

PRODUCT CATALOG OF FOCUSLIGHT

GMP

**GENERAL
MICROTECHNOLOGY
& PHOTONICS**



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Focuslight Briefing

企业概况



Founded in 2007, Focuslight is a fast growing high-tech company committed to research, development and manufacturing of high power diode lasers. Headquartered in Xi'an Shaanxi, China, Focuslight provides products to a variety of customers consisting of OEM, ODM and system Integrators worldwide. With its extensive engineering expertise in thermal, optical and mechanical design to die bonding, FAC assembling and fiber coupling to system integration, Focuslight is dedicated to provide customers with well-matched comprehensive solutions for their specific needs. FOCUSLIGHT is an ISO 9001:2008 certified company with high standards for quality, reliability and performance.

FOCUSLIGHT has released twelve series of high power diode lasers with more than one hundred types of products for CW and QCW operation modes. In addition to standard Conduction Cooled and Micro-Channel Cooled packages, FOCUSLIGHT also offers its own proprietary packages. The company's portfolio stretches from single emitters operating in the sub-watt region to multi-kilowatt bar arrays. Standard wavelengths cover from 635nm to 1550nm, Other wavelengths are available upon request.

西安炬光科技有限公司是由留学归国人员团队、中国科学院西安光学精密机械研究所与国家发改委、财政部委托国投高科技公司共同投资的高科技企业，专业从事高功率半导体激光器研发、技术咨询、技术转让、技术服务、生产、销售与应用。公司注册资本3385万元，坐落于西安市高新区新型工业园，拥有2600平方米办公场所与洁净车间。

炬光科技的半导体激光器产品功率高、寿命长、波长全、式样多。可根据客户的不同需求量身定制个性化产品：功率连续输出从单管的数瓦，到Bar条的百瓦，到Bar条阵列的上千瓦；准连续（QCW）输出功率从几百瓦到数千瓦。波长从635nm到1550nm。根据客户使用要求可实现光纤耦合、准直输出等。产品的封装有单管式、多单管组合系统、单阵列式（Bar条）、Bar条垂直阵列式、Bar条水平阵列式及多Bar条组合系统等。同时可为客户提供配套电源、温控及保护系统等全方位的解决方案。

炬光科技的产品广泛应用于工业加工、医疗、印刷、科研、照明、激光显示等领域。



Workshop Glimpse

车间掠影

C-mount Single Emitter Diode Laser (CW)

单管半导体激光器C封装系列(连续)

Features

- High reliability
- AuSn bonding(CM01)
- High stability
- Harsh environment applications



Specification

Module Type ¹	Units	FL-CM01 -0.35-635	FL-CM01 -0.5-635	FL-CM01 -3-792	FL-CM01 -2-808	FL-CM01 -2.5-808	FL-CM01 -3-808
Optical^{2a}							
Center Wavelength λ	nm	635	635	792	808	808	808
Wavelength Tolerance	nm	± 5	± 5	± 5	± 3	± 3	± 3
Output Power ²	W	0.35	0.5	3	2	2.5	3
Spectral Width FWHM	nm	≤ 1	≤ 1	≤ 2	≤ 2	≤ 2.5	≤ 2
Spectral Width FW90%E	nm	≤ 3	≤ 3	≤ 4	≤ 3	≤ 3.5	≤ 3
Fast Axis Divergence(FWHM) ⁴	degree	40	40	35	35	35	35
Slow Axis Divergence (FWHM)	degree	5	5	8	8	8	8
Polarization Mode	-	TE	TE	TE	TE	TE	TE/TM
Wavelength Temp. Coefficient	nm/°C	~ 0.25	~ 0.25	~ 0.27	~ 0.28	~ 0.28	~ 0.28
Electrical Parameters^{2b}							
Operating Current I_{op}	A	≤ 0.85	≤ 1.4	≤ 3.4	≤ 2.6	≤ 2.6	≤ 3.5
Threshold Current I_{th}	A	≤ 0.5	≤ 0.85	≤ 0.8	≤ 0.7	≤ 0.5	≤ 0.8
Operating Voltage V_{op}	V	≤ 2.2	≤ 2.2	≤ 2	≤ 2	≤ 2	≤ 2
Slope Efficiency	W/A	≥ 0.9	≥ 0.85	≥ 1.1	≥ 1.1	≥ 1.1	≥ 1.1
Power Conversion Efficiency	%	≥ 20	≥ 18	≥ 52	≥ 45	≥ 55	≥ 48
Thermal Parameters							
Operating Temperature	°C	15-20	15-20	15-30	15-30	15-30	15-30
Storage Temperature ⁵	°C				0-55		
Recommended Heatsink Capacity	W	≥ 1	≥ 2	≥ 5	≥ 3	≥ 5	≥ 6

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-CM01(structure code)-2(output power)-808(center wavelength).

²Reduced lifetime if used above nominal operating conditions.

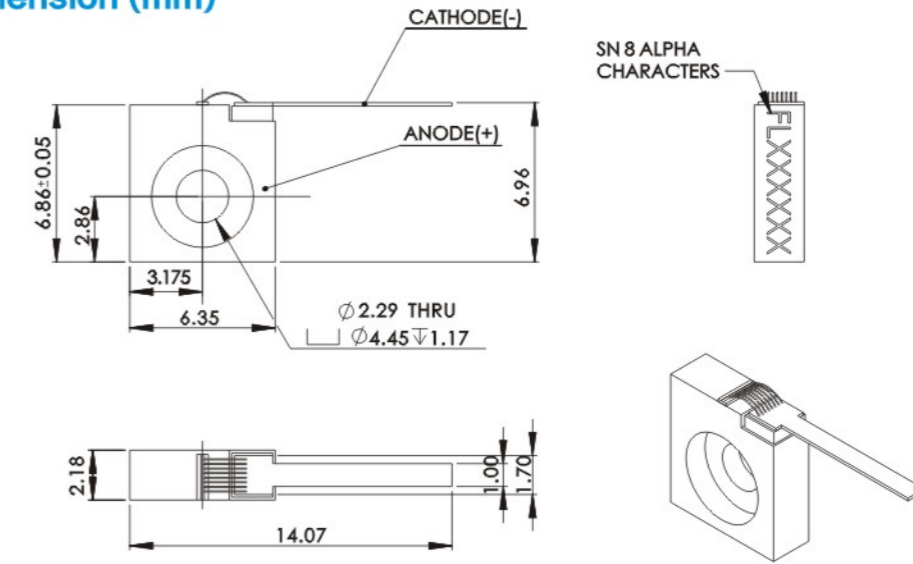
³Data at 25°C temperature, unless otherwise stated.

⁴For fast axis collimation: divergence $< 5^\circ$.

⁵A non-condensing environment is required for storage and operation below ambient dew point.

⁶If there are any other requirements, please contact us.

Device Dimension (mm)



This structure drawing is only for CM01. For any other special requirement, please contact Focuslight for details.

FL-CM01 -5-808	FL-CM01 -3-825	FL-CM01 -3-880	FL-CM01 -3.5-915	FL-CM01 -5-915	FL-CM01 -3.5-940	FL-CM01 -5-940	FL-CM01 -3-976	FL-CM01 -3.5-976	FL-CM01 -5-976	FL-CM01 -1-1470	FL-CM01 -1-1550
808	825	880	915	915	940	940	976	976	976	1470	1550
± 3	± 3	± 3	± 5	± 3	± 5	± 5	± 5	± 5	± 3	± 20	± 20
5	3	3	3.5	5	3.5	5	3	3.5	5	1	1
≤ 3	≤ 2	≤ 3	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 9	≤ 9
≤ 4	≤ 4	≤ 4	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	\	\
35	35	35	35	35	35	35	35	35	35	32	32
8	8	8	8	8	8	8	8	8	8	8	8
TE/TM	TM	TE	TE	TE	TE	TE	TE	TE	TE	TE	TE
~ 0.28	~ 0.28	~ 0.3	~ 0.32	~ 0.32	~ 0.33	~ 0.33	~ 0.34	~ 0.34	~ 0.34	~ 0.4	~ 0.4
≤ 5.6	≤ 3.6	≤ 3.3	≤ 3.8	≤ 5.2	≤ 3.8	≤ 5.2	≤ 3.3	≤ 3.8	≤ 5.2	≤ 2.7	≤ 3.3
≤ 1	≤ 0.85	≤ 0.7	≤ 0.5	≤ 0.8	≤ 0.5	≤ 0.8	≤ 0.7	≤ 0.5	≤ 0.8	≤ 0.35	≤ 0.45
≤ 2	≤ 2	≤ 1.8	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 1.3	≤ 1.4
≥ 1.05	≥ 1.05	≥ 1.1	≥ 1.05	≥ 1	≥ 1.1	≥ 1	≥ 1	≥ 1	≥ 1	≥ 0.4	≥ 0.3
≥ 46	≥ 44	≥ 55	≥ 52	≥ 52	≥ 52	≥ 52	≥ 50	≥ 50	≥ 52	≥ 32	≥ 25
15-30	15-30	15-30	15-30	15-30	15-30	15-30	15-30	15-30	15-30	15-20	15-20
							0-55				
≥ 10	≥ 6	≥ 6	≥ 7	≥ 10	≥ 7	≥ 10	≥ 6	≥ 7	≥ 10	≥ 2	≥ 3

F-mount Single Emitter Diode Laser (CW)

单管半导体激光器F封装系列(连续)

Features

- High reliability
- High brightness
- High stability
- AuSn bonding
- Harsh environment applications



Specification

Module Type ¹	Units	FL-FM01-0.35 -635	FL-FM01-0.5 -635	FL-FM01-5 -808	FL-FM01-8 -808	FL-FM01-10 -808
Optical^{2,3}						
Center Wavelength λ	nm	635	635	808	808	808
Wavelength Tolerance	nm	± 5	± 5	± 3	± 3	± 3
Output Power ²	W	0.35	0.5	5	8	10
Spectral Width FWHM	nm	≤ 1	≤ 1	≤ 3	≤ 3	≤ 3
Spectral Width FW90%E	nm	≤ 2	≤ 3	≤ 4	≤ 5	≤ 5
Fast Axis Divergence(FWHM) ⁴	degree	40	40	35	35	35
Slow Axis Divergence(FWHM)	degree	5	5	8	8	8
Polarization Mode	-	TE	TE	TE/TM	TE	TE
Wavelength Temp. Coefficient	nm/°C	-0.25	-0.25	-0.28	-0.28	-0.28
Electrical Parameters^{3,4}						
Operating Current I_{op}	A	≤ 0.88	≤ 1.3	≤ 5.5	≤ 9.5	≤ 12
Threshold Current I_{th}	A	≤ 0.5	≤ 0.8	≤ 1	≤ 1.75	≤ 1.75
Operating Voltage V_{op}	V	≤ 2.3	≤ 2.3	≤ 2	≤ 2.1	≤ 2.2
Slope Efficiency	W/A	≥ 0.9	≥ 0.85	≥ 1.1	≥ 1	≥ 1
Power Conversion Efficiency	%	≥ 20	≥ 18	≥ 48	≥ 40	≥ 42
Thermal Parameters						
Operating Temperature	°C	15~20	15~20	15~30	15~30	15~30
Storage Temperature ⁵	°C			0~55		
Recommended Heatsink Capacity	W	≥ 1	≥ 2	≥ 10	≥ 20	≥ 20

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-FM01(structure code)-5(output power)-808(center wavelength).

²Reduced lifetime if used above nominal operating conditions.

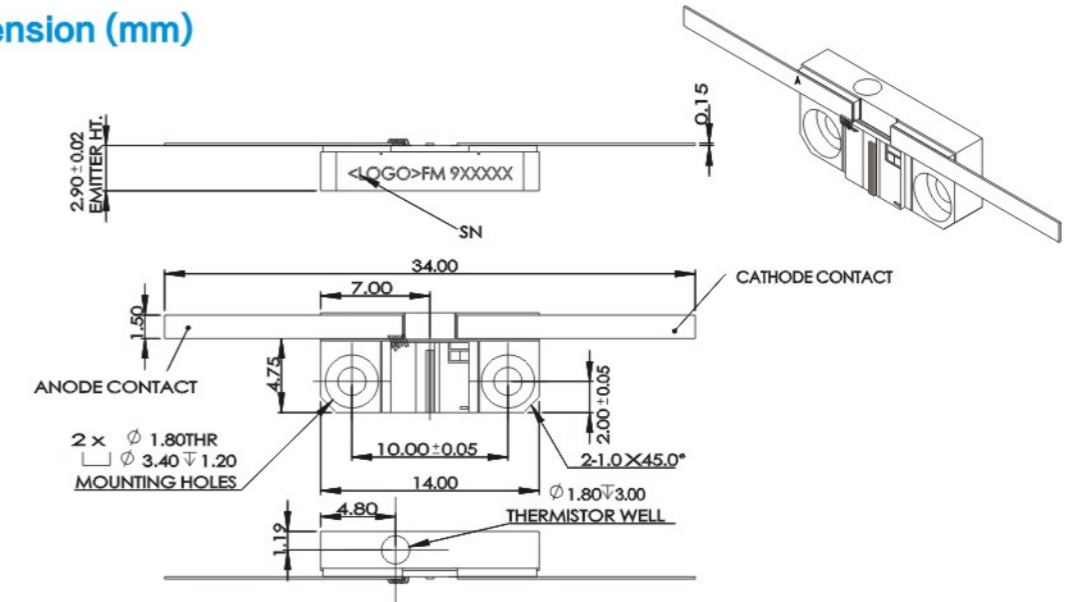
³Data at 25°C temperature, unless otherwise stated.

⁴For fast axis collimation: divergence $< 5^\circ$.

⁵A non-condensing environment is required for storage and operation below ambient dew point.

⁶If there are any other requirements, please contact us.

Device Dimension (mm)



This structure drawing is only for FM01. For any other special requirement, please contact Focuslight for details.

	FL-FM01-5 -915	FL-FM01-10 -915	FL-FM01-5 -940	FL-FM01-5 -976	FL-FM01-10 -976
	915	915	940	976	976
	± 5	± 5	± 5	± 5	± 5
	5	10	5	5	10
	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
	35	35	35	35	35
	8	8	8	8	8
	TE	TE	TE	TE	TE
	-0.32	-0.32	-0.33	-0.34	-0.34
	≤ 5.2	≤ 10	≤ 5.2	≤ 5.2	≤ 10
	≤ 0.8	≤ 0.7	≤ 0.8	≤ 0.8	≤ 0.7
	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
	≥ 1	≥ 1.1	≥ 1	≥ 1	≥ 1.05
	≥ 55	≥ 55	≥ 55	≥ 55	≥ 55
	15~30	15~30	15~30	15~30	15~30
			0~55		
	≥ 10	≥ 20	≥ 10	≥ 10	≥ 20

Conduction Cooled Single Bar Diode Laser (CW)

传导冷却半导体激光器单Bar系列(连续)

Features

- Long lifetime
- High power
- Low smile
- Narrow spectrum

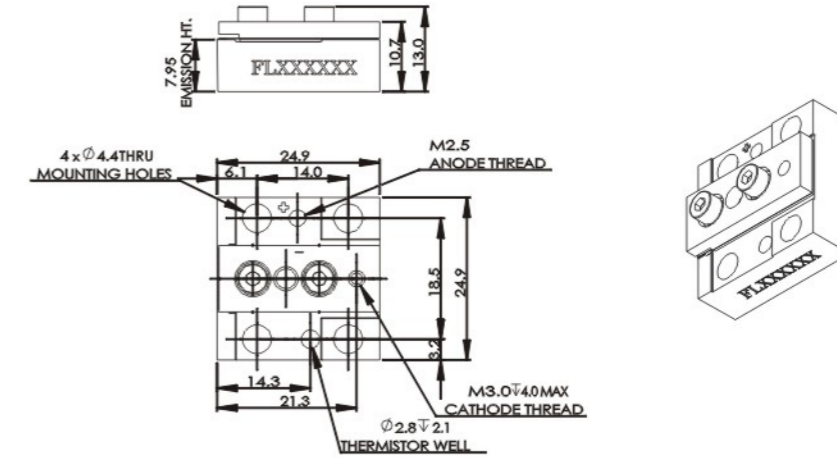


Specification

Module Type ¹	Units	FL-CS01 -50-792	FL-CS01 -40-808	FL-CS01 -60-808	FL-CS01 -60-825	FL-CS01 -60-880	FL-CS03 -50-915	FL-CS01 -60-915	FL-CS01 -80-915	FL-CS01 -60-940	FL-CS03 -50-976	FL-CS01 -60-976	FL-CS01 -80-976	FL-CS01 -15-1470	FL-CS01 -15-1550
Optical^{2,7}															
Center Wavelength λ	nm	792	808	808	825	880	915	915	915	940	976	976	976	1470	1550
Wavelength Tolerance	nm	± 3	± 3	± 3	± 3	± 3	± 5	± 5	± 5	± 5	± 5	± 5	± 5	± 20	± 20
Output Power ²	W	50	40	60	60	60	50	60	80	60	50	60	80	15	15
Spectral Width FWHM	nm	≤ 3	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4.5	≤ 10	≤ 15
Spectral Width FW90%E	nm	≤ 6	≤ 6	≤ 6	≤ 7	≤ 6	≤ 6	≤ 7	≤ 6	≤ 7	≤ 6	≤ 8	≤ 8	\	\
Fast Axis Divergence(FWHM) ^{4,6}	degree	35	35	35	35	35	35	35	35	35	35	35	35	32	32
Slow Axis Divergence(FWHM)	degree	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Polarization Mode	-	TE	TE	TE/TM	TM	TE	TE	TE	TE	TE	TE	TE	TE	TE	TE
Wavelength Temp. Coefficient	nm/°C	-0.27	-0.28	-0.28	-0.28	-0.30	-0.32	-0.32	-0.32	-0.33	-0.34	-0.34	-0.34	-0.4	-0.4
Electrical Parameters^{3,7}															
Operating Current I_{op}	A	≤ 56	≤ 48	≤ 72	≤ 68	≤ 62	≤ 52	≤ 60	≤ 82	≤ 60	≤ 52	≤ 65	≤ 86	≤ 50	≤ 70
Threshold Current I_{th}	A	≤ 13	≤ 10	≤ 18	≤ 17	≤ 12	≤ 6	≤ 8	≤ 9	≤ 8	≤ 5	≤ 7	≤ 9	≤ 6	≤ 8
Operating Voltage V_{op}	V	≤ 2	≤ 2	≤ 2	≤ 2	≤ 1.8	≤ 1.85	≤ 1.8	≤ 1.8	≤ 1.8	≤ 1.85	≤ 1.8	≤ 1.8	≤ 1.3	≤ 1.3
Slope Efficiency	W/A	≥ 1	≥ 1.05	≥ 1.05	≥ 1.05	≥ 1.1	≥ 1.05	≥ 1.05	≥ 1.1	≥ 1.05	≥ 1.05	≥ 1.0	≥ 1.0	≥ 0.35	≥ 0.25
Power Conversion Efficiency	%	≥ 45	≥ 45	≥ 48	≥ 50	≥ 55	≥ 55	≥ 55	≥ 55	≥ 55	≥ 55	≥ 55	≥ 55	≥ 25	≥ 20
Thermal Parameters															
Operating Temperature	°C	15~30				15~30									
Storage Temperature ⁵	°C	0~55				0~55									
Recommended Heatsink Capacity	W	≥ 80	≥ 80	≥ 120	≥ 120	≥ 120	≥ 80	≥ 120	≥ 140	≥ 120	≥ 80	≥ 120	≥ 140	≥ 60	≥ 70

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-CS01(structure code)-40(output power)-808(center wavelength).
²Reduced lifetime if used above nominal operating conditions.
³Data at 25°C temperature, unless otherwise stated.
⁴For fast axis collimation: divergence $< 0.5^\circ$.
⁵A non-condensing environment is required for storage and operation below ambient dew point.
⁶For smile requirements, please contact us.
⁷If there are any other requirements, please contact us.

