | pm     |     | $\pm 1$   |     |
| Power                    | mW     | 90  | 100       | 120 |
| Line width               | pm/GHz |     | 3.5/2.5   |     |
| Stability <sup>a</sup>   | pm     | 0.5 |           |     |
| Operating temp           | °C     | 0   | 20        | 40  |
| Storage temp             | °C     | -40 |           | 70  |
| Supply current           | A      |     | 2         |     |
| Supply voltage           | V      |     | 12        |     |
| Warm up                  | min    | 2   | 5         | 10  |
| CDRH class               |        |     | IV        |     |
| Beam diameter            | mm     |     | 3         |     |
| Beam divergence          | mrad   |     | 3         |     |
| Polarization             |        |     | 1:500     |     |
| Mode                     |        |     | multimode |     |

<sup>a</sup> Stability of wavelength (centroid) of spectral line over 12 hours of 0.5 picometers

