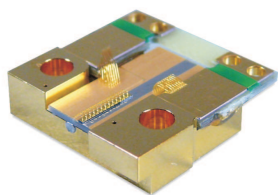


LU09xxFyyy

9xxnm Laser Diode on Flat_mount

Up to 21W c.w. and 30W in pulsed mode



Description:

The LU09xxFyyy series laser diodes contain a highly optimized GaInAs/GaAs quantum well laser structure on GaAs substrate. Long lifetime is achieved through the Lumics proprietary laser diode facet passivation technology. The process includes careful design, precisely defined manufacturing and extensive burn-in testing of each individual emitter. The device qualification includes life time testing and a set of thermal and mechanical tests.

Each laser diode chip is individually serialized for traceability, and is shipped with a specified set of test data. Applications are mainly in solid state laser pumping, illumination, printing or medical treatment.

Features & Functions:

- Wavelength 915, 940 or 975nm
- Up to 21W c.w. operation
- Up to 30W pulsed peak power
- 94/190/365µm emitter width
- Burn-in tested single emitter
- easy soldering back plate
- easy 2.2mm mounting holes
- Copper base
- Electrically isolated
- Option: FAC lens

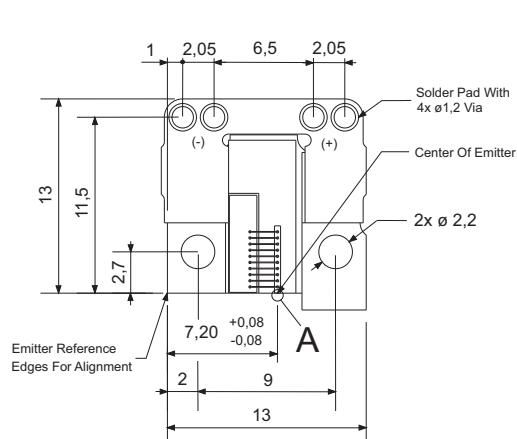
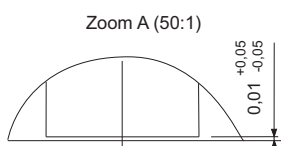
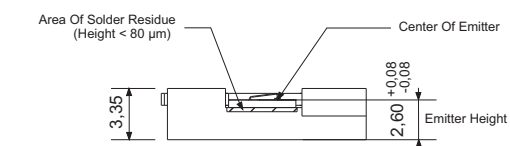
Benefits:

- Small footprint
- Efficient heat sink
- High reliability
- OEM quantities

Applications:

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

Drawing (dimensions in mm)

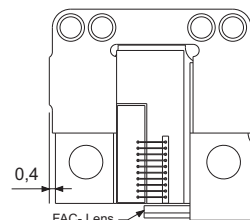


Connections

Contact Pad	Function
(+)	LD Anode (+)
(-)	LD Cathode (-)

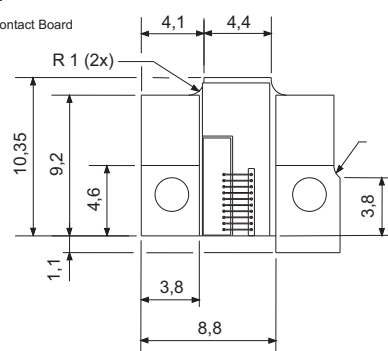
Option

Additional FAC-Lens



Option

Without Contact Board



We manufacture diode lasers.

Typical Electrical and Optical Characteristics

Parameter	Symbol / Condition	LU09xxF100	LU09xxF140	LU09xxF210	Unit
Emitter Width	W	94	190	365	µm
c.w. Operating Power	P _{op (c.w.)}	10	14	21	W
c.w. Operating Current	I _{op (c.w.)}	11	17	25	A
Pulsed (1) Operating Power	P _{op} (< 100µsec pulse / < 10% d.c.)	15	23	28	W
Pulsed (1) Operating Current	I _{op} (< 100µsec pulse / < 10% d.c.)	16	28	33	A
Threshold Current (typical)	I _{th}	0.7	1.4	2.3	A
Forward Voltage	V _{op}	1.6	1.6	1.6	V
Slope Efficiency	λ _{diff}	0.91	0.91	0.91	W / A
Peak Wavelength	LU0915Fyyy: λ _{peak}	915+/-10	915+/-10	915+/-10	nm
	LU0940Fyyy: λ _{peak}	940+/-10	940+/-10	940+/-10	nm
	LU0975Fyyy: λ _{peak}	975+/-10	975+/-10	975+/-10	nm
Spectral Width (FWHM)	λ _{FWHM}	6	6	6	nm
Beam Divergence (horizontal) (2)	FWHM, 90% energy inclusion at I _{op}	7	7	7	deg
Beam Divergence (vertical) (2)	FWHM, Gaussian beam at I _{op}	25	25	25	deg
AR Reflectivity (3)	r _f	2	2	2	%
HR Reflectivity	r _r	95	95	95	%
Spectral Shift with Temp.	λ _{T Shift}	0.3	0.3	0.3	nm / K
Spectral Shift with Current	λ _{P Shift}	0.6	0.5	0.5	nm / A
Operating Temp.	T _{op}	20-30	20-30	20-30	°C

Option: FAC lense

Fast axis (vertical) divergence	NA	< 3	< 3	< 3	mrad
Vertical width of the beam		< 0.8	< 0.8	< 0.8	mm

Important Notes:

- (1) Typical pulse condition: pulse <100 µsec / d.c. 5%
- (2) The Intensity I(alpha,G,SG) of the far field in vertical and horizontal plane versus deflection angle (alpha) 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 $G(\text{FWHM}) = \text{FWHM} / (2 \cdot \sqrt[SG]{0.346573})$
 Lateral far field: Typical parameter values are SG = 3-4 and G(7°) ~ 6. Due to the non - gaussian shape the FWHM of the beam includes app. 90% of the energy. The beam width increase by current with app. 0.4° / A.
 Vertical far field: Typical parameter values are SG = 1 and G(25°) ~ 21. The beam width does not change by current.
- (3) Other coatings are offered on request.

Absolute Maximum Ratings

Parameter	Symbol	LU09xxF100	LU09xxF140	LU09xxF210	Unit
LD c.w. Forward Current	I _{op, (c.w.) max}	15	20	27	A
LD pulsed (<100µsec, <10% d.c.) Forward Current	I _{op, (pulsed) max}	18	26	35	A
LD Reverse Voltage	V _{R, max}	2	2	2	V
Maximum Processing Temperatures:					
Solder pads for LD contacts / max 5sec.	T _{Op max, solder pad}	250	250	250	°C
Soldering of Cu base block / max 5sec.	T _{Op max, Cu base}	150	150	150	°C

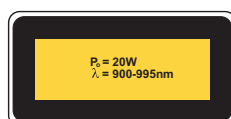
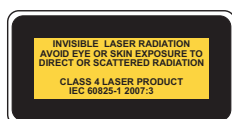
Notes:

Absolute maximum ratings may be applied to the laser module for short period of time only. Exposure to maximum ratings for extended period of time or exposure above one or more max ratings may cause damage or affect the reliability of the device.

Operating temperature and rel. humidity must be chosen such that the dewpoint of humid air around the laser diode is below the operating heat sink temperature to avoid condensing of water on the laser diode facet.

This product contains 1.5% BeO as solid fully metallized ceramic (CAS Number 1304-56-9), 0.05% of solid metallized InAlGaAsP crystal, as well as 0.05% Pb (CAS Nummer 7439-92-1).

User Safety



We manufacture diode lasers.