Device Dimension (mm)



This structure drawing is only for CS01. For any other special requirement, please contact Focuslight for details.

Conduction Cooled Single Bar Diode Laser (QCW)

传导冷却半导体激光器单Bar系列(准连续)

Features

- Long lifetime
- High power
- Low smile
- Narrow spectrum



Specification

Module Type ¹	Units	FL-CS01 -150-808(Q)	FL-CS01 -200-808(Q)	FL-CS01 -250-808(Q)	FL-CS01 -200-940(Q)	FL-CS01 -250-940(Q)
Optical^{2,7}						
Center Wavelength λ	nm	808	808	808	940	940
Wavelength Tolerance	nm	± 3	± 3	± 3	± 5	± 5
Output Power ²	W	150	200	250	200	250
Spectral Width FWHM	nm	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
Spectral Width FW90%E	nm	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Fast Axis Divergence(FWHM) ^{4*}	degree	40	40	40	40	40
Slow Axis Divergence(FWHM)	degree	8	8	8	8	8
Pulse Width	ms	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3
Duty Cycle	%	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10
Polarization Mode	-	TE	TE	TE	TE	TE
Wavelength Temp. Coefficient	nm/°C	-0.28	-0.28	-0.28	-0.33	-0.33
Electrical Parameters^{5,7}						
Operating Current I_{op}	A	≤ 145	≤ 200	≤ 250	≤ 200	≤ 250
Threshold Current I_{th}	A	≤ 25	≤ 30	≤ 30	≤ 20	≤ 20
Operating Voltage V_{op}	V	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
Slope Efficiency	W/A	≥ 1.1	≥ 1.1	≥ 1.1	≥ 1.1	≥ 1.1
Power Conversion Efficiency	%	≥ 50	≥ 50	≥ 50	≥ 50	≥ 50
Thermal Parameters						
Operating Temperature	°C	15-30				
Storage Temperature ⁵	°C	0-55				
Recommended Heatsink Capacity	W	≥ 30	≥ 40	≥ 50	≥ 40	≥ 50

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-CS01(structure code)-150(output power)-808(center wavelength)(Q:QCW).

²Reduced lifetime if used above nominal operating conditions.

³Data at 25°C temperature, unless otherwise stated.

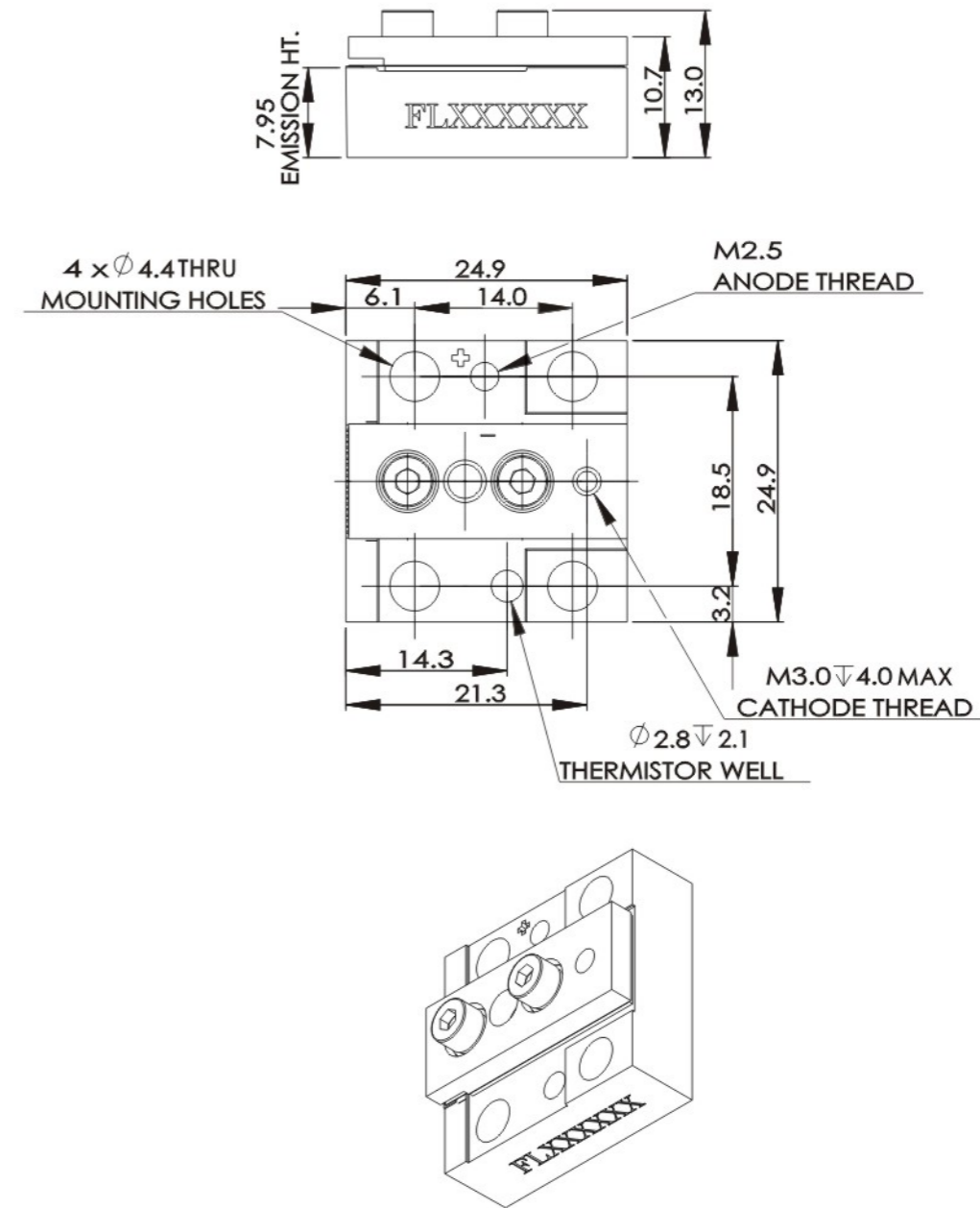
⁴For fast axis collimation: divergence $< 0.5^\circ$.

⁵A non-condensing environment is required for storage and operation below ambient dew point.

⁶For smile requirements, please contact us.

⁷If there are any other requirements, please contact us.

Device Dimension (mm)



This structure drawing is only for CS01. For any other special requirement, please contact Focuslight for details.

Hard Solder Conduction Cooled Single Bar Diode Laser (CW)

硬焊料传导冷却半导体激光器单Bar系列(连续)

Features

- Long lifetime
- High reliability
- Low smile
- Narrow spectrum
- AuSn bonding
- Long storage time
- Harsh environment applications

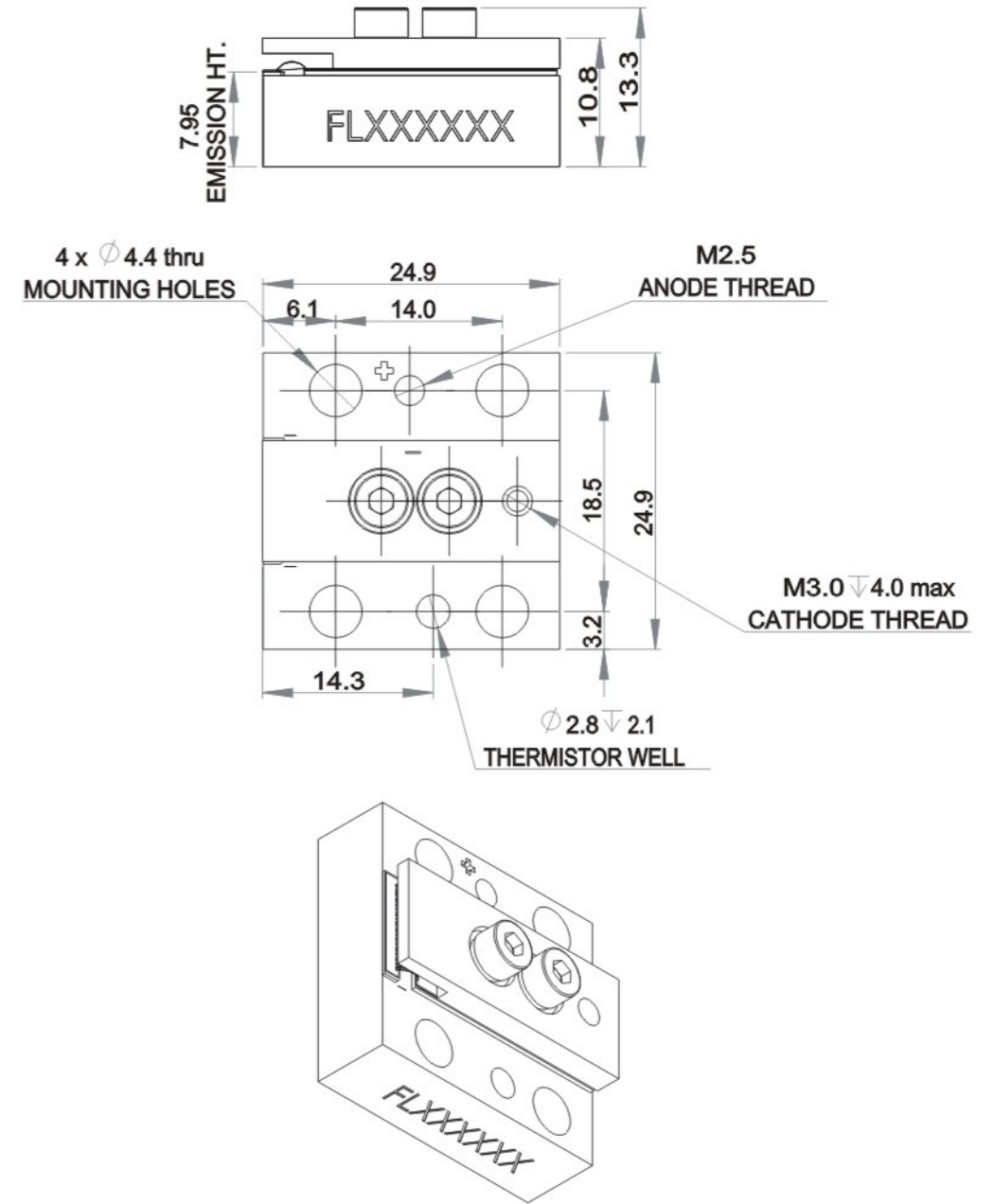


Specification

Module Type ¹	Units	FL-HCS02-40-808	FL-HCS02-50-825	FL-HCS02-60-915	FL-HCS02-60-940	FL-HCS02-60-976
Optical**						
Center Wavelength λ	nm	808	825	915	940	976
Wavelength Tolerance	nm	± 3	± 3	± 5	± 5	± 5
Output Power ²	W	40	50	60	60	60
Spectral Width FWHM	nm	≤ 3	≤ 4	≤ 4	≤ 4	≤ 4.5
Spectral Width FW90%E	nm	≤ 8	≤ 6	≤ 8	≤ 8	≤ 8
Fast Axis Divergence(FWHM) ^{3,4}	degree	35	35	35	35	35
Slow Axis Divergence (FWHM) ⁵	degree	8	8	8	8	8
Polarization Mode	-	TE	TM	TE	TE	TE
Wavelength Temp. Coefficient	nm/°C	~ 0.28	~ 0.28	~ 0.32	~ 0.33	~ 0.34
Electrical Parameters**						
Operating Current I_{op}	A	≤ 54	≤ 60	≤ 60	≤ 65	≤ 65
Threshold Current I_{th}	A	≤ 14	≤ 15	≤ 8	≤ 9	≤ 9
Operating Voltage V_{op}	V	≤ 2	≤ 2	≤ 1.8	≤ 1.8	≤ 1.8
Slope Efficiency	W/A	≥ 1.0	≥ 1.1	≥ 1.05	≥ 1.05	≥ 0.95
Power Conversion Efficiency	%	≥ 42	≥ 45	≥ 50	≥ 55	≥ 50
Thermal Parameters						
Operating Temperature	°C	15-35				
Storage Temperature ⁶	°C	0-55				
Recommended Heatsink Capacity	W	≥ 80	≥ 110	≥ 100	≥ 100	≥ 100

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-HCS02(structure code)-40(output power)-808(center wavelength).
²Reduced lifetime if used above nominal operating conditions.
³Data at 25°C temperature, unless otherwise stated.
⁴For fast axis collimation: divergence $< 0.5^\circ$.
⁵Slow axis collimation is available for bars with fill factor $\leq 30\%$.
⁶A non-condensing environment is required for storage and operation below ambient dew point.
⁷For smile requirements, please contact us.
⁸If there are any other requirements, please contact us.

Device Dimension (mm)



This structure drawing is only for HCS02. For any other special requirement, please contact Focuslight for details.

Hard Solder Conduction Cooled Single Bar Diode Laser (QCW)

硬焊料传导冷却半导体激光器单Bar系列(准连续)

Features

- Long lifetime
- High reliability
- Low smile
- Narrow spectrum
- AuSn bonding
- Long storage time
- Harsh environment applications



Specification

Module Type ¹	Units	FL-HCS02 -150-808(Q)	FL-HCS02 -200-808(Q)	FL-HCS02 -250-808(Q)	FL-HCS02 -200-940(Q)	FL-HCS02 -250-940(Q)
Optical^{2,3}						
Center Wavelength λ	nm	808	808	808	940	940
Wavelength Tolerance	nm	± 3	± 3	± 3	± 5	± 5
Output Power ²	W	150	200	250	200	250
Pulse Width	ms	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3
Duty Cycle	%	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10
Spectral Width FWHM	nm	≤ 4	≤ 4	≤ 5	≤ 4	≤ 5
Spectral Width FW90%E	nm	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Fast Axis Divergence(FWHM) ^{4,5}	degree	40	40	40	40	40
Slow Axis Divergence (FWHM) ⁶	degree	8	8	8	8	8
Polarization Mode	-	TE	TE	TE	TE	TE
Wavelength Temp. Coefficient	nm/°C	~ -0.28	~ -0.28	~ -0.28	~ -0.33	~ -0.33
Electrical Parameters^{2,3}						
Operating Current I_{op}	A	≤ 145	≤ 200	≤ 240	≤ 200	≤ 250
Threshold Current I_{th}	A	≤ 25	≤ 30	≤ 25	≤ 20	≤ 25
Operating Voltage V_{op}	V	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
Slope Efficiency	W/A	≥ 1.1	≥ 1.1	≥ 1.1	≥ 1.1	≥ 1.1
Power Conversion Efficiency	%	≥ 50	≥ 50	≥ 55	≥ 50	≥ 50
Thermal Parameters						
Operating Temperature	°C	15-35				
Storage Temperature ⁷	°C	0-55				
Recommended Heatsink Capacity	W	≥ 30	≥ 40	≥ 50	≥ 40	≥ 50

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-HCS02(structure code)-200(output power)-808(center wavelength).(Q:QCW)

²Reduced lifetime if used above nominal operating conditions.

³Data at 25°C temperature, unless otherwise stated.

⁴For fast axis collimation: divergence $< 0.5^\circ$.

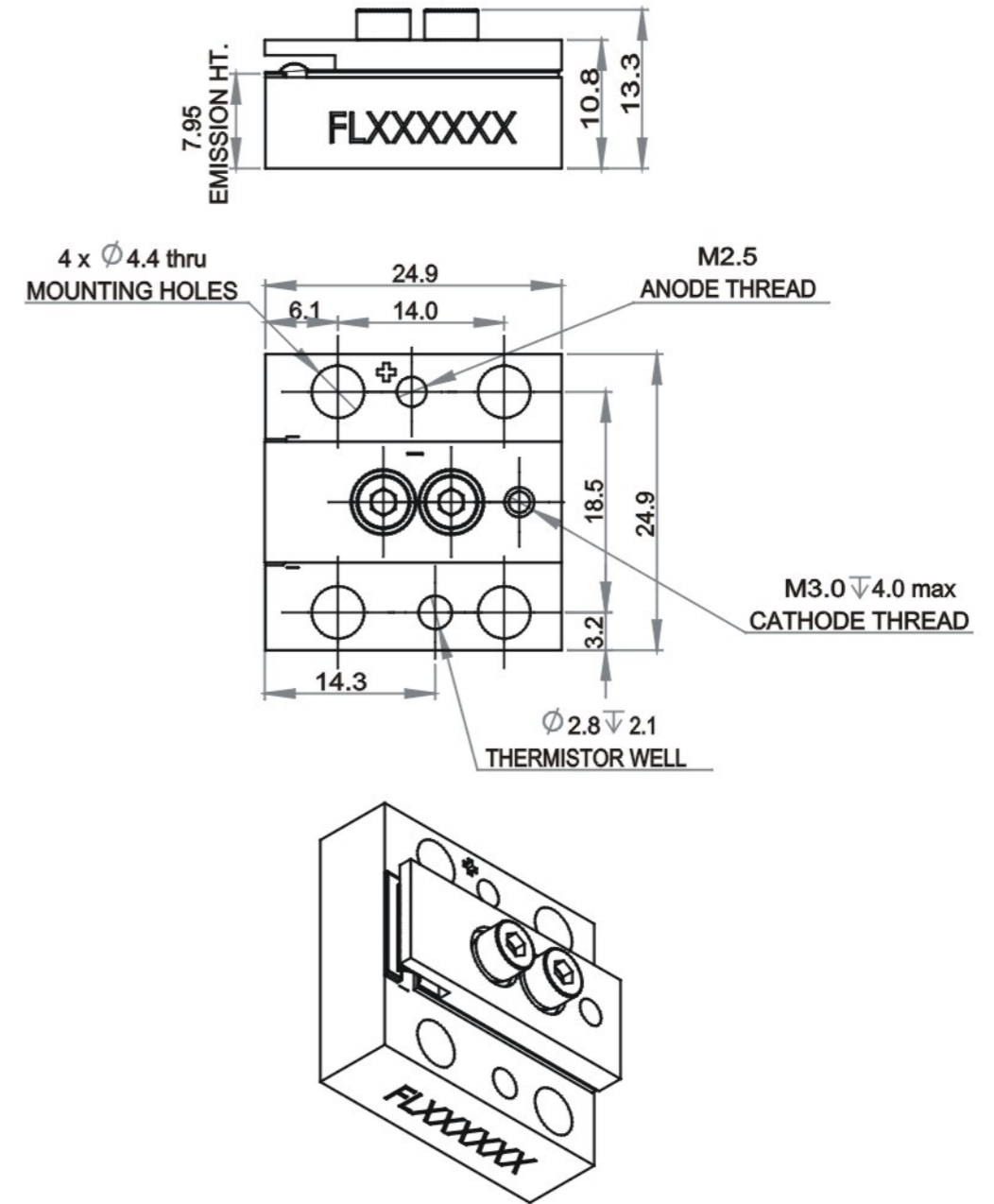
⁵Slow axis collimation is available for bars with fill factor $\leq 30\%$.

