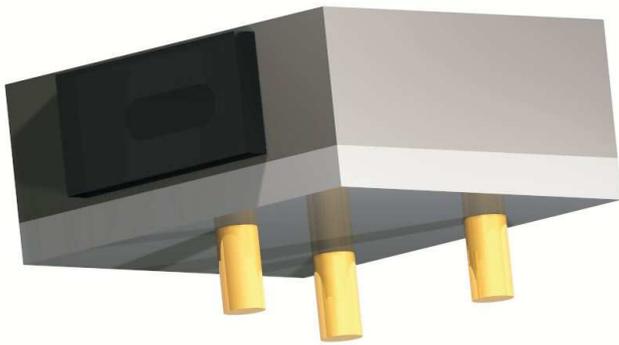




LU1064Pxxx-FNNxV03x 1064nm Laser Diode in a Flat Package with Sealing Cap Up to 10W Power at 25°C



Description:

The product offers high optical output power of up to 10W cw from a single emitter in a flat package for PCB mounting. Long lifetime is ensured due to the Lumics proprietary laser diode facet passivation technology. This performance makes them a valuable tool for highly efficient medical laser treatment. Further important applications are micro material processing with exceptional power densities and illumination applications.

Features & Functions:

- 5µm/95µm/190µm emitter
- Wavelength 1064nm
- PCB surface mountable
- Laser diode is electrically isolated from the case

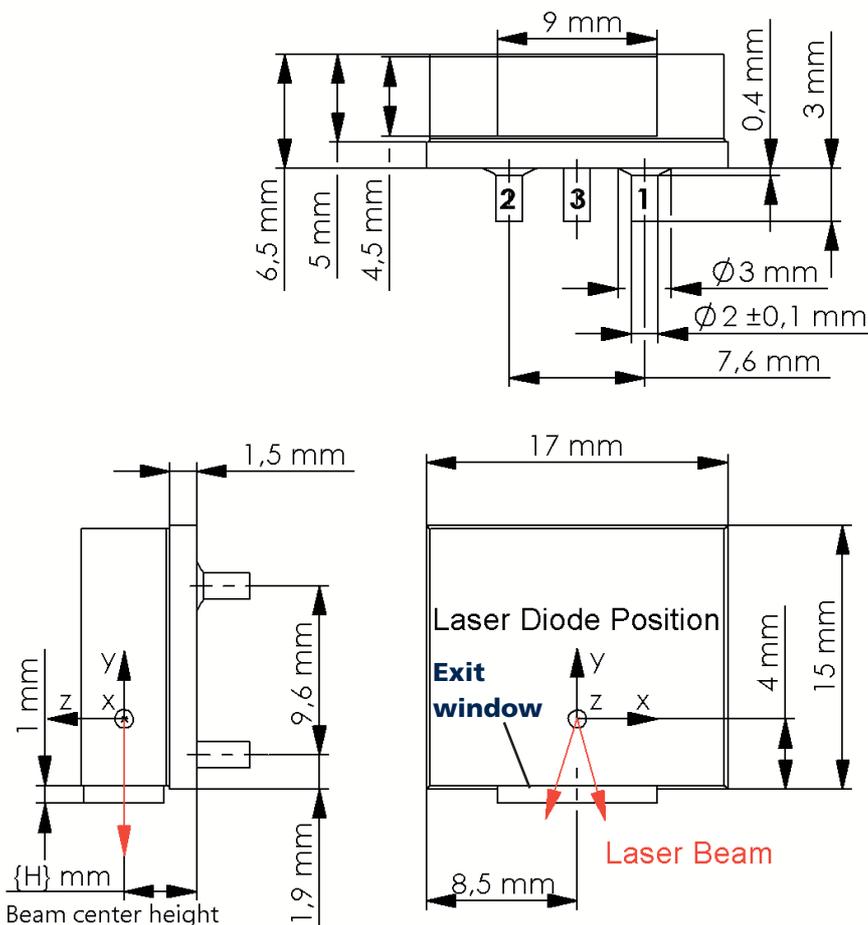
Benefits:

- Small footprint
- High reliability
- Hermetic sealing
- Getter inside

Applications:

- Pumping (SSL)
- Plastic welding
- Marking
- Illumination
- Medical treatment

Drawing (dimensions in mm)



Connections

Contact Pin	Function
1	LD Anode (+)
2	LD Cathode (-)
3	LD Case

Notes

- 1: Thermal grease with thermal resistance to heat sink of <0.2 K/W for cw operation required**
- 2: A heat sink with thermal resistance of <1 K/W is recommended and may be achieved using:**
 - PCB with thermal vias
 - PCB with metal core

Laser diode position as shown
Bottom plane y-axis: (4.0 +- 0.2)mm
Bottom plane x-axis: (8.5 +- 0.2)mm
Beam height z-axis: {H}
Multi mode laser (4.1 +- 0.2)mm
Single mode laser (4.23 +- 0.2)mm

Angular beam pointing around x/y/z axis about 1° to 2°

We manufacture diode lasers.

