Sintec Optronics

Laser Diode Chips, Bars & Stacks

Laser diode chips, bars & stacks are the key components in laser pumping, industrial laser processing and advanced machining. We can provide various chips, bars and stacks in the wavelengths 0.75-1.06um, single emitters and chips at single mode and multi-mode, a few hundred watts, COS/COC/MCC packages. Customized products are available upon request. These products are widely used in laser industrial material processing, medical application, communications, safety protection, intelligent sensing, and scientific research.

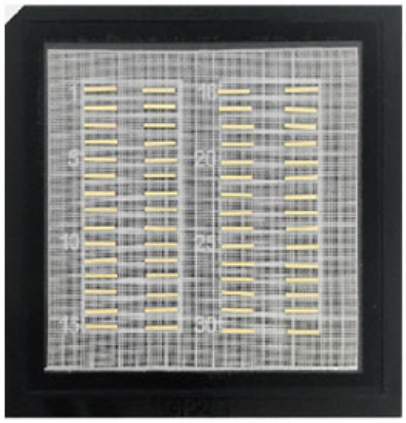
1. Laser Chip/bars

1.1 STD Series Laser Chips & Bars

Features:
- High output power
- High electrical-optical conversion efficiency
- High brightness
- High reliability

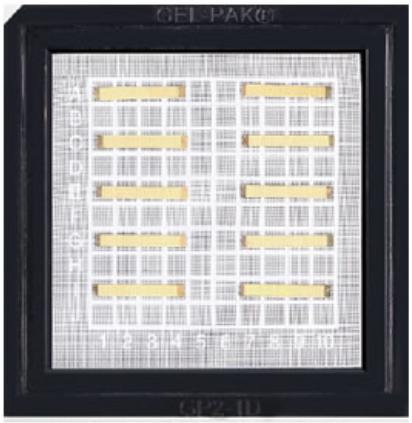
Technical Advantages:
- High efficient epitaxial structure design
- High-quality epitaxial material growth
- Special passivation method for cavity surface

STD Series Chips/Bars



808nm 12W Chip

940nm 120W CW Bar



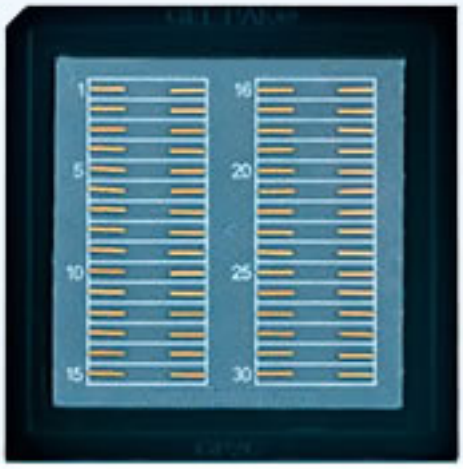
808nm 300W QCW Bar

Part number	Wavelength	Power	Operation current/voltage	Remark
STD-UMC-100-808-TE-6-4.0	808nm	6W	10.5A/1.75V	CW single chip
STD-UMC-190-808-TE-12-4.0	808nm	12W	10.5A/1.75V	CW single chip
STD-UMC-100-915-TE-12-4.5	915nm	12W	10.5A/1.62V	CW single chip
STD-UMC-160-915-TE-18-5.0	915nm	18W	17.5A/1.65V	CW single chip
STD-UMC-190-915-TE-22-5.0	915nm	22W	20.0A/1.68V	CW single chip
STD-UMC-230-915-TE-25-5.0	915nm	25W	24.5A/1.70V	CW single chip
STD-UMC-100-945-TE-12-4.5	945nm	12W	11.5A/1.70V	CW single chip
STD-UMC-160-945-TE-18-5.0	945nm	18W	17.5A/1.70V	CW single chip
STD-UMC-190-945-TE-22-5.0	945nm	22W	21.5A/1.70V	CW single chip
STD-UMC-230-945-TE-25-5.0	945nm	25W	25.0A/1.70V	CW single chip
STD-UMC-100-975-TE-12-4.5	975nm	12W	12.5A/1.52V	CW single chip
STD-UMC-100-975-TE-15-4.5	975nm	15W	16.0A/1.55V	CW single chip
STD-UMC-190-975-TE-22-5.0	975nm	22W	23.5A/1.55V	CW single chip
STD-UMC-230-975-TE-25-5.0	975nm	25W	27.0A/1.55V	CW single chip
STD-UMC-230-975-TE-30-5.5	975nm	30W	33.0A/1.55V	CW single chip
STD-UMB-30-19-808-TE-50-1.5	808nm	50W	42.0A/1.80V	CW bar
STD-UMB-50-47-808-TE-100-1.5	808nm	100W	92.0A/1.80V	CW bar
STD-UMB-50-47-940-TE-120-2.0	940nm	120W	115A/1.65V	CW bar
STD-UMB-50-47-976-TE-200-4.0	976nm	200W	195A/1.55V	CW bar
STD-UMB-75-37-808-TE-300-1.5	808nm	300W	250A/2.00V	QCW bar

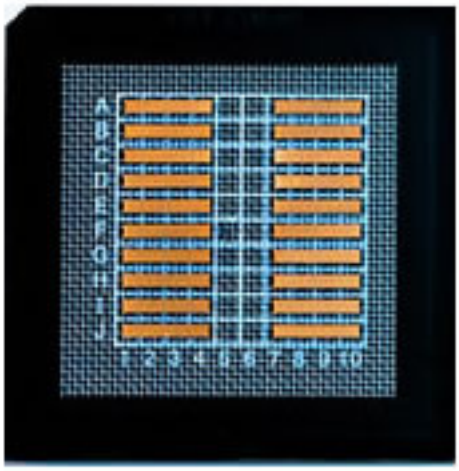
1.2 STL Series Laser Chips & Bars

Sintec Optronics

- High electrical-optical conversion efficiency
- >20000 hours lifetime
- Customized products available
- Short lead time
- Quick response