⁶A non-condensing environment is required for storage and operation below ambient dew point.

⁷For smile requirements, please contact us.

⁸If there are any other requirements, please contact us.

Device Dimension (mm)



Micro-Channel Water Cooled Single Bar Diode Laser (CW)

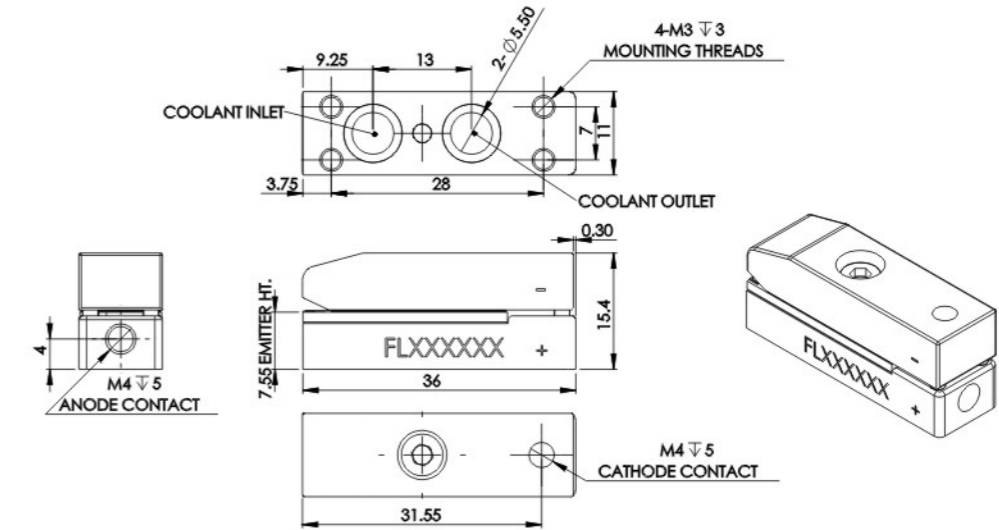
微通道水冷半导体激光器单Bar系列(连续)

Features

- Long lifetime
- High power
- Low smile
- Narrow spectrum



Device Dimension (mm)



Specification

Module Type ¹	Units	FL-MCC09 -60-792	FL-MCC09 -60-808	FL-MCC09 -80-808	FL-MCC09 -100-808	FL-MCC09 -60-825	FL-MCC09 -60-880	FL-MCC09 -80-915	FL-MCC09 -120-915	FL-MCC09 -80-940	FL-MCC09 -100-940	FL-MCC09 -120-940	FL-MCC09 -60-976	FL-MCC09 -80-976	FL-MCC09 -100-976	FL-MCC09 -120-976
Optical^{2,7}																
Center Wavelength λ	nm	792	808	808	808	825	880	915	915	940	940	940	976	976	976	976
Wavelength Tolerance	nm	± 3	± 3	± 3	± 3	± 3	± 3	± 3	± 5	± 3	± 5	± 5	± 5	± 3	± 5	± 5
Output Power ²	W	60	60	80	100	60	60	80	120	80	100	120	60	80	100	120
Spectral Width FWHM	nm	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 4	≤ 5	≤ 4	≤ 3	≤ 5	≤ 3	≤ 4	≤ 3	≤ 5
Spectral Width FW90%E	nm	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 7	≤ 8	≤ 7	≤ 8	≤ 8	≤ 6	≤ 7	≤ 6	≤ 8
Fast Axis Divergence(FWHM) ^{4,6}	degree	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Slow Axis Divergence (FWHM)	degree	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Polarization Mode	-	TE	TE/TM	TE	TE/TM	TE/TM	TE	TE	TE	TE	TE	TE	TE	TE	TE	TE
Wavelength Temp. Coefficient	nm/°C	-0.28	-0.28	-0.28	-0.28	-0.28	-0.30	-0.32	-0.32	-0.33	-0.33	-0.33	-0.34	-0.34	-0.34	-0.34
Electrical Parameters^{3,7}																
Operating Current I_{op}	A	≤ 70	≤ 72	≤ 90	≤ 110	≤ 75	≤ 65	≤ 82	≤ 120	≤ 85	≤ 105	≤ 120	≤ 65	≤ 88	≤ 105	≤ 120
Threshold Current I_{th}	A	≤ 13	≤ 18	≤ 22	≤ 26	≤ 17	≤ 12	≤ 8	≤ 20	≤ 15	≤ 15	≤ 20	≤ 7	≤ 9	≤ 7	≤ 20
Operating Voltage V_{op}	V	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
Slope Efficiency	W/A	≥ 1.1	≥ 1.1	≥ 1.05	≥ 1.0	≥ 1	≥ 1.1	≥ 1.05	≥ 1.1	≥ 1.05	≥ 1.05	≥ 1.1	≥ 1.05	≥ 0.95	≥ 0.95	≥ 1.1
Power Conversion Efficiency	%	≥ 48	≥ 46	≥ 48	≥ 42	≥ 48	≥ 55	≥ 52	≥ 50	≥ 52	≥ 52	≥ 50	≥ 55	≥ 52	≥ 52	≥ 50
Thermal Parameters																
Operating Temperature	°C	15-30														
Storage Temperature ⁵	°C	0-55														
Coolant	-	Delonized water														
Flow Rate/Bar	L/min	0.4-0.7														
Max Inlet Pressure	kPa	380														
Resistivity	M Ω ·cm	0.2-0.5														

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-MCC09(structure code)-60(output power)-808(center wavelength).

²Reduced lifetime if used above nominal operating conditions.

³Data at 25°C temperature, unless otherwise stated.

⁴For fast axis collimation: divergence $< 0.5^\circ$.

⁵A non-condensing environment is required for storage and operation below ambient dew point.

⁶For smile requirements, please contact us.

⁷If there are any other requirements, please contact us.

Micro-Channel Water Cooled Single Bar Diode Laser (QCW)

微通道水冷半导体激光器单Bar系列(准连续)

Features

- Long lifetime
- High power
- Low smile
- Narrow spectrum



Specification

Module Type ¹	Units	FL-MCC09 -150-808(Q)	FL-MCC09 -200-808(Q)	FL-MCC09 -250-808(Q)	FL-MCC09 -200-940(Q)	FL-MCC09 -250-940(Q)	FL-MCC09 -300-940(Q)
Optical^{2,7}							
Center Wavelength λ	nm	808	808	808	940	940	940
Wavelength Tolerance	nm	± 3	± 3	± 3	± 5	± 5	± 5
Output Power ²	W	150	200	250	200	250	300
Spectral Width FWHM	nm	≤ 4	≤ 4	≤ 3.5	≤ 6	≤ 4	≤ 6
Spectral Width FW90%E	nm	≤ 6	≤ 6	≤ 6	≤ 8	≤ 6	≤ 8
Fast Axis Divergence(FWHM) ^{4,8}	degree	35	35	35	35	35	35
Slow Axis Divergence (FWHM)	degree	8	8	8	8	8	8
Pulse Width	ms	≤ 0.3	≤ 0.2	≤ 0.2	≤ 0.3	≤ 0.2	≤ 0.2
Duty Cycle	%	≤ 10	≤ 10	≤ 10	≤ 10	≤ 8	≤ 4
Polarization Mode	-	TE	TE	TE	TE	TE	TE
Wavelength Temp. Coefficient	nm/°C	~ 0.28	~ 0.28	~ 0.28	~ 0.33	~ 0.33	~ 0.33
Electrical Parameters^{2,7}							
Operating Current I_{op}	A	≤ 160	≤ 180	≤ 250	≤ 200	≤ 250	≤ 300
Threshold Current I_{th}	A	≤ 15	≤ 30	≤ 26	≤ 18	≤ 18	≤ 18
Operating Voltage V_{op}	V	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
Slope Efficiency	W/A	≥ 1	≥ 1.1	≥ 1.15	≥ 1.1	≥ 1.1	≥ 1.1
Power Conversion Efficiency	%	≥ 45	≥ 50	≥ 50	≥ 50	≥ 50	≥ 50
Thermal Parameters							
Operating Temperature	°C	15~30					
Storage Temperature ⁵	°C	0~55					
Coolant	-	Deionized water					
Flow Rate/Bar	L/min	0.4~0.7					
Max Inlet Pressure	kPa	380					
Resistivity	M Ω *cm	0.2~0.5					

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-MCC09(structure code)-150(output power)-808(center wavelength)(Q:QCW).

²Reduced lifetime if used above nominal operating conditions.

³Data at 25°C temperature, unless otherwise stated.

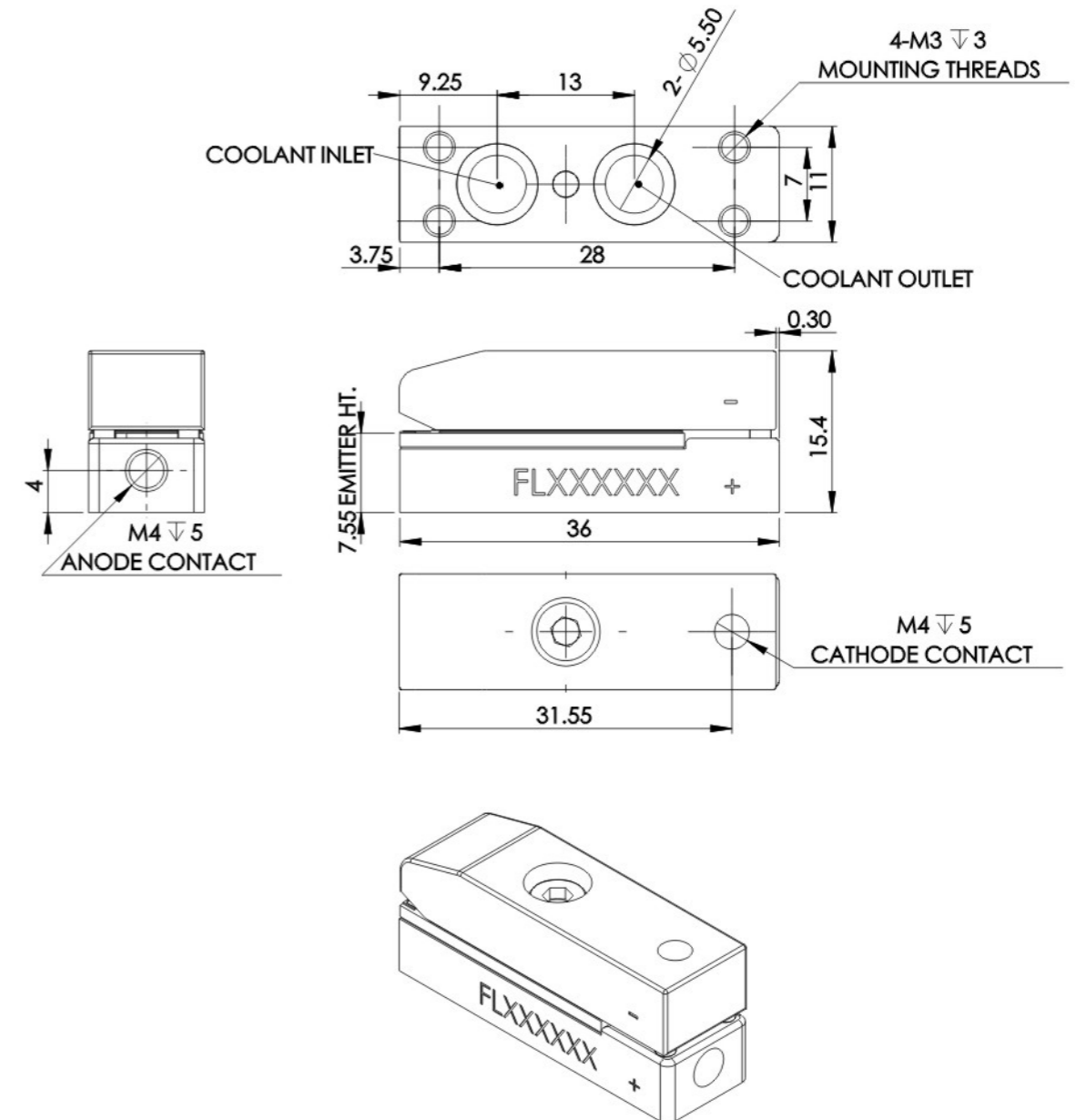
⁴For fast axis collimation: Divergence $< 0.5^\circ$.

⁵A non-condensing environment is required for storage and operation below ambient dew point.

⁶For smile requirements, please contact us.

⁷If there are any other requirements, please contact us.

Device Dimension (mm)



Micro-channel Water Cooled Vertical Stack Diode Laser (QCW)

微通道水冷半导体激光器垂直叠阵系列(准连续)

Features

- Long lifetime
- High power
- Uniform beam profile



Specification

Module Type ¹	Units	FL-VS**-N -##-808(Q)	FL-VS**-N -##-808(Q)	FL-VS**-N -##-808(Q)	FL-VS**-N -##-808(Q)	FL-VS**-N -##-940(Q)	FL-VS**-N -##-940(Q)	FL-VS**-N -##-940(Q)
Optical^{2,7}								
Center Wavelength λ	nm	808	808	808	808	940	940	940
Wavelength Tolerance	nm	± 3	± 3	± 5	± 5	± 5	± 5	± 5
Output Power per Bar ²	W	150	200	250	300	200	250	300
Number of Bars	#	1~25, 40, 60	1~25, 40, 60	1~25, 40, 60	1~25, 40, 60	1~25, 40, 60	1~25, 40, 60	1~25, 40, 60
Bar-to-Bar Spacing	mm	1.8,2.4,2.4	1.8,2.4,2.4	1.8,2.4,2.4	1.8,2.4,2.4	1.8,2.4,2.4	1.8,2.4,2.4	1.8,2.4,2.4
Spectral Width FWHM	nm	≤ 4	≤ 4	≤ 3.5	≤ 4	≤ 6	≤ 6	≤ 6
Spectral Width FW90%E	nm	≤ 6	≤ 6	≤ 6	≤ 7	≤ 8	≤ 8	≤ 8
Fast Axis Divergence(FWHM) ^{4,6}	degree	35	35	35	35	35	35	35
Slow Axis Divergence (FWHM)	degree	8	8	8	8	8	8	8
Pulse Width	ms	≤ 0.3	≤ 0.3	≤ 0.2	≤ 0.2	≤ 0.3	≤ 0.2	≤ 0.2
Duty Cycle	%	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 8	≤ 4
Polarization Mode	-	TE	TE	TE	TE	TE	TE	TE
Wavelength Temp. Coefficient	nm/°C	-0.28	-0.28	-0.28	-0.28	-0.32	-0.32	-0.32
Electrical Parameters^{3,7}								
Operating Current I_{op}	A	≤ 170	≤ 190	≤ 250	≤ 300	≤ 200	≤ 250	≤ 300
Threshold Current I_{th}	A	≤ 15	≤ 28	≤ 26	≤ 26	≤ 18	≤ 18	≤ 18
Operating Voltage V_{op}	V	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
Slope Efficiency	W/A	≥ 1	≥ 1.1	≥ 1.15	≥ 1.1	≥ 1.05	≥ 1.1	≥ 1.1
Power Conversion Efficiency	%	≥ 45	≥ 50	≥ 50	≥ 50	≥ 50	≥ 50	≥ 50
Thermal Parameters								
Operating Temperature	°C	15~30						
Storage Temperature ⁵	°C	0~55						
Coolant	-	Delonized water						
Flow Rate/Bar	L/min	0.4~0.7						
Max Inlet Pressure	kPa	380						
Resistivity	M Ω *cm	0.2~0.5						

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-VS**(structure code)-N(Number of Bars) -##(Power)-808(center wavelength)(Q:QCW).

²Reduced lifetime if used above nominal operating conditions.

³Data at 25°C temperature, unless otherwise stated.