Typical Electrical and Optical Characteristics at 25 °C (1)

Parameter	Symbol	LU1064P080	LU1064P100	LU1064P600	Unit
Emitter Width	W	94	190	5	µm
c.w. Operating Power	$P_{op(c.w.)}$	8	10	0.6	W
c.w. Operating Current	$I_{op(c.w.)}$ (max value)	10.5(12)	12.5(13.5)	0.82(0.9)	A
Threshold Current	I_{th}	0.45	0.9	0.075	A
Forward Voltage	V_{op}	1.35	1.45	1.6	V
Slope Efficiency	λ_{diff}	0.9	0.9	0.85	W / A
Peak Wavelength	λ_{peak}	1064+/-10	1064+/-10	1064+/-10	nm
Spectral Width (FWHM)	λ_{FWHM}	5	5	0.5	nm
AR Reflectivity	r_f	2	2	0.5	%
HR Reflectivity	r_r	95	95	95	%
Spectral Shift with Temp.	$\lambda_{T Shift}$	0.3	0.3	0.3	nm / K
Spectral Shift with Current	$\lambda_{P Shift}$	1	0.8	6.5	nm / A
Operating Temp.	T_{op}	20-30	20-30	20-30	°C
Thermal Resistance (2)	R_{th}	4	4	30	K/W
Fast axis (vertical) divergence	95% energy incursion	1.4	1.4	1.4	mrad
Vertical width of the beam	95% energy incursion at <10mm behind the lens	0.6	0.6	0.6	mm
Beam Divergence (horizontal) (3)	FWHM, 90%(95%) energy inclusion at I_{op}	10(15)	10(15)	7(14)	deg
Beam Divergence (horizontal) shift up to I_{op}		0.4	0.3	<0.3	deg/A
Beam mode shape (horizontal)		multi mode	multit mode	single mode $M^2 < 1.2$	

Important Notes:

- (1) Temperature measured at heat sink with contact thermal resistance <0.2K/W from bottom of LD package to heat sink required
- (2) Thermal resistance between laser diode junction and bottom of package
- (3) Multi mode emitter: The Intensity $I(\alpha, G, SG)$ of the far field in horizontal plane versus deflection angle (α) can be approximated with a Zemax Super-Gaussian Diode model by two parameters (first) Gaussian(G) width describing the beam width by the Full Width Half Maximum (FWHM) of the beam intensity in measurement plane and (second) Super Gauss (SG) describing the deviation from a Gaussian shape of the beam whereas:
 $I(\alpha, G, SG) = \exp(-2((\alpha/G)^2)^{SG})$ with $G(FWHM) = FWHM / (2 * \sqrt{0.346573}^{(1/SG)})$
 Lateral far field: Typical parameter values are $SG = 3-4$ and $G(7^\circ) = 6$. Due to the non - gaussian shape the FWHM of the beam includes app. 90% of the energy.
 Single mode emitter: The Intensity of the far field in horizontal plane versus deflection angle (α) can be approximated with a Gaussian shape

General Parameters / Accessories

Parameter	Symbol	Min	Typ	Max	Unit
Storage Temperature	T_S	-10		55	°C
Internal operating and (Ambient) temp , c.w.-operation *	$T_{op c.w.}$	10(5)		35(40)	°C
Humidity / Non-condensing Atmosphere				90	%
Thermal heat sink resistance				0.2	k/W
Maximum precessing temperature				250	°C
Maximum solder processing time pins				5	s
Weight			6		g
Compliance			ROHS		

* we recommend to operate the laser above dew point. Below dew point water condensation on the exit window may damage the window when laser is switched on. If the module was stored below dew point before operation dry the window by pre-heating the module to 25°C

Notes:

- (1) Storage in the shipping GEL PAK container in non condensing atmosphere between 0°C and 55°C supports storage time of >10 years. Humidity : Avoid condensing atmosphere to the exit window.
- (2) This product contains <0.05% of solid metallized InAlGaAsSb crystal

User Safety



Important Note Read and carefully follow operating manual instructions. Especially, whenever power supply is switched on or off, always disconnect from laser module. See manual for details. Uncontrolled on / off switching may cause spikes and result in fatal device damage. This product is not certified by with IEC 60825-1 or 21CFR1040.10/ 21CFR1040.11 and and must comply with the applicable regulations by the Purchaser if sold as laser product.

We manufacture diode lasers.