STL series chips



STL Series bars

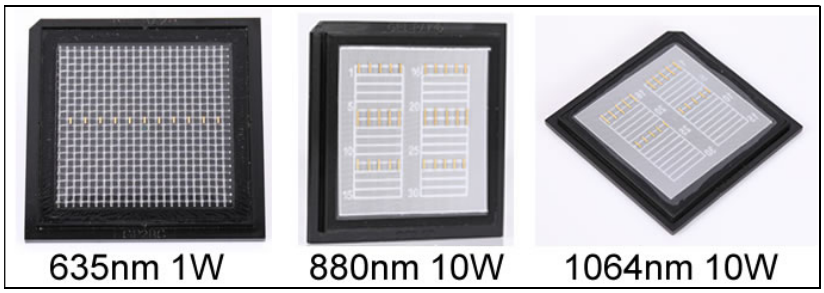
Part number	Wavelength	Structure	Operation	Power	Operation current/voltage
STL-UMC-190-915-TE-18-4.0	915nm	Single chip	CW	18W	19.5A/1.8V
STL-UMC-95-915-TE-10-4.0	915nm	Single chip	CW	10W	11A/1.7V
STL-UMC-28-915-TE-0.5-0.5	915nm	Single chip	CW	500mW	0.55A/2V
STL-UMC-200-905-TE-75-1.0	905nm	Single chip	QCW	75W	30A/6.3V
STL-UMC-135-905-TE-50-1.0	905nm	Single chip	QCW	50W	23A/6.3V
STL-UMC-70-905-TE-25-1.0	905nm	Single chip	QCW	25W	10A/6.3V
STL-UMC-28-896-TE-0.5-1.0	896nm	Single chip	CW	0.5W	0.55A/1.8V
STL-UMC-200-880-TE-10-4.0	880nm	Single chip	CW	10W	10A/1.65V
STL-UMC-100-880-TE-6-4.0	880nm	Single chip	CW	6W	6.5A/1.65V
STL-UMC-47-830-TE-2.0-2.0	830nm	Single chip	CW	2W	2A/1.8V
STL-UMC-200-808-TE-10-4.0	808nm	Single chip	CW	10W	10A/1.75V
STL-UMC-390-808-TE-10-2.0	808nm	Single chip	CW	10W	10A/1.75V
STL-UMC-200-808-TE-8-4.0	808nm	Single chip	CW	8W	8.5A/1.75V
STL-UMC-200-808-TE-5-2.0	808nm	Single chip	CW	5W	4.8A/1.75V
STL-UMC-100-808-TE-3-2.0	808nm	Single chip	CW	3W	2.8A/1.75V
STL-UMC-100-785-TE-2-2.0	785nm	Single chip	CW	2W	2.2A/1.75V
STL-UMC-190-976-TE-20-4.0	976nm	Single chip	CW	20W	23A/1.8V
STL-UMC-95-976-TE-12-4.0	980nm	Single chip	CW	12W	13A/1.75V
STL-UMC-95-976-TE-12-4.0-D2	976nm	Single chip	CW	12W	13A/1.65V
STL-UMC-190-940-TE-20-4.0	940nm	Single chip	CW	20W	23A/1.8V
STL-UMC-95-940-TE-12-4.0	940nm	Single chip	CW	12W	13A/1.75V
STL-UMC-390-808-TE-10-2.0	808nm	Single chip	CW	10W	10A/1.75V
STL-UMC-100-785-TE-2-2.0	785nm	Single chip	CW	2W	2.2A/1.75V
STL-UMB-10-5-976-TE-40-4.0	976nm	bar	CW	40W	41A/1.6
STL-UMB-80-37-940-TE-1000-4.0	940nm	bar	QCW	1000W	550A/3.6V
STL-UMB-35-24-940-TE-200-3.0	940nm	bar	QCW	200W	212A/1.65V
STL-UMB-75-60-808-TE-500-1.5	808nm	bar	QCW	500W	460A/2.1V
STL-UMB-75-30-808-TE-150-1.5	808nm	bar	QCW	150W	145A/1.9V
STL-UMB-50-47-808-TE-100-1.5	808nm	bar	CW	100W	105A/1.8V
STL-UMB-50-47-808-TE-60-1.0	808nm	bar	CW	60W	63A/1.8V
STL-UMB-50-47-808-TE-100-1.5-2	808nm	bar	CW	100W	100A/1.8V
STL-UMB-75-30-808-TE-150-1.5	808nm	bar	QCW	150W	145A/1.9V
STL-UMB-75-60-808-TE-300-1.5	808nm	bar	QCW	300W	280A/1.9V
STL-UMB-75-60-808-TE-300-1.5-D1	808nm	bar	QCW	300W	280A/1.9V

STL-UMB-75-60-808-TE-200-1.0	808nm	bar	QCW	200W	190A/1.9V
STL-UMB-30-19-808-TE-50-1.0	808nm	bar	CW	50W	48.5A/1,8v

1.3 STR Series Diode Chips/bars

Single Emitter

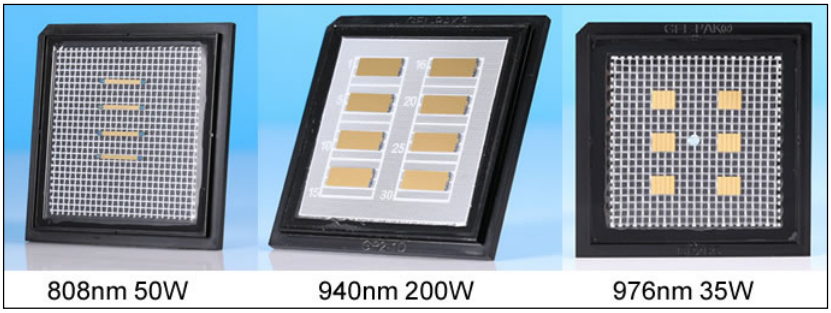
Single-emitter laser diode (SE) chips are the basic built block for high-power and high-brightness semiconductor laser modules. We manufacture single chips with a variety of output powers and wavelengths.