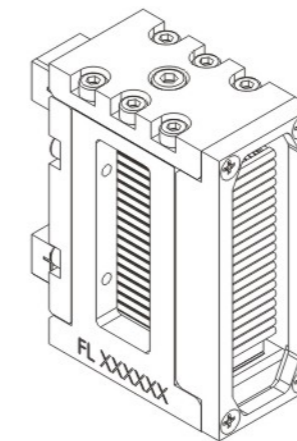
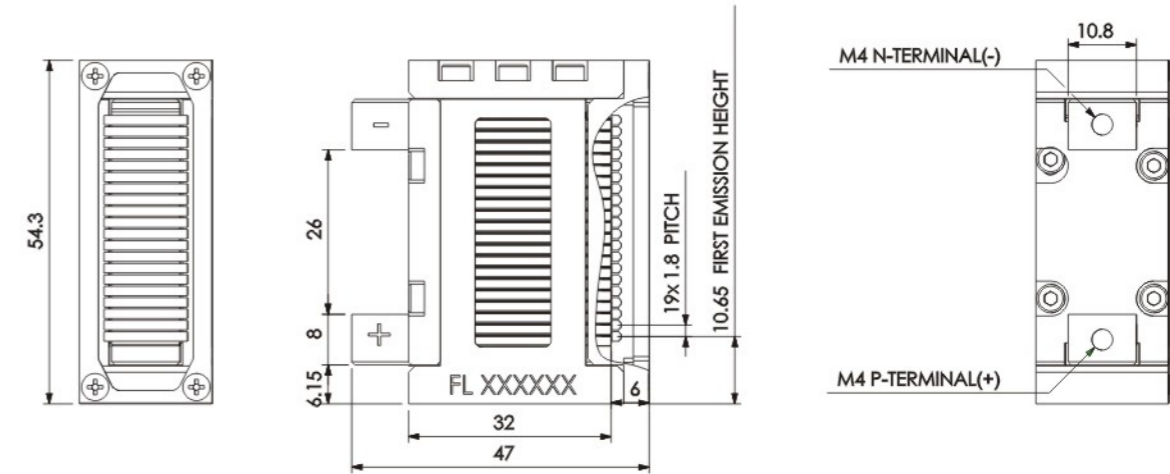
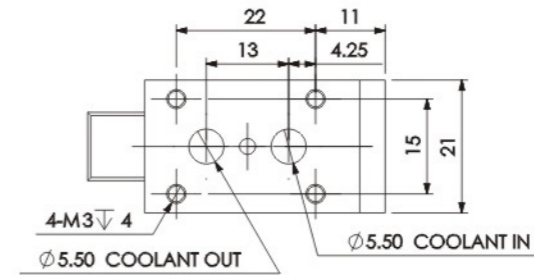
⁴For fast axis collimation: divergence <0.5° .

⁵A non-condensing environment is required for storage and operation below ambient dew point.

⁶For smille requirements, please contact us.

⁷If there are any other requirements, please contact us.

Device Dimension (mm)



1. This structure drawing is only for VS01. For any other special requirement, please contact Focuslight for details.
2. The above drawing is for 20 bars only. Drawings for 2~40 bars are available. Please contact Focuslight for details.

Macro-channel Water Cooled Vertical Stack Diode Laser (QCW)

宏通道水冷半导体激光器垂直叠阵系列(准连续)

Features

- AuSn bonding
- Long storage time
- High power
- Uniform beam profile
- Harsh environment applications

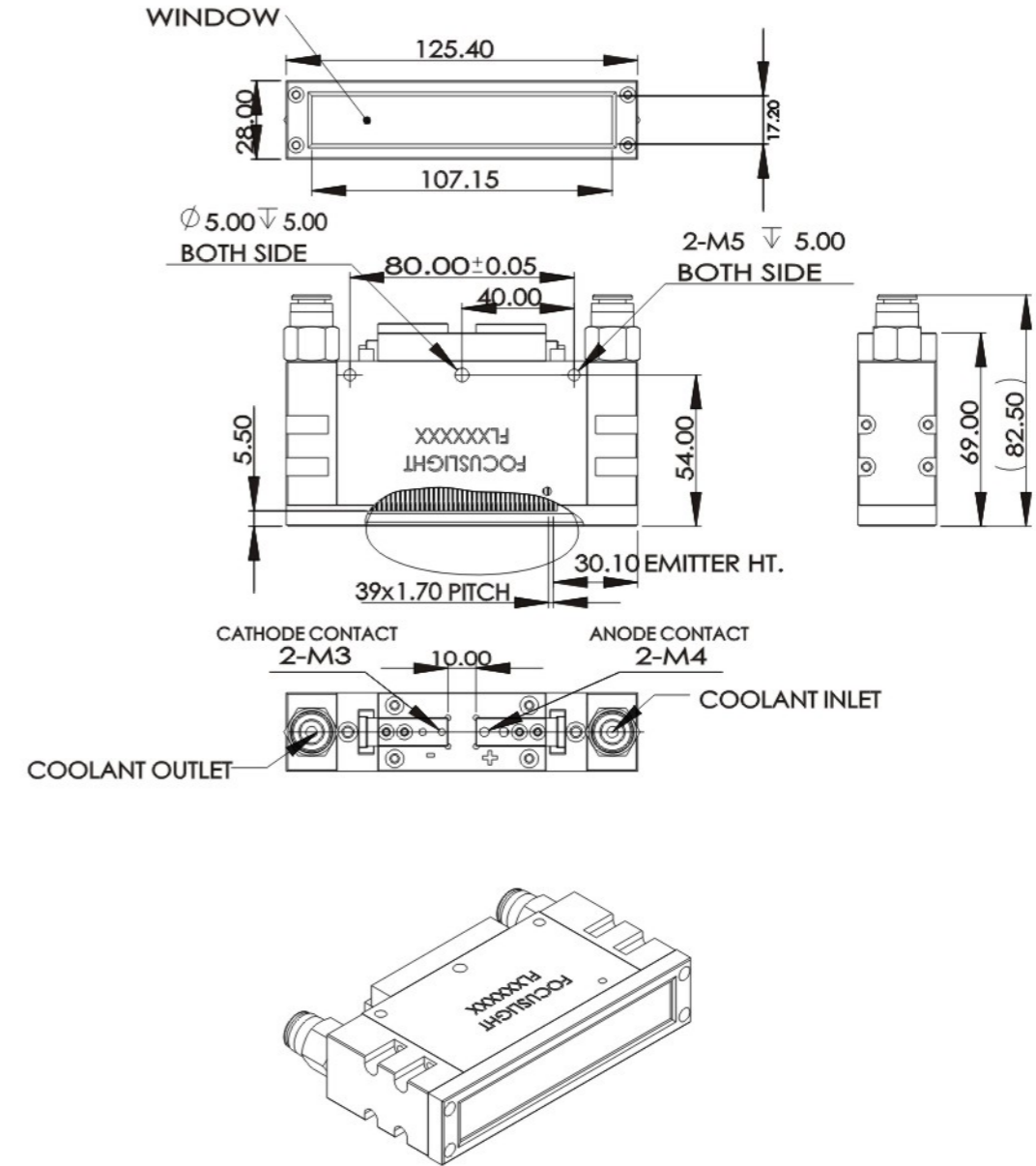


Specification

Module Type ¹	Units	FL-VS**~N -##-808(Q)	FL-VS**~N -##-808(Q)	FL-VS**~N -##-808(Q)	FL-VS**~N -##-808(Q)	FL-VS**~N -##-940(Q)	FL-VS**~N -##-940(Q)	FL-VS**~N -##-940(Q)
Optical^{2,7}								
Center Wavelength λ	nm	808	808	808	808	940	940	940
Wavelength Tolerance	nm	± 3	± 3	± 3	± 3	± 5	± 5	± 5
Output Power per Bar ²	W	150	200	250	300	200	250	300
Number of Bars	-	40	40	40	40	40	40	40
Bar-to-Bar Spacing	mm	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Spectral Width FWHM	nm	≤ 6	≤ 4	≤ 4	≤ 4	≤ 6	≤ 6	≤ 6
Spectral Width FW90%E	nm	≤ 8	≤ 6	≤ 8	≤ 7	≤ 8	≤ 8	≤ 8
Fast Axis Divergence(FWHM) ^{4,6}	degree	35	35	35	35	35	35	35
Slow Axis Divergence (FWHM)	degree	8	8	8	8	8	8	8
Pulse Width	ms	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.2	≤ 0.3	≤ 0.3	≤ 0.2
Duty Cycle	%	≤ 4	≤ 4	≤ 4	≤ 2	≤ 4	≤ 4	≤ 2
Polarization Mode	-	TE	TE	TE	TE	TE	TE	TE
Wavelength Temp. Coefficient	nm/°C	-0.28	-0.28	-0.28	-0.28	-0.33	-0.32	-0.32
Electrical Parameters^{2,7}								
Operating Current I_o	A	≤ 170	≤ 190	≤ 250	≤ 300	≤ 200	≤ 250	≤ 300
Threshold Current I_{th}	A	≤ 15	≤ 25	≤ 32	≤ 32	≤ 18	≤ 18	≤ 18
Operating Voltage V_o	V	≤ 2	≤ 2	≥ 2	≥ 2	≤ 2	≤ 2	≤ 2
Slope Efficiency	W/A	≥ 1	≥ 1.1	≥ 1.15	≥ 1.1	≥ 1.05	≥ 1.1	≥ 1.1
Power Conversion Efficiency	%	≥ 42	≥ 50	≥ 52	≥ 50	≥ 50	≥ 50	≥ 50
Thermal Parameters								
Operating Temperature	°C	15~25						
Storage Temperature ⁵	°C	0~55						
Coolant	-	Deionized water						
Flow Rate/Bar	L/min	0.4~0.7						
Max Inlet Pressure	kPa	380						

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-VS**(structure code)-N(Number of Bars) -##(Power)-808(center wavelength)(Q:QCW).
²Reduced lifetime if used above nominal operating conditions.
³Data at 25°C temperature, unless otherwise stated.
⁴For fast axis collimation: divergence <0.5° .
⁵A non-condensing environment is required for storage and operation below ambient dew point.
⁶For smille requirements, please contact us.
⁷If there are any other requirements, please contact us.

Device Dimension (mm)



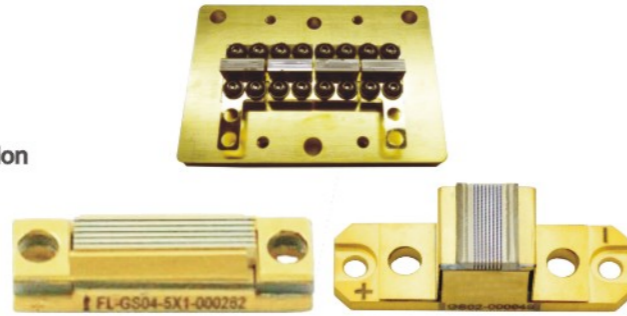
1.This structure drawing is only for VS04. For any other special requirement, please contact Focuslight for details.
 2.The above drawing is for 40 bars only. Drawings for 2~40 bars are available. Please contact Focuslight for details.

Conduction Cooled QCW Vertical Stack Diode Laser (G -Stack)

传导冷却半导体激光器垂直叠阵G-STACK系列(准连续)

Features

- Long lifetime
- AuSn bonding
- Narrow spectrum
- Upto 40Bars/Module
- Harsh environment applications
- High power
- Compact size
- Long storage time
- Multiple pitch selection



Specification

Module Type ¹	Units	FL-GSxx-N -##-808(Q)	FL-GSxx-N -##-808(Q)	FL-GSxx-N -##-940(Q)	FL-GSxx-N -##-940(Q)	FL-GSxx-N -##-940(Q)
Optical^{2,3}						
Center Wavelength λ	nm	808	808	940	940	940
Wavelength Tolerance	nm	±3	±3	±5	±5	±5
Output Power per Bar ²	W	100~300	100~250	100~150	100~200	100~250
Number of Bars	-	1~40	1~40	1~40	1~40	1~40
Spectral Width FWHM	nm	≤6	≤6	≤6	≤6	≤6
Spectral Width FW90%E	nm	≤8	≤8	≤8	≤8	≤8
Fast Axis Divergence(FWHM)	degree	35	35	35	35	35
Slow Axis Divergence(FWHM)	degree	8	8	8	8	8
Pulse Width	ms	≤0.3	≤0.5	≤0.3	≤0.3	≤0.3
Duty Cycle	%	≤1	≤4	≤1	≤1	≤1
Polarization Mode	-	TE	TE	TE	TE	TE
Wavelength Temp. Coefficient	nm/°C	-0.28	-0.28	-0.33	-0.33	-0.33
Electrical Parameters^{3,4}						
Operating Current I _{op}	A	≤300	≤300	≤160	≤200	≤250
Threshold Current I _{th}	A	≤30	≤30	≤20	≤20	≤20
Operating Voltage V _{op}	V	≤2	≤2	≤2	≤2	≤2
Slope Efficiency	W/A	≥1.1	≥1.1	≥1.05	≥1.05	≥1.05
Power Conversion Efficiency	%	≥42	≥50	≥52	≥52	≥52
Thermal Parameters						
Operating Temperature	°C	18~30				
Storage Temperature ⁴	°C	0~55				
Recommended Heatsink Capacity/Bar	W	≥35	≥40	≥30	≥40	≥50

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-GS**(structure code)-N(Number of Bars)-##(Power)-808(center wavelength)(Q:QCW).

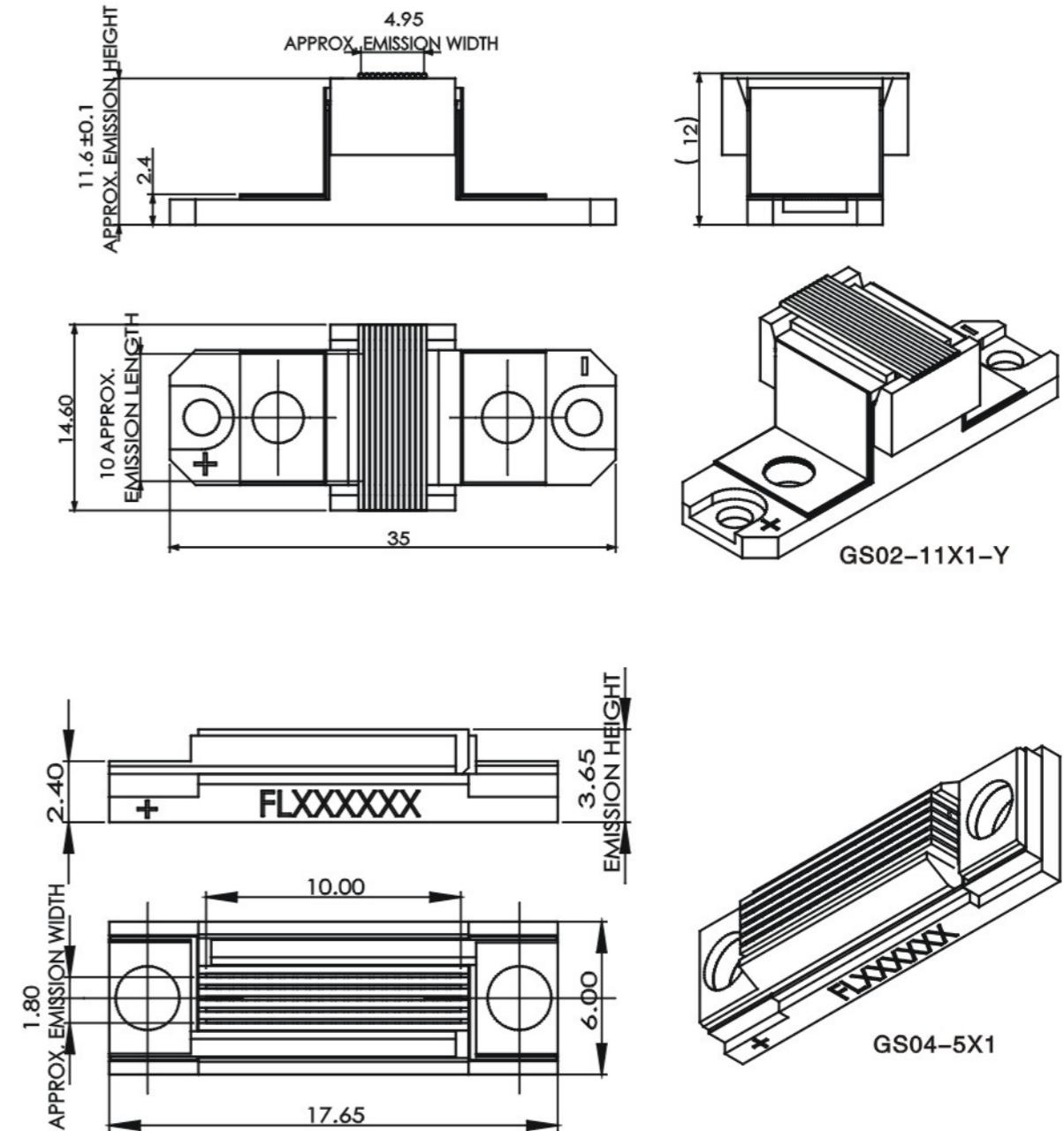
²Reduced lifetime if used above nominal operating conditions.

³Data at 25°C temperature, unless otherwise stated.

⁴A non-condensing environment is required for storage and operation below ambient dew point.

If there are any other requirements, please contact us.

Device Dimension (mm)



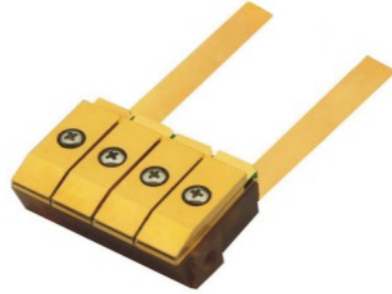
1. These structure drawings are for GS02 and GS04. For any other special requirement, please contact Focuslight for details.
2. The above drawings are for 5bars and 12bars. Drawings for 2~40 bars are available. Please contact Focuslight for details.

Micro-Channel Water Cooled Horizontal Array Diode Laser (CW)

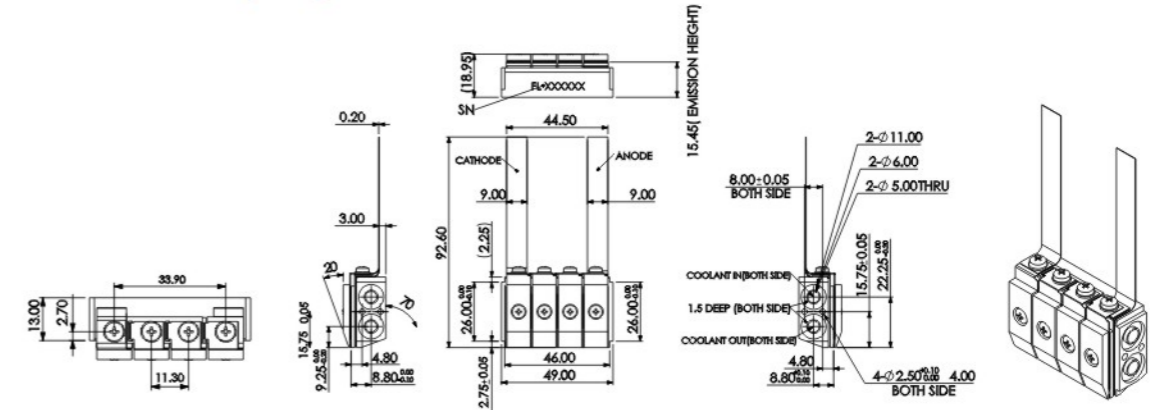
微通道水冷半导体激光器水平阵列系列(连续)

Features

- Long lifetime
- High power
- Narrow spectrum
- Ease of repair



Device Dimension (mm)



1.This structure drawing is only for HA08. For any other special requirement, please contact Focuslight for details.
2.The above drawing is for 4 bars only. Drawings for 2-8 bars are available. Please contact Focuslight for details.