Part number	Wavelength, nm	Output power	Current/voltage	Emitting width, um	Divergence, deg	Size, um
STR--638A-110-1-1.5-SE	638	1W	1.4A/2.1V	110	8/35	1500x400x150
STR-755A-350-8-2.5-SE	755	8W	8A/1.9V	350	9/38	2500x500x150
STR--808A-150-3-1-SE	808	3W	3A/1.9V	150	8/24	1000x500x150
STR--808A-190-10-4-SE	808	10W	10A/1.8V	190	10/38	4000x500x150
STR--808A-350-10-2.5-SE	808	10.5W	10A/1.8V	350	8/36	2500x500x150
STR--880A-190-10-4-SE	880	10W	12A/1.8V	190	8/32	2500x500x150
STR--880A-350-10-2.5-SE	880	9.8W	10A/1.8V	350	8/34	2500x500x150
STR--905A-74-25-0.75-SE	905	25W	7A/7.2V	74	13/30	750x400x150
STR--905A-150-50-0.75-SE	905	50W	14A/7.6V	150	12/31	750X400X150
STR-905A-200-75-0.75-SE	905	75W	20A/8.4V	200	12/30	750X400X150
STR--905B-200-25-0.75-SE	905	25W	20A/3.8V	200	14	750X600X150
STR--905-38-15-0.75-SE	905	15W	5A/9.2V	38	35/30	750X400X150
STR--905C-70-25-0.75-SE	905	25W	8A/8.2V	70	17/30	750X400X150
STR--905C-300-75-0.75-SE	905	75W	22A/9.5V	300	12/30	750x400x150
STR--905D-300-100-0.75-SE	905	100W	22A/11V	300	13/30	750x400x150
STR--915A-96-12-4.8-SE	915	12W	12A/1.6V	96	10/26	4800x500x150
STR--915A-190-20-4-SE	915	20W	20A/1.7V	190	10/26	4000x500x150
STR--940A-96-12-4.8-SE	940	12W	12A/1.6V	96	10/26	4800x500x150
STR--940A-190-20-4-SE	940	20W	20A/1.7V	190	10/26	4000x500x150
STR-976A-96-10-4.8-SE	976	10W	10A/1.8V	96	9/27	4000x500x150
STR--976A-96-12-4.8-SE	976	12W	12A/1.6V	96	10/26	4800x500x150
STR-976A-190-15-4-SE	976	15.5W	15A/1.6V	190	10/29	4000x500x150
STR--976A-190-20-4-SE	976	20W	20A/1.7V	190	10/26	4000x500x150
STR--1064A-190-10-4-SE	1064	10W	14A/0.9V	190	10/30	4000x500x150
STR--1064A-350-10-2.5-SE	1064	10W	13A/1.6V	350	10/29	2500x500x150
STR-1470A-96-1.5-1-SE	1470	1.5W	4A/1.4V	96	11/31	1000x500x150
STR--1470A-96-3-2-SE	1470	3W	9A/1.5V	96	11/28	2000x500x150
STR-1550A-96-1.5-1-SE	1550	1.5W	4A/1.4V	96	11/31	1000x500x150
STR--15500A-96-3-2-SE	1550	3W	9A/1.5V	96	11/28	2000x500x150

Bare Bars

Bare bar is an array of individual semiconductor laser chips, with combined output power from dozens of Watts to a few hundred Watts. Our proprietary facet passivation process ensures the reliability required by the most stringent applications.



In the following table, WL means wavelength, I/V means operation current/voltage, N means the numbers of emitters, P/width means period (um)/emitter width (um), L/W/T means length/width/thickness of the bar.

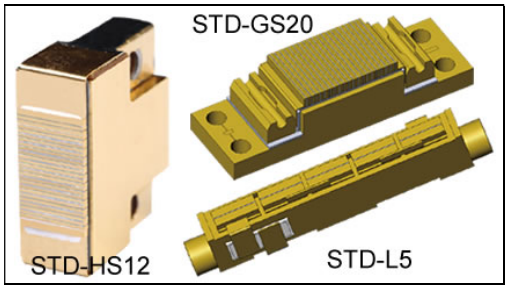
Part number	WL nm	Mode	Power	I/V	N	P/Width um	Filling	L/W/T um
STR-755A-48-80-23-1.5-BAR	755	QCW	80W	86A/1.9V	23	499/190	48%	1500x10000x150
STR-808A-30-50-19-1-BAR	808	CW	50W	45A/1.7V	19	500/150	30%	1000x98000x150
STR-808A-48-100-23-1.5-BAR	808	CW	100W	88A/1.75V	23	400/190	48%	1500x9800x150
STR-808A-72-300-34-1.5-BAR	808	QCW	300W	190A/1.85V	34	290/210	72%	1500x10000x150
STR-940A-30-100-19-2-BAR	940	CW	100W	95A/1.65V	19	500/150	30%	2000x10000x150
STR-940A-50-200-24-3-BAR	940	CW	200W	195A/1.63V	24	400/200	50%	3000x10200x150
STR-940A-76-600-40-2-BAR	940	QCW	600W	600A/1.8V	40	250/190	76%	2000x10400x150
STR-976A-10-35-5-4-BAR	976	CW	35W	35A/1.7V	5	1000/100	10%	4000x5000x150
STR-1470A-18-8-6-2-BAR	1470	CW	8W	24A/1.4V	6	400/96	18%	2000x3000x150

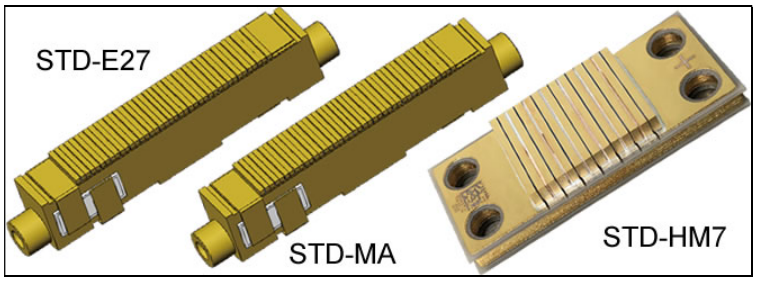
2. Pump Modules & Stacks

- AuSn hard solder packaging construction
- High duty cycle, high energy density
- Filtered water, alternative cooling fluids
- Small pitch, compact size
- Optional seal band optical waveguide assemble
- Optional fast collimation
- Used for laser pumping, hair removal etc.