Specification

Module Type ¹	Units	FL-HA**-N -##-792	FL-HA**-N -##-808	FL-HA**-N -##-808	FL-HA**-N -##-808	FL-HA**-N -##-825	FL-HA**-N -##-880	FL-HA**-N -##-915	FL-HA**-N -##-915	FL-HA**-N -##-940	FL-HA**-N -##-940	FL-HA**-N -##-940	FL-HA**-N -##-940	FL-HA**-N -##-976	FL-HA**-N -##-976	FL-HA**-N -##-976	FL-HA**-N -##-976
Optical^{2,3}																	
Center Wavelength λ	nm	792	808	808	808	825	880	915	915	940	940	940	940	976	976	976	976
Wavelength Tolerance	nm	±3	±3	±3	±3	±3	±3	±5	±5	±5	±5	±5	±5	±5	±5	±5	±5
Output Power per Bar ²	W	60	60	80	100	60	60	80	120	80	100	120	120	60	80	100	120
Number of Bars	#	1~8	1~8	1~8	1~8	1~8	1~8	1~8	1~8	1~8	1~8	1~8	1~8	1~8	1~8	1~8	1~8
Spectral Width FWHM	nm	≤3	≤3	≤3	≤3	≤3	≤3	≤4	≤5	≤4	≤4	≤5	≤5	≤3	≤4	≤4	≤5
Spectral Width FW90%E	nm	≤6	≤6	≤6	≤6	≤6	≤6	≤7	≤8	≤7	≤8	≤8	≤8	≤6	≤7	≤6	≤8
Fast Axis Divergence(FWHM)	degree	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Slow Axis Divergence(FWHM)	degree	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Polarization Mode	-	TE	TE/TM	TE	TE	TE/TM	TE	TE	TE	TE	TE	TE	TE	TE	TE	TE	TE
Wavelength Temp. Coefficient	nm/°C	-0.28	-0.28	-0.28	-0.28	-0.28	-0.30	-0.32	-0.32	-0.33	-0.33	-0.33	-0.33	-0.34	-0.34	-0.34	-0.34
Electrical Parameters^{2,3}																	
Operating Current I _{op}	A	≤70	≤72	≤90	≤115	≤75	≤65	≤82	≤120	≤85	≤105	≤120	≤120	≤65	≤88	≤105	≤120
Threshold Current I _{th}	A	≤13	≤18	≤22	≤26	≤17	≤12	≤8	≤20	≤15	≤8	≤20	≤20	≤7	≤9	≤7	≤20
Operating Voltage V _{op}	V	≤2	≤2	≤2	≤2	≤2	≤2	≤2	≤2	≤2	≤2	≤2	≤2	≤2	≤2	≤2	≤2
Slope Efficiency	W/A	≥1.1	≥1.1	≥1.05	≥1.0	≥1	≥1.1	≥1.05	≥1.1	≥1.05	≥1.05	≥1.1	≥1.1	≥1.05	≥0.95	≥0.95	≥1.1
Power Conversion Efficiency	%	≥48	≥46	≥48	≥42	≥48	≤55	≥52	≥50	≥52	≥50	≥50	≥50	≥55	≥52	≥52	≥50
Thermal Parameters																	
Operating Temperature	°C	15~30															
Storage Temperature ⁴	°C	0~55															
Coolant	-	Deionized water															
Flow Rate/Bar	L/min	0.2~0.5															
Max Inlet Pressure	kPa	380															

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-HA**(structure code)-N(Number of Bars)-##(Power)-808(center wavelength).

²Reduced lifetime if used above nominal operating conditions.

³Data at 25°C temperature, unless otherwise stated.

⁴A non-condensing environment is required for storage and operation below ambient dew point.

⁵If there are any other requirements, please contact us.

Micro-Channel Water Cooled Horizontal Array Diode Laser (QCW)

微通道水冷半导体激光器水平阵列系列(准连续)

Features

- Long lifetime
- High power
- Narrow spectrum
- Ease of repair



Specification

Module Type ¹	Units	FL-HA** ² -N -##-808(Q)	FL-HA** ² -N -##-808(Q)	FL-HA** ² -N -##-808(Q)	FL-HA** ² -N -##-940(Q)	FL-HA** ² -N -##-940(Q)
Optical^{3,4}						
Center Wavelength λ	nm	808	808	808	940	940
Wavelength Tolerance	nm	± 3	± 3	± 3	± 5	± 5
Output Power per Bar ²	W	150	200	250	200	250
Number of Bars	#	1~10	1~10	1~10	1~10	1~10
Spectral Width FWHM	nm	≤ 4	≤ 4	≤ 3.5	≤ 6	≤ 6
Spectral Width FW90%E	nm	≤ 6	≤ 6	≤ 6	≤ 8	≤ 8
Fast Axis Divergence (FWHM)	degree	35	35	35	35	35
Slow Axis Divergence (FWHM)	degree	8	8	8	8	8
Pulse Width	ms	≤ 0.3	≤ 0.3	≤ 0.2	≤ 0.3	≤ 0.2
Duty Cycle	%	≤ 10	≤ 10	≤ 8	≤ 10	≤ 4
Polarization Mode	-	TE	TE	TE	TE	TE
Wavelength Temp. Coefficient	nm/°C	-0.28	-0.28	-0.28	-0.33	-0.33
Electrical Parameters^{5,6}						
Operating Current I_{op}	A	≤ 180	≤ 190	≤ 250	≤ 200	≤ 250
Threshold Current I_{th}	A	≤ 30	≤ 30	≤ 30	≤ 30	≤ 30
Operating Voltage V_{op}	V	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
Slope Efficiency	W/A	≥ 1	≥ 1.1	≥ 1.15	≥ 1.1	≥ 1.1
Power Conversion Efficiency	%	≥ 45	≥ 50	≥ 50	≥ 50	≥ 50
Thermal Parameters						
Operating Temperature	°C	15~30				
Storage Temperature ⁴	°C	0~55				
Coolant	-	Deionized water				
Flow Rate/Bar	L/min	0.2~0.5				
Max Inlet Pressure	kPa	380				

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-HA**(structure code)-N(Number of Bars)-##(Power)-808(center wavelength)(Q:QCW).

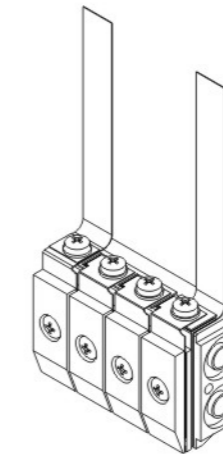
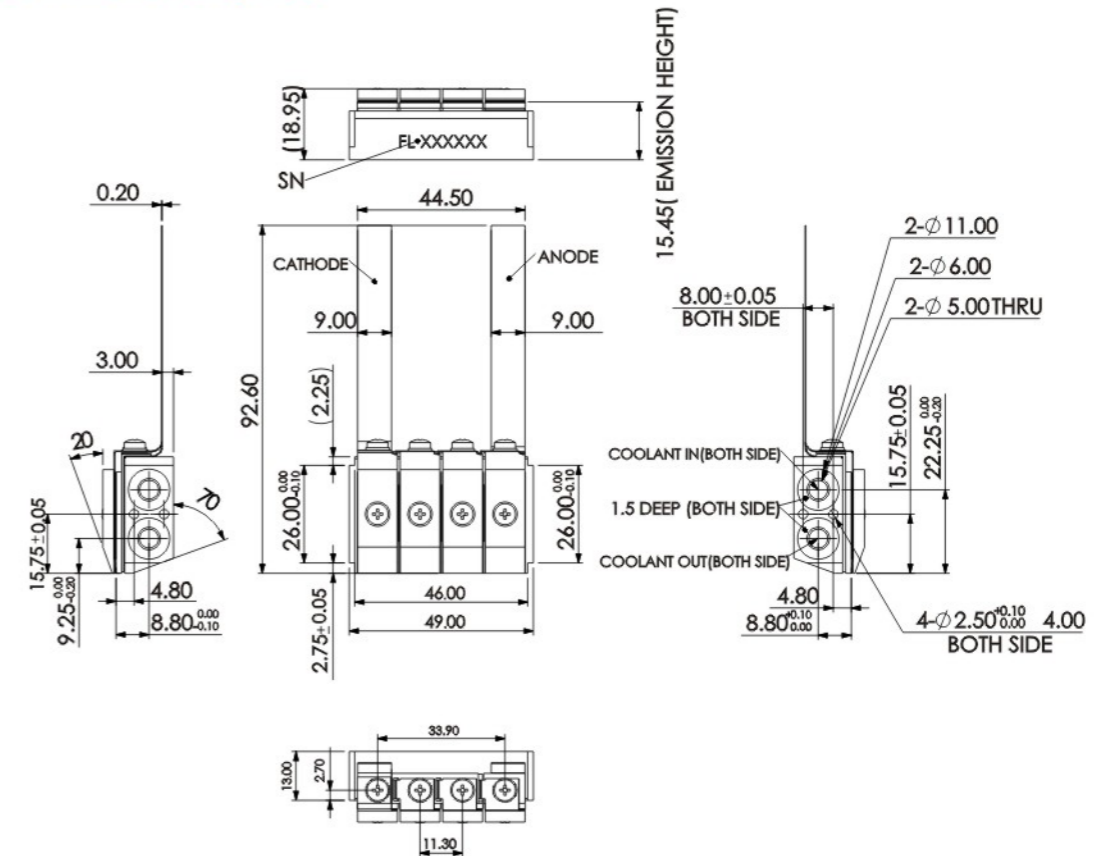
²Reduced lifetime if used above nominal operating conditions.

³Data at 25°C temperature, unless otherwise stated.

⁴A non-condensing environment is required for storage and operation below ambient dew point.

⁵If there are any other requirements, Please contact us.

Device Dimension (mm)



- 1.This structure drawing is only for HA08. For any other special requirement, please contact Focuslight for details.
- 2.The above drawing is for 4 bars only. Drawings for 2~10 bars are available. Please contact Focuslight for details.

Fiber Coupled Single Emitter Diode Laser (CW)

单管光纤耦合FCSE系列(连续)

Features

- Long lifetime
- High power
- High coupling efficiency
- Parallel seam sealing



Specification

Module Type ¹	Units	FL-FCSE01-2-808	FL-FCSE01-3-808	FL-FCSE01-5-808	FL-FCSE01-5-808	FL-FCSE01-7-808
Optical^{2,7}						
Center Wavelength λ	nm	808	808	808	808	808
Wavelength Tolerance	nm	± 3	± 3	± 3	± 3	± 3
Output Power ²	W	2	3	5	5	7
Spectral Width FWHM	nm	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
Spectral Width FW90%E	nm	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
Wavelength Temp. Coefficient	nm/°C	~ 0.28	~ 0.28	~ 0.28	~ 0.28	~ 0.28
Fiber Parameters						
Fiber Numerical Aperture	NA	0.15	0.22	0.22	0.22	0.22
Fiber Core/Cladding Diameter	μm	105/125	200/220	200/220	400/440	200/220
Connector Type ⁸	-	SC	SMA905	SMA905	SMA905 or FC	SMA905
Fiber Length ⁹	m	1.5	1.5	1.5	1.5	1.5
Electrical Parameters^{2,7}						
Operating Current I_{op}	A	≤ 3	≤ 3.9	≤ 6.5	≤ 6.5	≤ 8.3
Threshold Current I_{th}	A	≤ 0.6	≤ 0.75	≤ 1.1	≤ 1.1	≤ 1.8
Operating Voltage V_{op}	V	≤ 2.2	≤ 2.1	≤ 2.2	≤ 2.2	≤ 2.2
Slope Efficiency	W/A	≥ 0.85	≥ 0.95	≥ 0.9	≥ 0.9	≥ 0.9
Power Conversion Efficiency	%	≥ 40	≥ 40	≥ 38	≥ 38	≥ 40
Thermal Parameters						
Operating Temperature	°C	15~30				
Storage Temperature ⁴	°C	0~55				
Recommended Thermal Dissipation Capacity	W	≥ 5	≥ 5	≥ 10	≥ 10	≥ 12

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-FCSE01(structure code)-3(output power)-808(center wavelength).

²Reduced lifetime if used above nominal operating conditions.

³Data at 25°C temperature, unless otherwise stated.

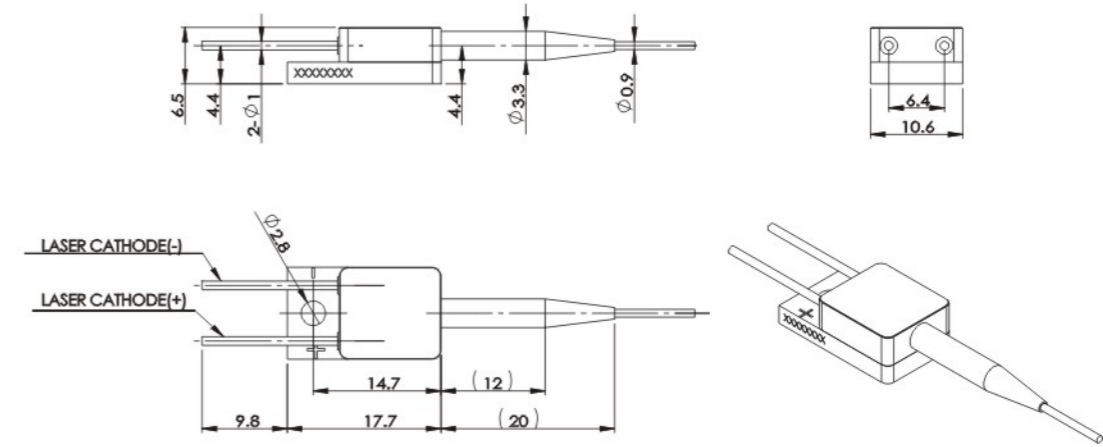
⁴A non-condensing environment is required for storage and operation below ambient dew point.

⁵Fiber length can be specified by customer.

⁶Can be with or without fiber connector.

⁷If there are any other requirements, please contact us.

Device Dimension (mm)



This structure drawing is only for FCSE01. For any other special requirement, please contact Focuslight for details.

	FL-FCSE01-3-915	FL-FCSE01-4-915	FL-FCSE01-8-915	FL-FCSE01-3-940	FL-FCSE01-4-940	FL-FCSE01-3-976	FL-FCSE01-4-976	FL-FCSE01-8-976
Center Wavelength λ	915	915	915	940	940	976	976	976
Wavelength Tolerance	± 5	± 5	± 5	± 5	± 5	± 5	± 5	± 5
Output Power ²	3	4	8	3	4	3	4	8
Spectral Width FWHM	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
Spectral Width FW90%E	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
Wavelength Temp. Coefficient	~ 0.32	~ 0.32	~ 0.32	~ 0.33	~ 0.33	~ 0.34	~ 0.34	~ 0.34
Fiber Numerical Aperture	0.15 or 0.22	0.22	0.15 or 0.22	0.15	0.22	0.15	0.22	0.15
Fiber Core/Cladding Diameter	105/125 or 400/440	200/220	105/125 or 400/440	105/125	200/220	105/125	200/220	105/125
Connector Type ⁸	SC or SMA905	SMA905	SC or SMA905	SC	SMA905	SC	SMA905	SC
Fiber Length ⁹	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Operating Current I_{op}	≤ 3.8	≤ 5.5	≤ 9.2	≤ 3.8	≤ 5.5	≤ 3.8	≤ 5.5	≤ 9.2
Threshold Current I_{th}	≤ 0.5	≤ 0.8	≤ 0.8	≤ 0.5	≤ 0.8	≤ 0.5	≤ 0.8	≤ 0.8
Operating Voltage V_{op}	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
Slope Efficiency	≥ 0.85	≥ 0.85	≥ 0.9	≥ 0.85	≥ 0.85	≥ 0.85	≥ 0.85	≥ 0.9
Power Conversion Efficiency	≥ 42	≥ 40	≥ 40	≥ 42	≥ 40	≥ 42	≥ 40	≥ 40
Operating Temperature						15~30		
Storage Temperature ⁴						0~55		
Recommended Thermal Dissipation Capacity	≥ 5	≥ 10	≥ 12	≥ 15	≥ 10	≥ 15	≥ 10	≥ 12

Fiber Coupled Single Emitter Diode Laser (CW)

单管光纤耦合FCSE系列(连续)

Features

- Long lifetime
- High power
- High coupling efficiency
- Parallel seam sealing



Specification

Module Type ¹	Units	FL-FCSE03-7-808	FL-FCSE03-8-915	FL-FCSE03-8-976
Optical^{2,7}				
Center Wavelength λ	nm	808	915	976
Wavelength Tolerance	nm	± 3	± 5	± 5
Output Power ²	W	7	8	8
Spectral Width FWHM	nm	≤ 4	≤ 4	≤ 4
Spectral Width FW90%E	nm	≤ 6	≤ 6	≤ 6
Wavelength Temp. Coefficient	nm/°C	~ 0.28	~ 0.32	~ 0.34
Fiber Parameters				
Fiber Numerical Aperture	NA	0.22	0.22	0.22
Fiber Core/Cladding Diameter	μm	200/220	200/220	200/220
Connector Type ⁸	-	SMA905	SMA905	SMA905
Fiber length ⁸	m	1.5	1.5	1.5
Electrical Parameters^{2,7}				
Operating Current I_{op}	A	≤ 8.8	≤ 9.2	≤ 9.2
Threshold Current I_{th}	A	≤ 1.8	≤ 0.8	≤ 0.8
Operating Voltage V_{op}	V	≤ 2.1	≤ 2	≤ 2
Slope Efficiency	W/A	≥ 0.9	≥ 0.9	≥ 0.9
Power Conversion Efficiency	%	≥ 45	≥ 40	≥ 40
PD Parameters⁸				
Operating Current I_{mo}	mA	0-2	0-2	0-2
TEC Parameters⁸				
Operating Current I_t	A	3	3	3
Operating Voltage V_t	V	8.5	8.5	8.5
Thermistor Parameters^{8,9}				
Thermistor R_t	(K Ω)/ β (25°C)	10 \pm 0.5%/3862	10 \pm 0.5%/3862	10 \pm 0.5%/3862
Aiming Beam Parameters⁸				
Output Power P_a	mW	2	2	2
Wavelength	nm	650	650	650
Operating Voltage V_a	V	2	2	2
Operating Current I_a	mA	≤ 40	≤ 40	≤ 40
Thermal Parameters				
Operating Temperature	°C		15-35	
Storage Temperature ⁴	°C		0-55	
Recommended Thermal Dissipation Capacity	W	≥ 12	≥ 12	≥ 12

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-FCSE03(structure code)-7(output power)-808(center wavelength).