2.1 STD Series Stacks (Pumping Modules & Hair Removal)

1. Pumping Modules





Part number	Structure	Laser power	Laser wavelength
STD-HS12	Macro channel stack	600W-16500W	760nm-1100nm
STD-GS20	Conduction cooling stack	4000W-1000W	760nm-1100nm
STD-L5	Macro channel horizontal stack	300W-3000W	760nm-1100nm
STD-E27	Macro channel stack	4000W-10000W	760nm-1100nm
STD-MA	Micro channel stack	2500W-15000W	760nm-1100nm
STD-HM7	Whole micro channel stack	700W-3500W	760nm-1100nm

(1) Macro channel stack STD-HS12

- AuSn hard solder packaging construction
- High duty cycle, high energy density
- Filtered water, alternative cooling fluids
- Small pitch, compact size
- Optional seal band optical waveguide assemble
- Optional fast collimation
- Used for laser pumping, hair removal etc.

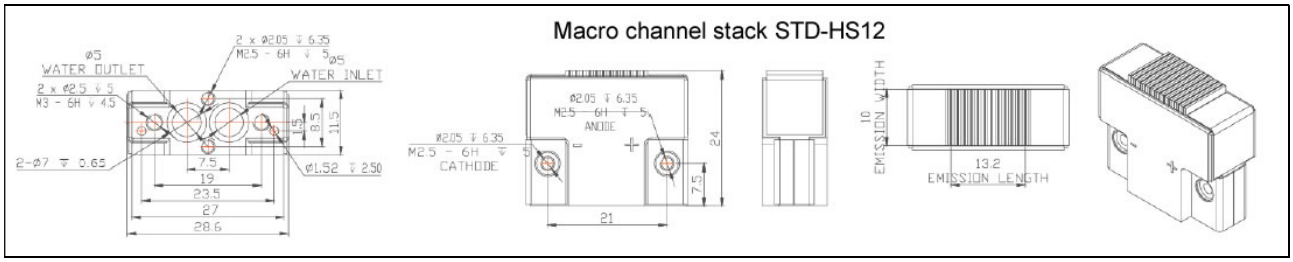
Wavelength	760-1100nm				
Peak power, W	600	1200	7200	10000	16500
Operation mode	QCW				
Operation current, A	50	95	550	450	450
Duty cycle up to, %	25	15	5	1	0.4
Number of bars	12	12	12	20	Up to 33
Bar to bar pitch, mm	1.2	1.2	1.2	0.93	0.4

Electric/optic conversion efficiency, %	58	Up to 60	56	56	56
Fast axis divergence FWHM, deg	35, optional FAC<4				35
Slow axis divergence FWHM. deg	10				
Dimension, mm	28.6x24x11.5mm				

Typical pulse energy:

Pulse width	Frequency (Hz)										Iop
	1	2	3	4	5	6	7	8	9	10	
10 ms	13	13	12.7	12.75	13	12.7	13	13	12.9	12.9	95A
20 ms	21	21	21.7	21.5	21.4	21.7	21	21.4	20	20.9	85A
30 ms	31	31.5	32	32	-	-	-	-	-	-	60A
40 ms	43	41	42	-	-	-	-	-	-	-	60A
50 ms	53	51	-	-	-	-	-	-	-	-	-
60 ms	61	59.5	-	-	-	-	-	-	-	-	-
70 ms	70	-	-	-	-	-	-	-	-	-	-
80 ms	50	-	-	-	-	-	-	-	-	-	-
90 ms	54	-	-	-	-	-	-	-	-	-	-
100ms	60	-	-	-	-	-	-	-	-	-	-

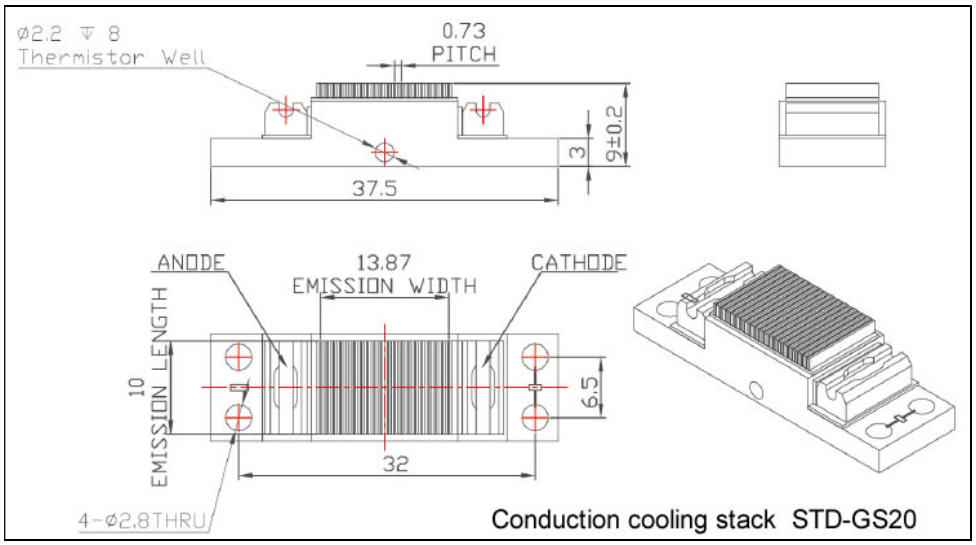
Remark: cooling water: T 25deg, flow rate 4.5-5.0L/min



(2) Conduction cooling stack STD-GS20

- AuSn hard solder packaging construction
- High power density
- Optional fast-axis collimation
- Small pitch, compact size
- Optional seal protection
- Multi-wavelength in a single array
- Used for laser pumping, hair removal etc.

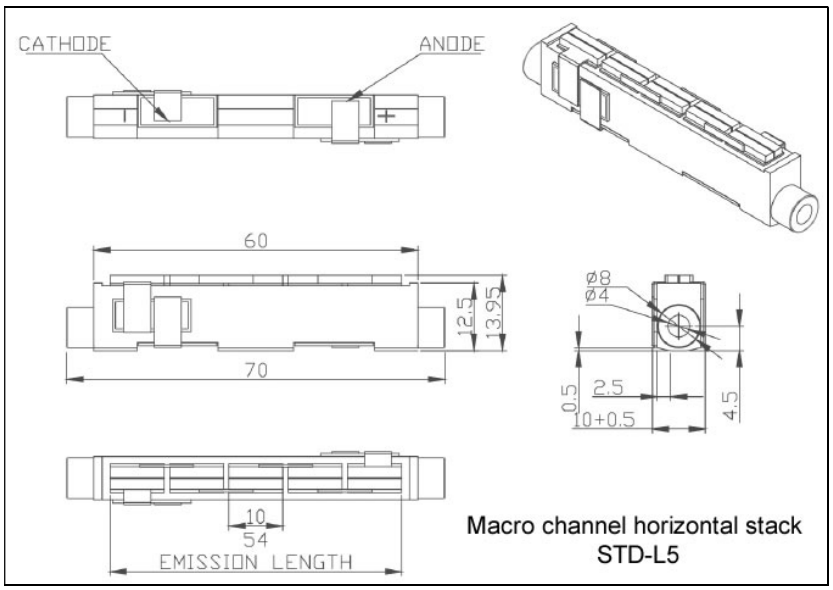
Wavelength	760-1100nm		
Peak power, W	4000	6000	10000
Operation mode	QCW	QCW	QCW
Operation current, A	200	280	450
Duty cycle up to, %	1.2	1	0.4
Pulse width, us	Up to 1000	600	200
Number of bars	20		
Bar to bar pitch, mm	0.73		
Electric/optic conversion efficiency, %	52	56	58
Fast axis divergence FWHM, deg	35, optional FAC < 4		
Slow axis divergence FWHM. deg	10		
Dimension, mm	37.5x10x9		



(3) Macro channel horizontal stack STD-L5

- AuSn hard solder packaging construction
- High power density
- Contact size
- Used for pumping

Wavelength	760-1100nm		
Peak power, W	300	1500	3000
Operation mode	CW	QCW	QCW
Operation current, A	55	280	550
Number of bars	5		
Bar to bar pitch, mm	0.73		
Electric/optic conversion efficiency, %	56	56	58
Fast axis divergence FWHM, deg	35		
Slow axis divergence FWHM. deg	10		
Dimension, mm	70x14x10		

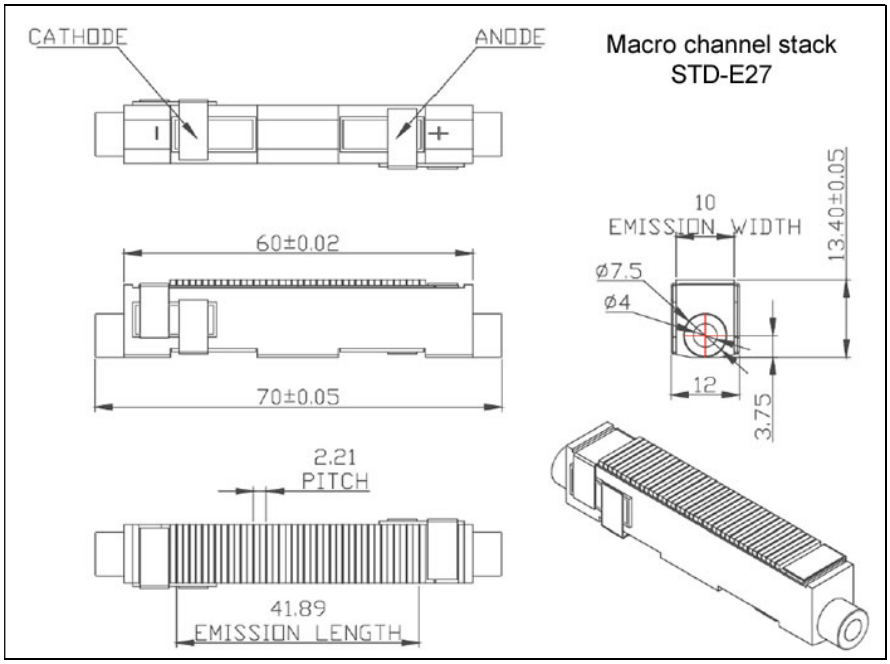


(4) Macro channel stack STD-E27

- AuSn hard solder packaging construction
- High power density
- Optional fast axis collimation
- Small pitch, compact size
- Optional seal protection
- Multi-wavelength in a single array