²Reduced lifetime if used above nominal operating conditions.

³Data at 25°C temperature, unless otherwise stated.

⁴A non-condensing environment is required for storage and operation below ambient dew point.

⁵Fiber length can be specified by customer.

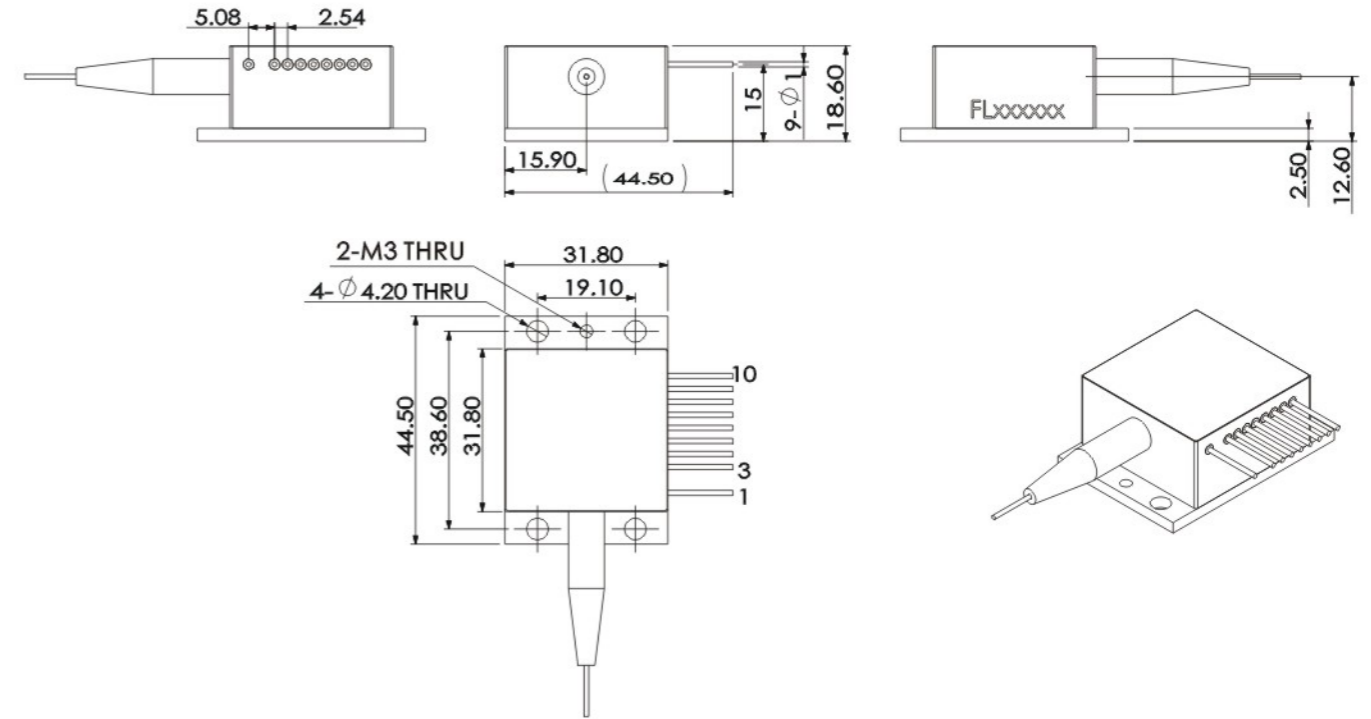
⁶Can be with or without fiber connector.

⁷If there are any other requirements, please contact us.

⁸The customer can choose Thermistor with any two of the rest three options(Aiming Beam, PD and TEC).

⁹ $R_t = R_0 \cdot \exp(\beta(1/T - 1/T_0))$, ($T_0 = 25^\circ\text{C} = 298\text{K}$).

Device Dimension (mm)



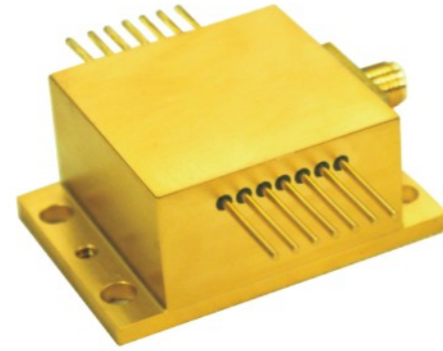
This structure drawing is only for FCSE03. For any other special requirement, please contact Focuslight for details.

Fiber Coupled Single Emitter FCSE04 Series (CW)

单管光纤耦合FCSE04系列(连续)

Features

- Seam sealing
- International standard HHL package
- High power conversion efficiency, ~50%
- Integrated PD, aiming beam, TEC, thermistor and insert detection



Specification

Module Type ¹	Units	FL-FCSE04-7-808	FL-FCSE04-8-915	FL-FCSE04-8-976
Optical^{2,7}				
Center Wavelength λ	nm	808	915	976
Wavelength Tolerance	nm	± 3	± 5	± 5
Output Power ²	W	7	8	8
Spectral Width FWHM	nm	≤ 4	≤ 4	≤ 4
Wavelength Temp. Coefficient	nm/°C	-0.28	-0.3	-0.34
Fiber Parameters				
Fiber Numerical Aperture	NA	0.22	0.22	0.22
Fiber Core/Cladding Diameter	μm	200	200	200
Connector type ⁹	-	SMA905/ST	SMA905/ST	SMA905/ST
Fiber Length ⁸	m	1.5	1.5	1.5
Electrical Parameters^{2,7}				
Operating Current I_{op}	A	≤ 8.8	≤ 9.2	≤ 9.2
Threshold Current I_{th}	A	≤ 1.8	≤ 0.8	≤ 0.8
Operating Voltage V_{op}	V	≤ 2.2	≤ 2	≤ 2
Slope Efficiency	W/A	≤ 0.9	≤ 0.9	≤ 0.9
Power Conversion Efficiency	%	≥ 45	≥ 50	≥ 50
Operating Current I_{mo}	mA	0~2	0~2	0~2
Thermistor R_t	(K Ω)/ β (25°C)	10 \pm 0.5%/3862	10 \pm 0.5%/3862	10 \pm 0.5%/3862
Aiming Beam Parameters ⁸	mA	≤ 40 @2mW 650nm	≤ 40 @2mW 650nm	≤ 40 @2mW 650nm
TEC Parameters⁸				
Operating Current I_t	A	3	3	3
Operating Voltage V_t	V	8.5	8.5	8.5
Thermal Parameters				
Operating Temperature	°C	15~30	15~30	15~30
Storage Temperature ⁴	°C	-20~80	-20~80	-20~80
Recommended Thermal Dissipati	W	≥ 14	≥ 14	≥ 14

¹Explanation for the name of Module Type: FL (abbreviation of Focuslight) -FCSE04 (structure code) -8(output power) -976 (center wavelength).

²Reduced lifetime if used above nominal operating conditions.

³Data at 25°C temperature, unless otherwise stated.

⁴A non-condensing environment is required for storage and operation below ambient dew point.

⁵Customised fiber length.

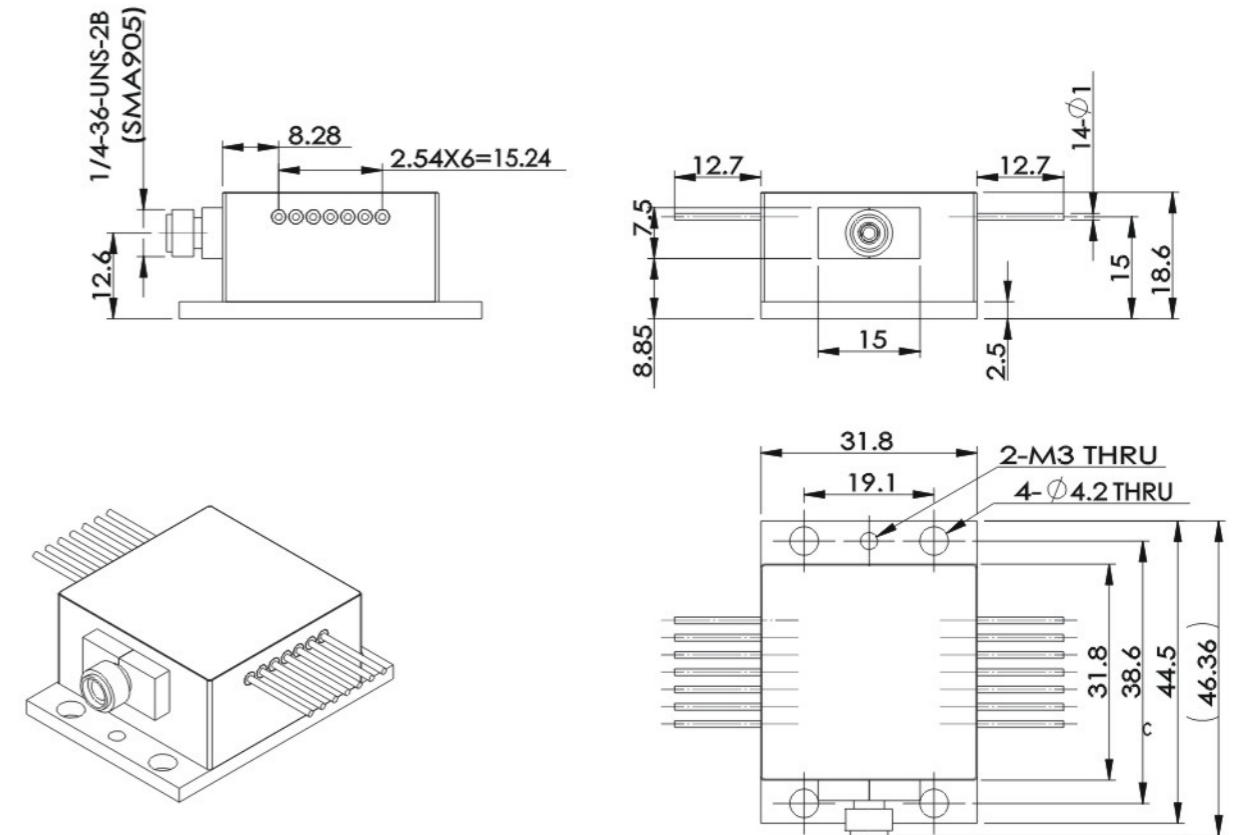
⁶Customised fiber connector type.

⁷If there are any other requirements, please contact us.

⁸The customer can choose the four options(Aiming Beam, Thermistor, TEC and PD)

⁹ $R_t = R_0 \cdot \exp(\beta(1/T - 1/T_0))$, ($T_0 = 25^\circ\text{C} = 298\text{K}$).

Device Dimension (mm)



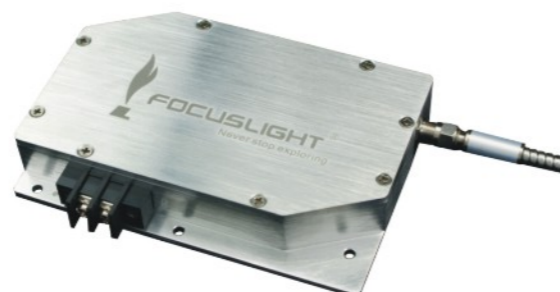
This structure drawing is only for FCSE04. For any other special requirement, please contact Focuslight for details.

Fiber Coupled Single Emitter FCMSE02 Series (CW)

单管光纤耦合FCMSE02系列

Features

- Up to 7 emitters
- Uniform beam profile
- High power conversion efficiency, ~45%
- Multiple single emitter bundle coupling technique



Specification

Module Type ¹	Units	FL-FCMSE02-1.5-635	FL-FCMSE02-12-808	FL-FCMSE02-50-915/940/976
Optical^{2,3}				
Center Wavelength λ	nm	635	808	915/940/976
Wavelength Tolerance	nm	± 5	± 10	± 10
Output Power ²	W	1.5	12	50
Spectral Width FWHM	nm	≤ 3	≤ 6	≤ 6
Wavelength Temp. Coefficient	nm/°C	~ 0.3	~ 0.28	~ 0.3
Fiber Parameters				
Fiber Numerical Aperture	NA	0.22	0.22	0.22
Fiber Core/Cladding Diameter	μm	400	400	400
Connector Type	-	SMA905 or FC	SMA905 or FC	SMA905 or FC
Fiber length ⁵	m	1.5	1.5	1.5
Electrical Parameters^{3,6}				
Operating Current I_{op}	A	≤ 1	≤ 2.2	≤ 9.2
Threshold Current I_{th}	A	≤ 0.5	≤ 0.7	≤ 0.8
Operating Voltage V_{op}	V	≤ 15.5	≤ 13	≤ 15
Slope Efficiency	W/A	≥ 2.5	≥ 6	≥ 6
Power Conversion Efficiency	%	≥ 19	≥ 45	≥ 40
Thermal Parameters				
Operating Temperature	°C	15~18	15~35	15~35
Storage Temperature ⁴	°C	-20~80	-20~80	-20~80
Recommended Heatsink Capacity	W	≥ 10	≥ 15	≥ 70

¹Explanation for the name of Module Type: FL (abbreviation of Focuslight) -FCSE02 (structure code) -12(output power) -808(center wavelength).

²Reduced lifetime if used above nominal operating conditions.

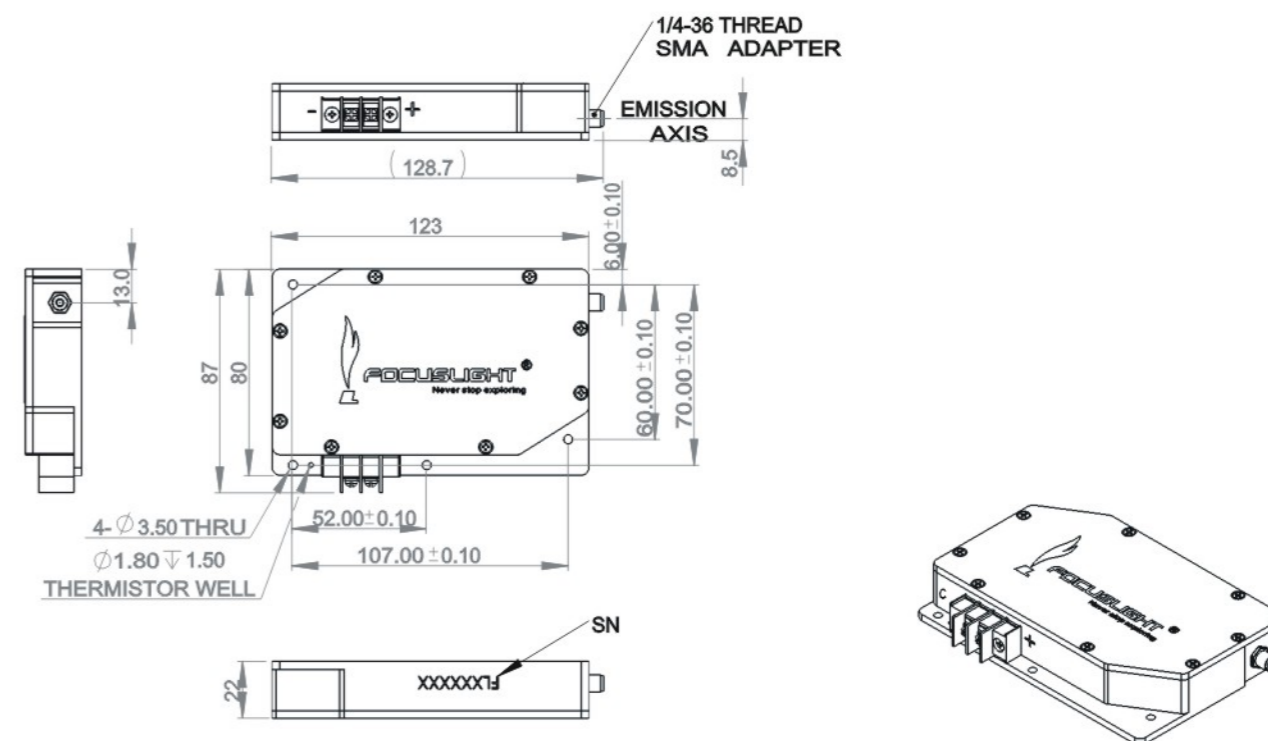
³Data at 25°C temperature, unless otherwise stated.

⁴A non-condensing environment is required for storage and operation below ambient dew point.

⁵Fiber length can be specified by customer.

⁶If there are any other requirements, please contact us.

Device Dimension (mm)



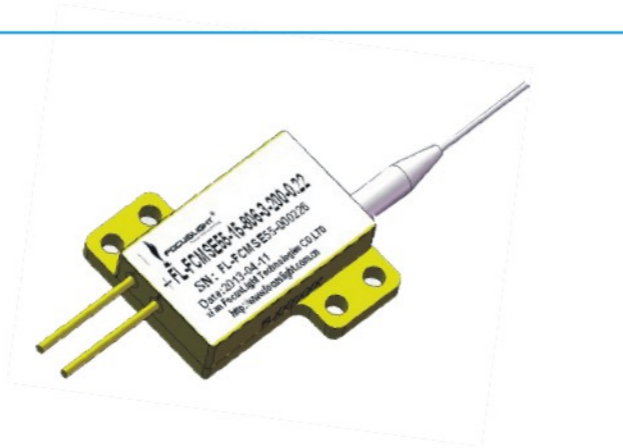
This structure drawing is only for FCMSE02. For any other special requirement, please contact Focuslight for details.

Fiber Coupled Multiple Single Emitter FCMSE55 Series (CW)

多单管光纤耦合FCMSE55系列

Features

- 1064nm feedback protection
- High brightness, 25W out of 105um fiber
- High power conversion efficiency, ~50%
- Optimized design for better thermal management



Specification

Module Type ¹	Units	FL-FCMSE55-15-808	FL-FCMSE55-25-915	FL-FCMSE55-25-940	FL-FCMSE55-25-976
Optical^{2,3}					
Center Wavelength λ	nm	808	915	940	976
Wavelength Tolerance	nm	± 5	± 5	± 5	± 5
Output Power ²	W	15	25	25	25
Spectral Width FWHM	nm	≤ 3	≤ 6	≤ 6	≤ 6
TYP NA(90% Energy)	-	0.18TYP	0.18TYP	0.18TYP	0.18TYP
Feedback Protection(1040nm-1100nm)	dB	30	30	30	30
Fiber Parameters					
Fiber Numerical Aperture	NA	0.22	0.22	0.22	0.22
Fiber Core Diameter	μm	200	105	105	105
Fiber length ⁵	m	1.5	1.5	1.5	1.5
Electrical Parameters^{3,6}					
Operating Current I_{op}	A	≤ 7	≤ 10.5	≤ 10.5	≤ 10.5
Threshold Current I_{th}	A	≤ 1.8	≤ 0.7	≤ 0.7	≤ 0.7
Operating Voltage V_{op}	V	≤ 7	≤ 6	≤ 6	≤ 6
Slope Efficiency	W/A	≥ 2.0	≥ 2.3	≥ 2.3	≥ 2.3
Power Conversion Efficiency	%	≥ 38	≥ 45	≥ 45	≥ 45
Thermal Parameters					
Operating Temperature	$^{\circ}\text{C}$	15-30	15-30	15-30	15-30
Storage Temperature ⁴	$^{\circ}\text{C}$	-20-80	-20-80	-20-80	-20-80
Recommended Heatsink Capacity	W	≥ 35	≥ 35	≥ 35	≥ 35

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight) FCMSE55(structure code) -25(output power) -915(center wavelength).