- Used for laser pumping

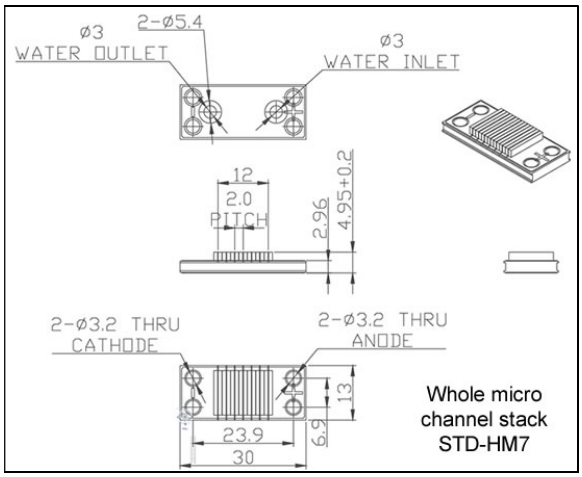
Wavelength	760-1100nm		
Peak power, W	4000	6000	10000
Operation mode	QCW	QCW	QCW
Operation current, A	200	280	450
Duty cycle up to, %	8	5	0.4
Pulse width, us	Up to 1000	600	200
Number of bars	20		
Bar to bar pitch, mm	2.21		
Electric/optic conversion efficiency, %	52	56	58
Fast axis divergence FWHM, deg	35, optional FAC < 4		
Slow axis divergence FWHM. deg	10		
Dimension, mm	37.5x12x13.4		



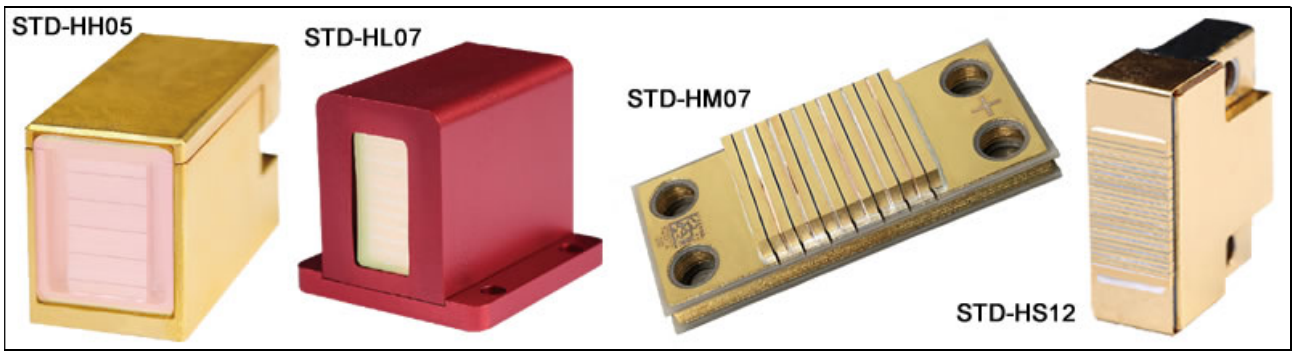
(5) Whole micro channel stack STD-HM7

- AuSn hard solder packaging construction
- High power density
- Narrow spectrum
- Filtered water, alternative cooling fluids
- Used for laser pumping & hair removal

Wavelength	760-1100nm		
Peak power, W	700	2100	3500
Operation mode	QCW	QCW	QCW
Operation current, A	100	280	450
Duty cycle up to, %	40	8	4
Pulse width, us	Up to 1000	600	200
Number of bars	7		
Bar to bar pitch, mm	2.0		
Electric/optic conversion efficiency, %	60	56	58
Fast axis divergence FWHM, deg	35		
Slow axis divergence FWHM. deg	10		
Dimension, mm	30x13x4.95		



2. Stacks for Hair Removal



Part number	Structure	Laser power	Laser wavelength
STD-HH05	Macro channel stack	300W/500W	760nm-1100nm
STD-HL07	Macro channel stack	300W-700W	760nm-1100nm
STD-HS12	Macro channel stack	600W-1200W	760nm-1100nm

(1) Macro channel stack STD-HH05

- AuSn hard solder packaging construction
- Suitable for long pulse width operation
- Filtered water, alternative cooling fluids
- Seal protection
- High duty cycle
- Used for hair removal & laser pumping

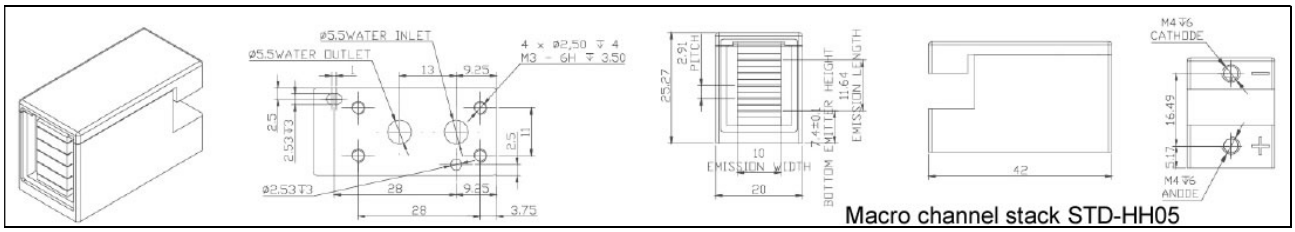
Typical Specifications

Wavelength	760-1100nm	
Peak power, W	300	500
Operation mode	QCW	QCW
Operation current, A	95	95
Duty cycle up to, %	20	10
Pulse width, us	200	100
Number of bars	3	5
Bar to bar pitch, mm	5	2.9
Electric/optic conversion efficiency, %	58	58
Fast axis divergence FWHM, deg	35	
Slow axis divergence FWHM. deg	10	
Dimension, mm	42x25.27x20	

Operation Conditions

	STD-HH05-808		STD-HH03-300-808	
Peak power per bar, W	100	80	60	100

Operation current, A	95	80	65	95
Pulse width, ms	Max. frequency, Hz			
10	30	40	40	40
20	10	15	20	20
30	10	12	13	13
40	10	10	10	10
50	5	6	8	8
60	4	5	6	6
80	3	4	5	4
100	2	3	4	2
200	-	1	2	1
400	-	-	1	-



Macro channel stack STD-HH05

(2) Macro channel stack STD-HL07

- AuSn hard solder packaging construction
- Suitable for long pulse width operation
- Filtered water, alternative cooling fluids
- Seal protection
- High duty cycle
- Used for hair removal & laser pumping

Typical Specifications

Wavelength	760-1100nm			
Peak power, W	300	500	600	700
Operation mode	QCW	QCW	QCW	QCW
Operation current, A	50	50	95	95
Duty cycle up to, %	40	40	10	10
Pulse width, us	Up to 400	Up to 400	100	100
Number of bars	60	10	6	7
Bar to bar pitch, mm	2.2	2.2	3.4	2.9
Electric/optic conversion efficiency, %	58	58	58	58
Fast axis divergence FWHM, deg	35			
Slow axis divergence FWHM. deg	10			
Dimension, mm	39x40x36			

Operation Conditions

	STD-HL06-600-808 STD-HL07-700-808			STD-HL06-300-808 STD-HL10-500-808
Peak power per bar, W	100	80	60	50
Operation current, A	95	80	65	50
Pulse width, ms	Max. frequency, Hz			
10	30	40	40	440
20	10	15	20	20
30	10	12	13	13
40	10	10	10	10
50	5	6	8	8
60	4	5	6	6
80	3	4	5	5
100	2	3	4	4
200	-	1	2	2

400	-	-	1	1

(3) Macro channel stack STD-HS12

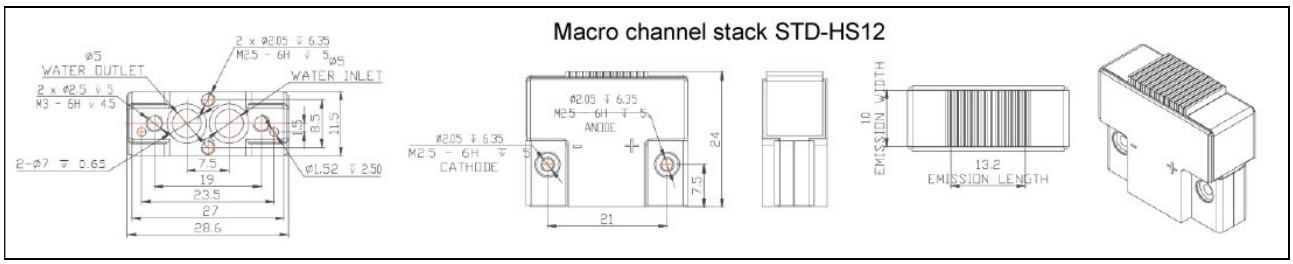
- AuSn hard solder packaging construction
- High duty cycle, high energy density
- Filtered water, alternative cooling fluids
- Small pitch, compact size
- Optional seal band optical waveguide assembly
- Optional fast-axis collimation
- Used for hair removal & laser pumping

Wavelength	760-1100nm				
Peak power, W	600	1200	7200	10000	16500
Operation mode	QCW				
Operation current, A	50	95	550	450	450
Duty cycle up to, %	25	15	5	1	0.4
Pulse width, us	25	10	0.6	0.4	0.2
Number of bars	12	12	12	20	Up to 33
Bar to bar pitch, mm	1.2	1.2	1.2	0.73	0.4
Electric/optic conversion efficiency, %	58	Up to 60	56	56	56
Fast axis divergence FWHM, deg	35, optional FAC<4				35
Slow axis divergence FWHM. deg	10				
Dimension, mm	28.6x24x11.5mm				

STD-HS12-1200-808 typical pulse energy (J/cm^2):

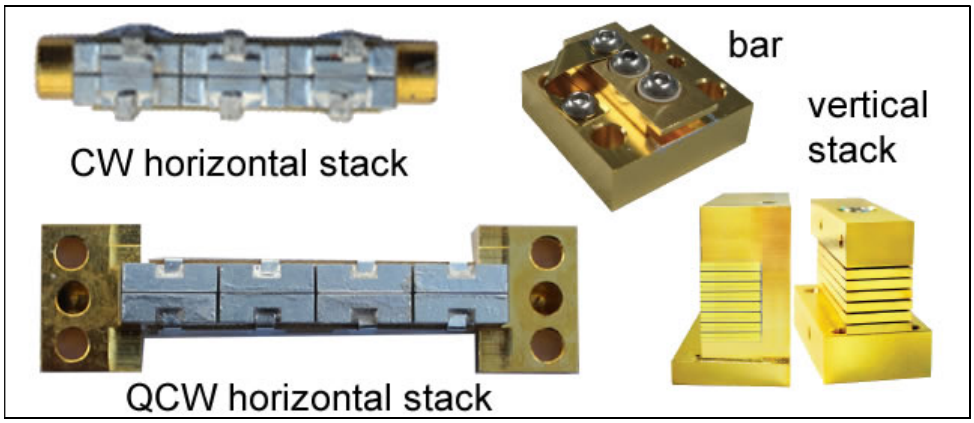
Pulse width	Frequency (Hz)										Iop
	1	2	3	4	5	6	7	8	9	10	
10 ms	13	13	12.7	12.75	13	12.7	13	13	12.9	12.9	95A
20 ms	21	21	21.7	21.5	21.4	21.7	21	21.4	20	20.9	85A
30 ms	31	31.5	32	32	-	-	-	-	-	-	60A
40 ms	43	41	42	-	-	-	-	-	-	-	60A
50 ms	53	51	-	-	-	-	-	-	-	-	-
60 ms	61	59.5	-	-	-	-	-	-	-	-	-
70 ms	70	-	-	-	-	-	-	-	-	-	-
80 ms	50	-	-	-	-	-	-	-	-	-	-
90 ms	54	-	-	-	-	-	-	-	-	-	-
100ms	60	-	-	-	-	-	-	-	-	-	-