²Reduced lifetime if used above nominal operating conditions.

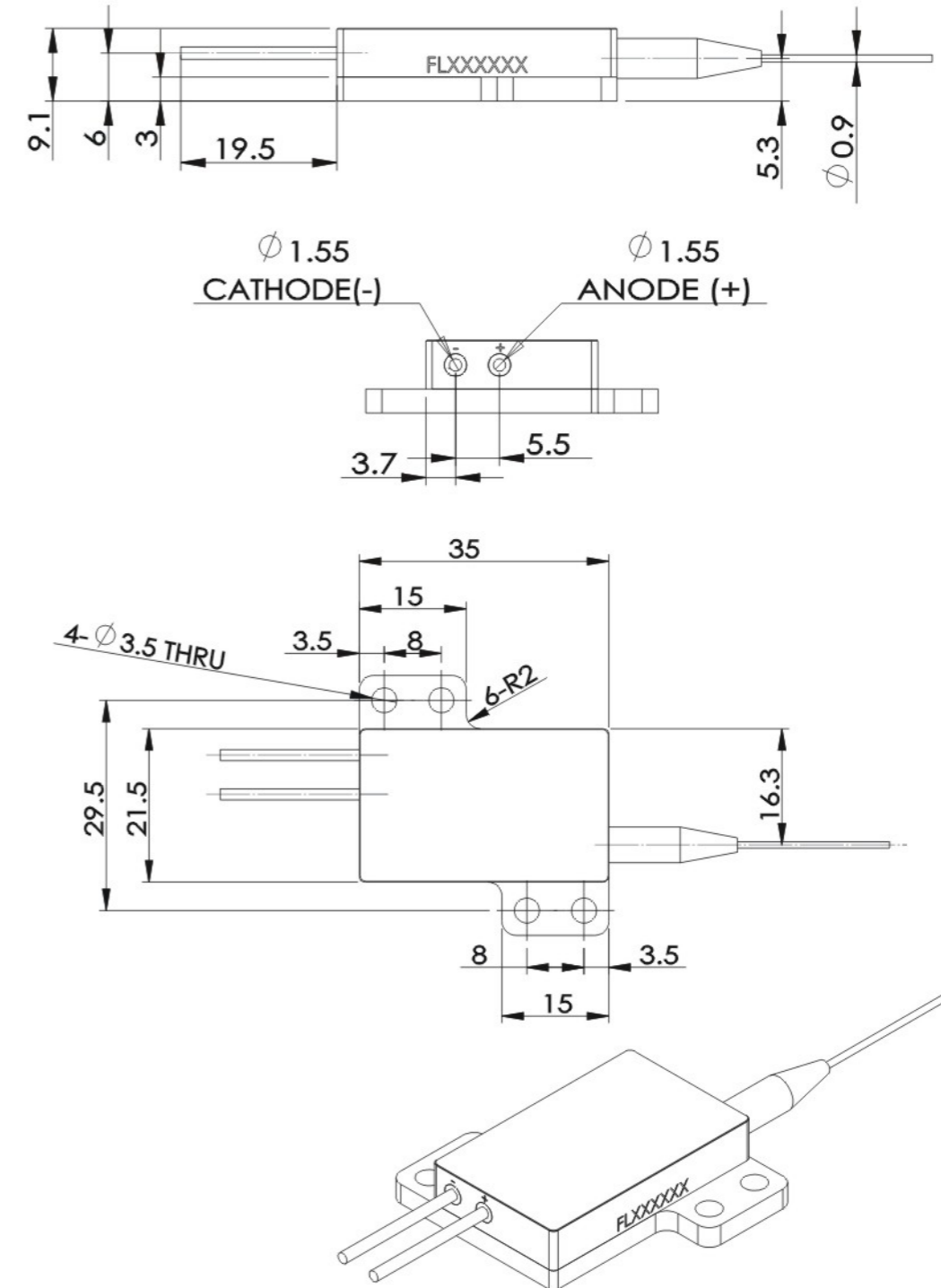
³Data at 25 $^{\circ}\text{C}$ temperature, unless otherwise stated.

⁴A non-condensing environment is required for storage and operation below ambient dew point.

⁵Fiber length can be specified by customer.

⁶If there are any other requirements, please contact us.

Device Dimension (mm)



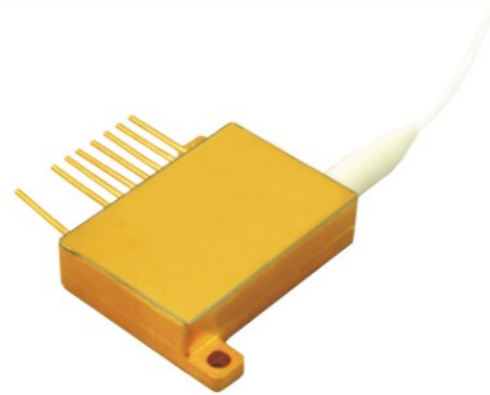
This structure drawing is only for FCMSE55. For any other special requirement, please contact Focuslight for details.

Fiber Coupled Multiple Single Emitter FCMSE56 Series (CW)

多单管光纤耦合FCMSE56系列

Features

- Multi-wavelength available
- High power conversion efficiency, ~50%
- Condensation prevention package design
- Integrated PD, aiming beam, TEC and thermistor



Specification

Module Type ¹	Units	FL-FCMSE56 -12-808	FL-FCMSE56 -16-915	FL-FCMSE56 -16-940	FL-FCMSE56 -16-976
Optical^{2,3}					
Center Wavelength λ	nm	808	915	940	976
Wavelength Tolerance	nm	± 5	± 5	± 5	± 5
Output Power ²	W	12	16	16	16
Spectral Width FWHM	nm	≤ 4	≤ 5	≤ 5	≤ 5
Wavelength Temp. Coefficient	nm/°C	~ 0.28	~ 0.32	~ 0.33	~ 0.34
Fiber Parameters					
Fiber Numerical Aperture	NA	0.22	0.22	0.22	0.22
Fiber Core Diameter	μm	200	200	200	200
Connector Type	-	SMA905 or FC	SMA905 or FC	SMA905 or FC	SMA905 or FC
Fiber length ⁵	m	1.5	1.5	1.5	1.5
Electrical Parameters^{3,6}					
Operating Current I_{op}	A	≤ 8.5	≤ 9.5	≤ 9.5	≤ 9.5
Threshold Current I_{th}	A	≤ 1.8	≤ 0.7	≤ 0.7	≤ 0.7
Operating Voltage V_{op}	V	≤ 4	≤ 4	≤ 4	≤ 4
Slope Efficiency	W/A	≥ 1.5	≥ 1.5	≥ 1.5	≥ 1.5
Power Conversion Efficiency	%	≥ 40	≥ 50	≥ 50	≥ 50
PD parameters	mA	0-3	0-3	0-3	0-3
Thermistor Parameters	(K Ω)/ β (25°C)	10 \pm 0.5%/3862	10 \pm 0.5%/3862	10 \pm 0.5%/3862	10 \pm 0.5%/3862
Red Aiming Beam Parameters	mA	≤ 40 @2mW 650nm	≤ 40 @2mW 650nm	≤ 40 @2mW 650nm	≤ 40 @2mW 650nm
Thermal Parameters					
Operating Temperature	°C	15-30	15-30	15-30	15-30
Storage Temperature ⁴	°C	-20-80	-20-80	-20-80	-20-80
Recommended Heatsink Capacity	W	≥ 20	≥ 20	≥ 20	≥ 20

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight) FCMSE56 (structure code) -10(output power) -915(center wavelength)

²Reduced lifetime if used above nominal operating conditions.

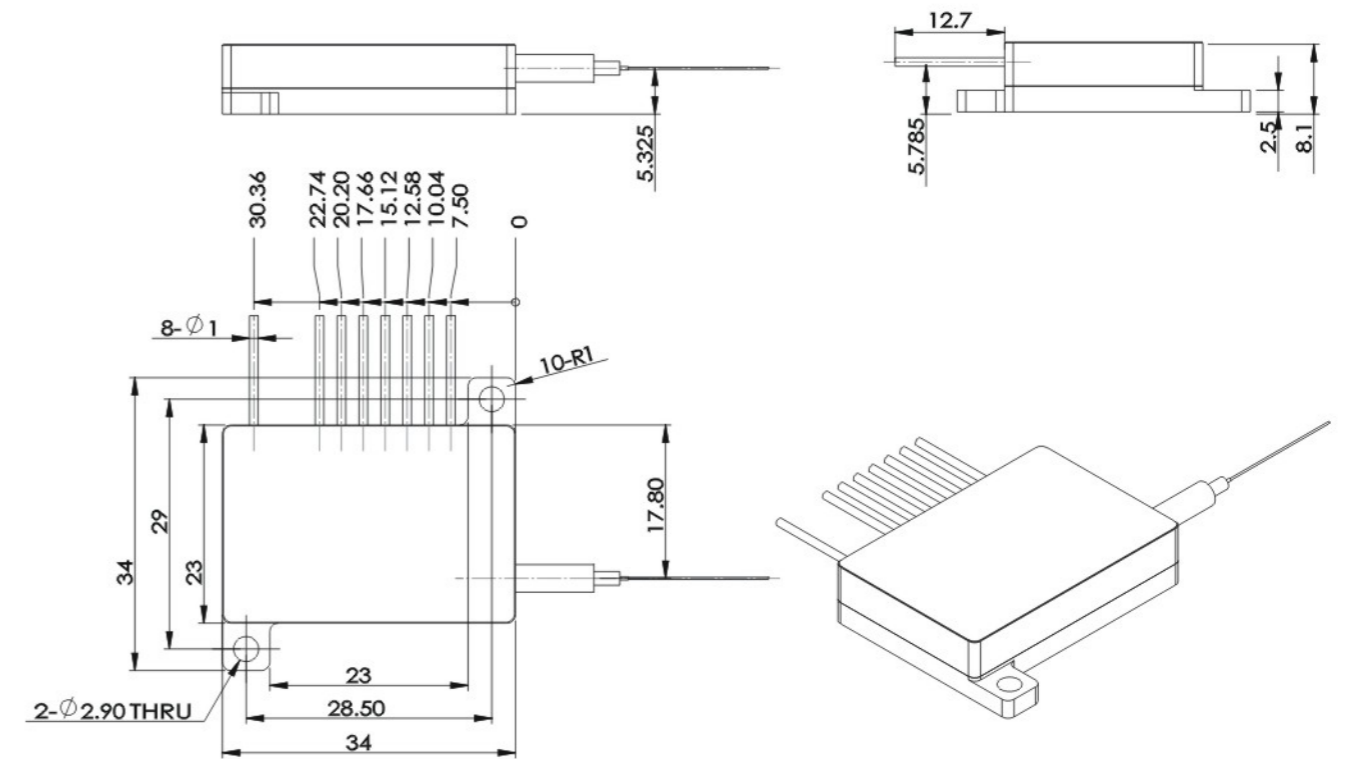
³Data at 25°C temperature, unless otherwise stated.

⁴A non-condensing environment is required for storage and operation below ambient dew point.

⁵Fiber length can be specified by customer. 0.9mm PBTP is available for standard products.

⁶If there are any other requirements, please contact us.

Device Dimension (mm)



This structure drawing is only for FCMSE56. For any other special requirement, please contact Focuslight for details.

Fiber Coupled Multiple Single Emitter FCMSE58 Series (CW)

多单管光纤耦合FCMSE58系列

Features

- Power upto 30W with 200um fiber core
- High power conversion efficiency, ~50%
- Single emitter based laser diode module
- Integrated PD, aiming beam, thermistor and insert detection



Specification

Module Type ¹	Units	FL-FCMSE58-25-808	FL-FCMSE58-30-976
Optical^{2,3}			
Center Wavelength λ	nm	808	976
Wavelength Tolerance	nm	± 3	± 5
Output Power ²	W	25	30
Spectral Width FWHM	nm	≤ 4	≤ 6
Wavelength Temp. Coefficient	nm/°C	~ 0.28	~ 0.34
Fiber Parameters			
Fiber Numerical Aperture	NA	0.17	0.17
Fiber Core Diameter	μm	200	200
Connector Type	-	SMA905	SMA905
Fiber length ⁵	m	1.5	1.5
Electrical Parameters^{3,6}			
Operating Current I_{op}	A	≤ 9	≤ 9
Threshold Current I_{th}	A	≤ 1.8	≤ 0.7
Operating Voltage V_{op}	V	≤ 8	≤ 8
Slope Efficiency	W/A	≥ 3.5	≥ 3.5
Power Conversion Efficiency	%	≥ 40	≥ 45
Operating Current I_{mo}	mA	0-5	0-5
Thermistor R_t	(K Ω)/ β (25°C)	10 \pm 0.5%/3862	10 \pm 0.5%/3862
Red Aiming Beam Parameters	mA	≤ 40 @2mW 650nm	≤ 40 @2mW 650nm
Thermal Parameters			
Operating Temperature	°C	15-30	15-30
Storage Temperature ⁴	°C	-20-80	-20-80
Recommended Heatsink Capacity	W	≥ 40	≥ 40

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight) FCMSE58 (structure code) -10(output power) -915(center wavelength)

²Reduced lifetime if used above nominal operating conditions.

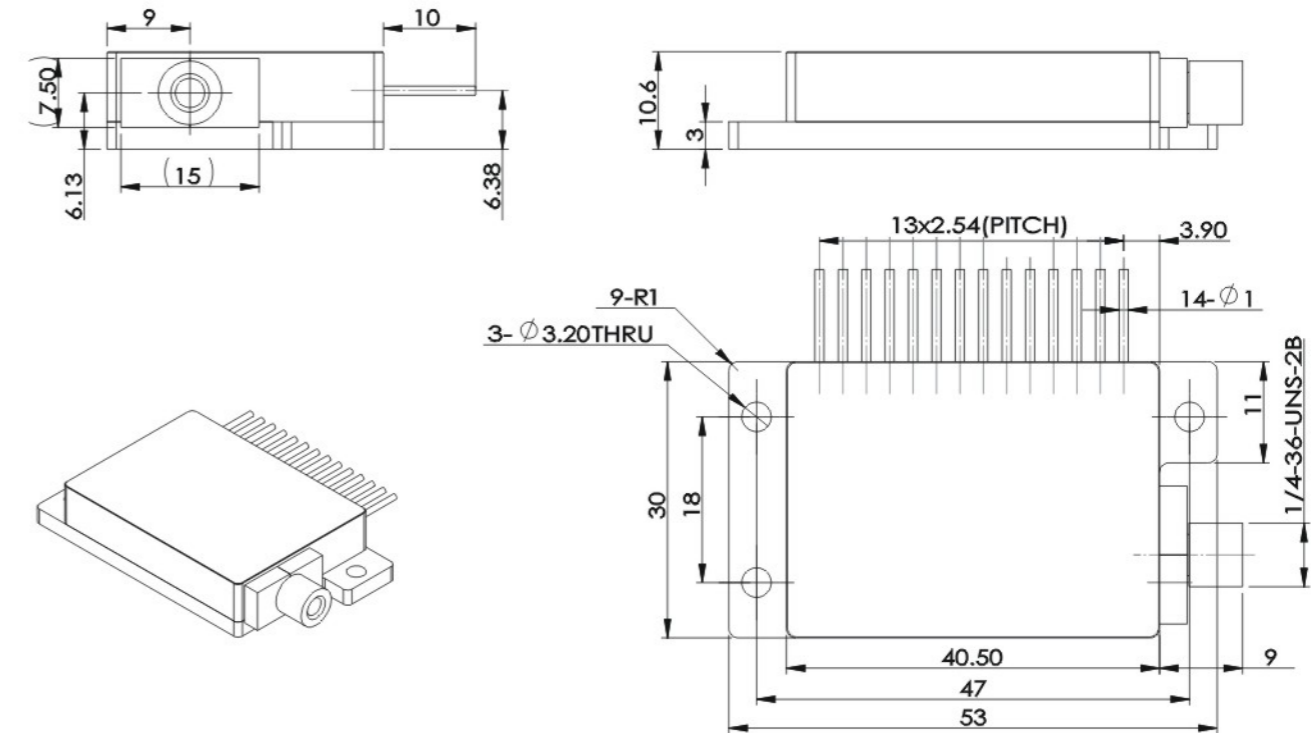
³Data at 25°C temperature, unless otherwise stated.

⁴A non-condensing environment is required for storage and operation below ambient dew point.

⁵Fiber length can be specified by customer. 0.9mm PBTP is available for standard products.

⁶If there are any other requirements, please contact us.

Device Dimension (mm)



This structure drawing is only for FCMSE58. For any other special requirement, please contact Focuslight for details.

Fiber Coupled Single Bar Diode Laser (CW)

单Bar光纤耦合FCSB系列(连续)

Features

- Long lifetime
- High power
- High stability
- High coupling efficiency
- Parallel seam sealing



Specification

Module Type ¹	Units	FL-FCSB01-30-808
Optical^{2,3}		
Center Wavelength λ	nm	808
Wavelength Tolerance	nm	± 3
Output Power ²	W	30
Spectral Width FWHM	nm	≤ 3
Spectral Width FW90%E	nm	≤ 6
Polarization Mode	-	TE
Wavelength Temp. Coefficient	nm/°C	-0.28
Fiber Parameters		
Numerical Aperture	NA	0.15
Fiber Core/Cladding Diameter	μm	800
Connector Type	-	SMA905
Fiber Length	m	1
Electrical Parameters^{3,4}		
Operating Current I_{op}	A	≤ 43
Threshold Current I_{th}	A	≤ 10
Operating Voltage V_{op}	V	≤ 2
Slope Efficiency	W/A	≥ 0.85
Power Conversion Efficiency	%	≥ 40
Thermal Parameters		
Operating Temperature	°C	15-30
Storage Temperature ⁴	°C	0-55
Recommended Thermal Dissipation Capacity	W	≥ 50

¹Explanation for the name of Module Type: FL(abbreviation of Focuslight)-FCSB01(structure code)-30(output power)-808(center wavelength).

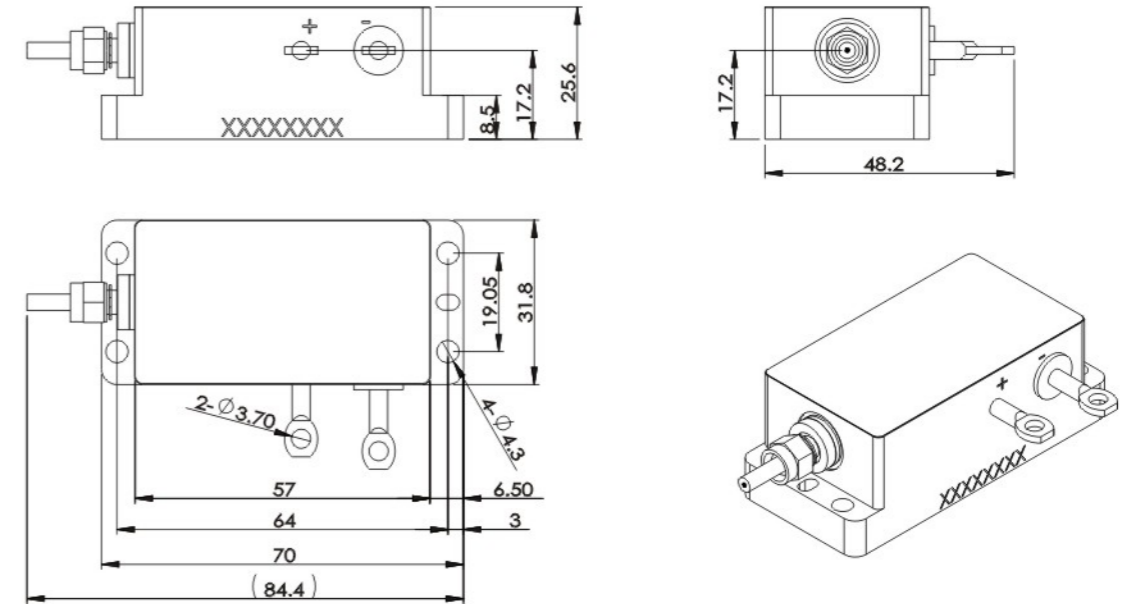
²Reduced lifetime if used above nominal operating conditions.

³Data at 25°C temperature, unless otherwise stated.

⁴A non-condensing environment is required for storage and operation below ambient dew point.

If there are any other requirements, please contact us.

Device Dimension (mm)



This structure drawing is only for FCSB01. For any other special requirement, please contact Focuslight for details.

Fiber Coupled Single Bar Diode Laser (CW)

单Bar光纤耦合FCSB系列(连续)

Features

- Long lifetime
- High power
- High stability
- High coupling efficiency



Specification

Module Type ¹	Units	FL-FCSB04 -30-792	FL-FCSB04 -40-792	FL-FCSB04 -30-808	FL-FCSB04 -40-808	FCSB04 -50-808	FL-FCSB04 -30-976	FL-FCSB04 -40-976	FCSB04 -50-9XX
Optical^{2,7}									
Center Wavelength λ	nm	792	792	808	808	808	976	976	9XX (915/976)
Wavelength Tolerance	nm	± 3	± 3	± 3	± 3	± 3	± 5	± 5	± 5
Output Power ²	W	30	40	30	40	50	30	40	50
Spectral Width (FWHM)	nm	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
Spectral Width (FW90%E)	nm	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
Wavelength Temp. Coefficient	nm/°C	~ 0.28	~ 0.28	~ 0.28	~ 0.28	~ 0.28	~ 0.34	~ 0.34	$\sim 0.32/0.34$
Fiber Parameters									
Numerical Aperture	NA	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Fiber Core/Cladding Diameter	μm	200 or 400	200 or 400	200 or 400	400	400	200 or 400	400	400
Connector Type ⁸	-	SMA905	SMA905	SMA905	SMA905	SMA905	SMA905	SMA905	SMA905
Fiber Length	m	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Electrical Parameters^{2,7}									
Operating Current I_{op}	A	≤ 45	≤ 55	≤ 45	≤ 55	≤ 70	≤ 45	≤ 55	≤ 65
Threshold Current I_{th}	A	≤ 15	≤ 15	≤ 9	≤ 9	≤ 15	≤ 7	≤ 7	≤ 8
Operating Voltage V_{op}	V	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
Slope Efficiency	W/A	≥ 0.85	≥ 0.85	≥ 0.8	≥ 0.8	≥ 0.8	≥ 0.85	≥ 0.85	≥ 0.85
Power Conversion Efficiency	%	≥ 40	≥ 40	≥ 35	≥ 35	≥ 35	≥ 40	≥ 40	≥ 40
Thermal Parameters									
Operating Temperature	°C	15-30							
Storage Temperature ⁴	°C	0-55							
Recommended Thermal Dissipation Capacity	W	≥ 60	≥ 100	≥ 60	≥ 100	≥ 120	≥ 60	≥ 100	≥ 120

¹Explanation for the name of Module Type: FL (abbreviation of Focuslight) -FCSB04 (structure code) -30 (output power) -808 (center wavelength).

²Reduced lifetime if used above nominal operating conditions.

³Data at 20°C temperature, unless otherwise stated.

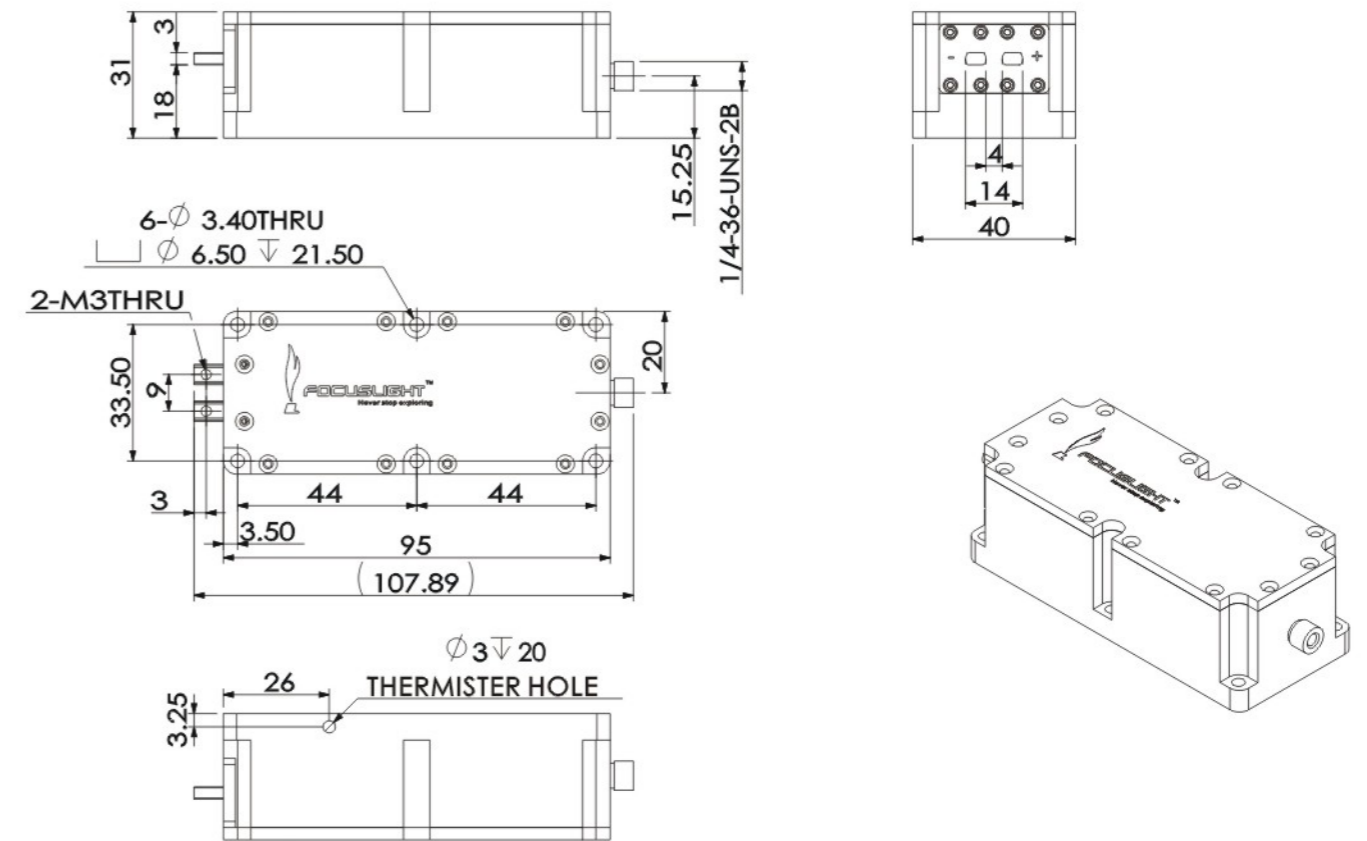
⁴A non-condensing environment is required for storage and operation below ambient dew point.

⁵Fiber length can be specified by customer.

⁶Can be with or without fiber connector.

⁷If there are any other requirements, please contact us.

Device Dimension (mm)



This structure drawing is only for FCSB04. For any other special requirement, please contact Focuslight for details.

Diode Laser Surface Treatment Systems

半导体激光表面处理系统

Features

- Reliable output protection
- Compact size & light weight
- High reliability & long lifetime
- High working efficiency & processing quality



Specification

Module Type ¹	Units	FL-Dlight-2000-976	FL-Dlight-3000-976	FL-Dlight-4000-976
Optical^{2,3}				
Center Wavelength λ	nm	976	976	976
Wavelength Tolerance	nm	± 10	± 10	± 10
Output Power ⁴	W	2000	3000	4000
Beam Size ⁴	mm	4×4	2.5×11.5	2.5×11.5
Working Distance	mm	300 \pm 10	300 \pm 10	300 \pm 10
Electrical^{2,3}				
Threshold Current I_{th}	A	≤ 3.5	≤ 17	≤ 17
Operating Current I_{op}	A	≤ 55	≤ 110	≤ 110
Operating Voltage V_{op}	V	≤ 80	≤ 65	≤ 80
Cooling Parameters				
Input	W	220V AC,4.5kW	220V AC,4.5kW	220V AC,4.5kW
Coolant	-	Delonized water	Delonized water	Delonized water
Resistivity	M Ω *cm	≥ 0.2	≥ 0.2	≥ 0.2
Thermal Parameters				
Operating Temperature	°C	5~45	5~45	5~45
Storage Temperature ⁵	°C	-10~60	-10~60	-10~60

¹Reduced lifetime if used above nominal operating conditions.

²Data at 25°C temperature, unless otherwise stated.

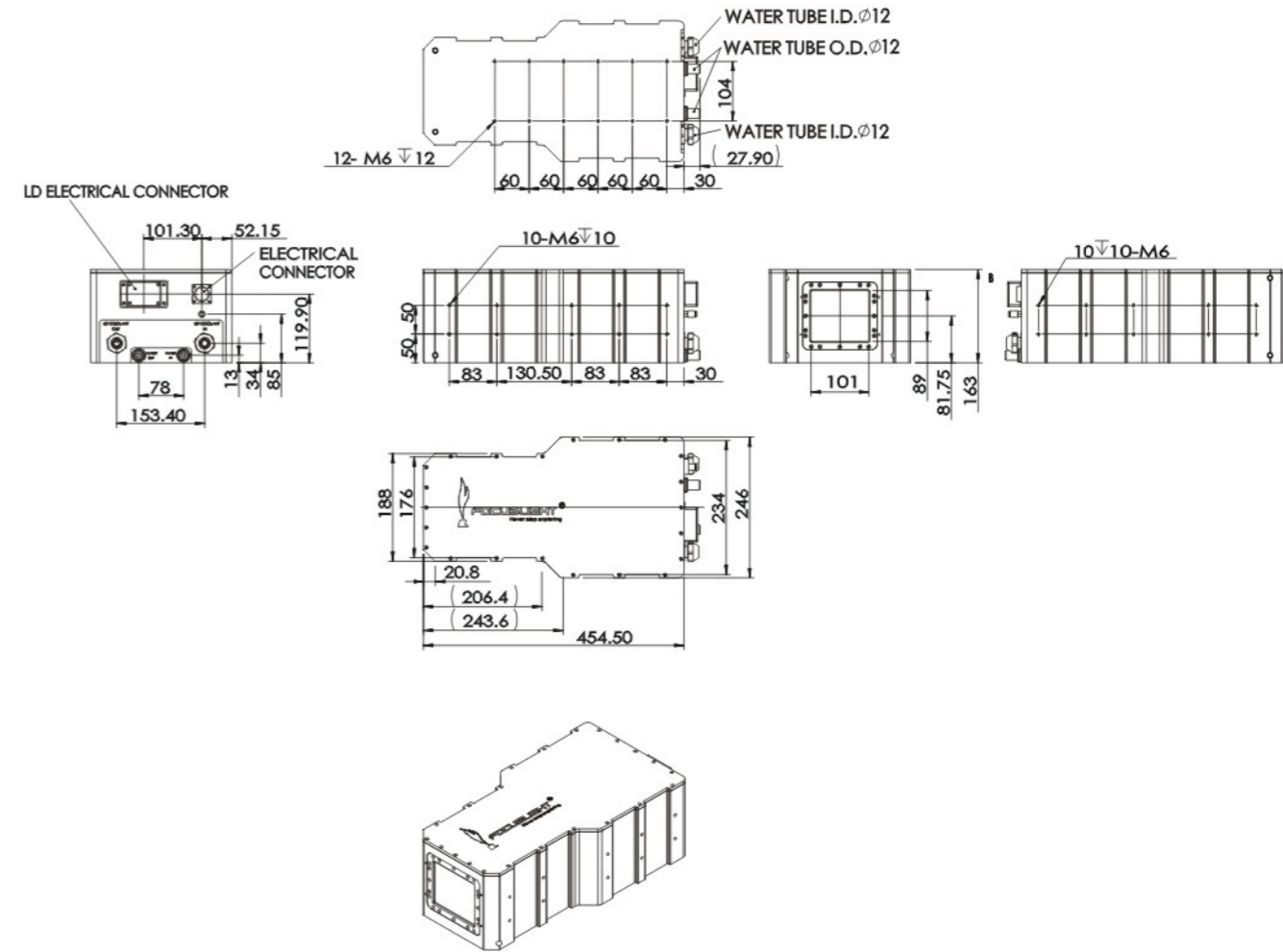
³A non-condensing environment is required for storage and operation below ambient dew point.

⁴Beam size can be specified by customer.

⁵Other configurations or power levels could be available upon request. If there are any other requirements, please contact us.

*Water should be blew out immediately after operation when temperature is below freezing point.

Device Dimension (mm)



This structure drawing is only for reference. For any other special requirement, please contact Focuslight for details.

Fiber Patchcord

光纤跳线

Features

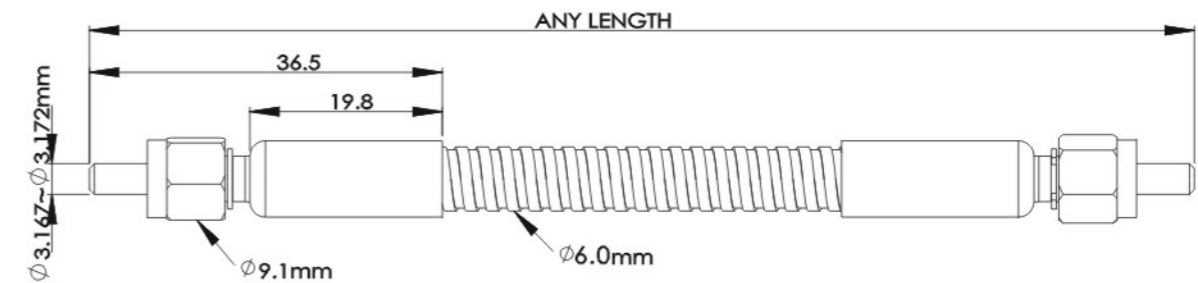
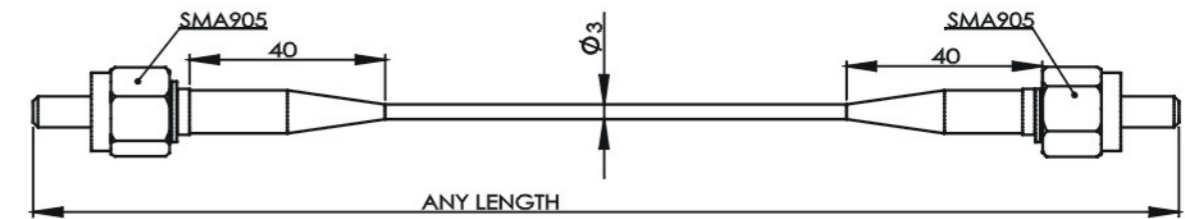
- Free standing fiber tip
- High concentricity
- High reliability
- High stability



Specification

Module Type	Units	FL-HTFP01 -105/125 FL-HTFP03 -105/125	FL-HTFP02 -200/220 FL-HTFP03 -200/220	FL-HTFP02 -200/240 FL-HTFP03 -200/240	FL-HTFP01-400/440 FL-HTFP02-400/440 FL-HTFP03-400/440	FL-HTFP02 -800/880 FL-HTFP03 -800/830
Connector Type	-	SMA905; FC (Customized)	SMA905; FC (Customized)	SMA905; FC (Customized)	SMA905; FC (Customized)	SMA905; FC (Customized)
Ferule Diameter	mm	3.16~3.17	3.16~3.17	3.16~3.17	3.16~3.17	3.16~3.17
Outer Diameter	mm	4.5	9.1	9.1	9.1	9.1
Cable Diameter	mm	0.9; 3.0 PBTP	6.0; 3.0 PBTP	6.0; 3.0 PBTP	0.9; 6.0; 3.0 PBTP	6.0; 3.0 PBTP
Fiber Length	m	customized	customized	customized	customized	customized
Numerical Aperture	NA	0.15±0.02	0.22±0.02	0.12±0.02	0.22±0.02	0.22±0.02
Core Diameter	μm	105±3	200±3	200±3	400±5	800±5
Cladding Diameter	μm	125±3	220±3	240±3	440±10	880±10; 830±10
Centricity	μm	<6	<6	<6	<6	<6

Device Dimension (mm)



This structure drawing is only for reference. For any other special requirement, please contact Focuslight for details.