Remark: cooling water: T 25deg, flow rate 4.5-5.0L/min



2.2 STO Series High Power Laser Diode Arrays/Bars/Stacks

(1) STO Series Bars & Stacks



Laser Diode Bars

Model	STO-CS20	STO-CS40	STO-CS60	STO-CS100Q	STO-CS200Q	STO-CS300Q
Output Power	20W	40W	60W	100W	200W	300W
Wavelength	808 / 880 / 915 / 976 / 980 nm	808 / 880 / 915 / 976 / 980 nm	808 / 880 / 915 / 976 / 980 nm	808 / 880 / 915 / 976 / 980 nm	808 / 880 / 915 / 976 / 980 nm	808 / 880 / 915 / 976 / 980 nm
Operation Mode	CW	CW	CW	QCW	QCW	QCW
Duty Circle	CW	CW	CW	≤5%	≤5%	≤5%
Pulse Width	CW	CW	CW	≤300μs	≤300μs	≤300μs
Typical Current	25A	40A	60A	100A	180A	260A

STO-HSCW Series, CW Laser Diode Horizontal Stacks

Model	STO-HSCW-20-3	STO-HSCW-20-4	STO-HSCW-40-3	STO-HSCW-40-4
Output Power	60W	80W	120W	160W
Typical Current	25A	25A	38A	38A
Operation Voltage	<6V	<8V	<6V	<8V

Note: STO-HSCW-20/40-N can be customized with N≤20. The total output power is 20/40 times N.

STO-HSQCW Series QCW Laser Diode Horizontal Stacks

Model	STO-HSQCW-100~300-N
Output Power	QCW 100W~300W*N
Repetition Rate	0-1000Hz
Pulse Width	50-300μs
Duty Circle	≤10% or ≤20%

Note: STO-HSQCW-100~300-N can be customized. Single unit can be mounted with 1, 2 or 3 pcs of laser diode bar. Typical wavelength of the diode bar is 805+/-3nm. However, the wavelength must be specified according to the special pulse width, repetition rate and heat sink designs.

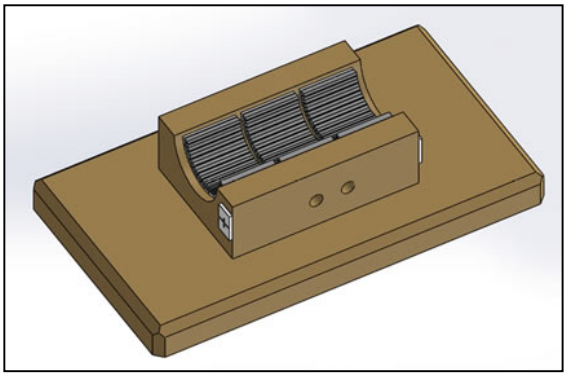
STO-VS Series CW/QCW Laser Diode Vertical Stacks

	VSQCW-MI/MA-100~300-N	VSCW-MI/MA-40~100-N
Single Bar Power	100W,150W,200W,300W QCW	40W,60W,100W CW
Bar Total / Stack	N=1~20	N=1~20
Bar Pitch	0.5mm~2mm	1.8mm
Wavelength	808nm	808nm

Note: STO-VSQCW/CW-MI/MA-100~300-N can be customized. We provide micro channel water cooling technology and high reliability macro channel water cooling technology. Typical wavelength of the diode bar is 808+/-3nm. However, the wavelength must be specified according to the special pulse width, repetition rate and heat sink designs.

(2) Reliable QCW Diode Laser Stacks in Arc Heatsink

We make the QCW laser into an arc, which is beneficial to the lightweight design of the pump structure. Au-Sn packaging technology makes the laser have high reliability even in harsh working environment.



Feature

- Wavelength: 808nm or up on requirement

- Output power: 500 - 4800W
- Operation mode: QCW
- Cooling: actively cooled / passively cooled

Benefits
- Efficient: High output power up into the 4800W.
- Compact: Arc and lightweight design are easily integrated into pump module.
- Robust: Shock and vibration resistant.
- Reliable and high-quality: Gold and Tin (hard solder) mounting. Works even under the most demanding climatic conditions.
- Wavelength combination: beneficial for full temperature pumping design.

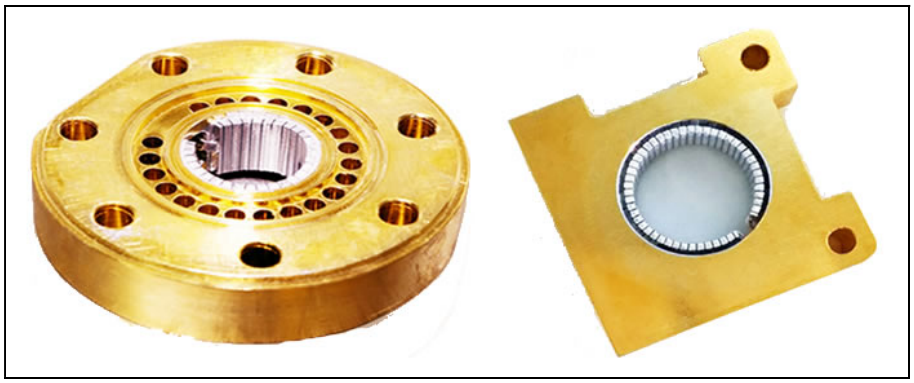
Application
- High energy research: QCW pumping sources for solid-state lasers.
- Medical technology: Long-pulse operation, use in esthetics (epilation) and dermatology.
- Excitation light source for solid-state lasers in the 1320 nm range for parenchyma surgery.
- Defense: Short-pulse operation, use as a pumping source, for lighting or in LIDAR systems.
- Industry: pump source for solid-state and fiber lasers.

Model	STO-ARCQCW-MA-100~500-N
Optical parameters	
Output power (W)	QCW 100~500*N
Center wavelength at 25 °C (nm)	808
Number of bars in one stack	1~20
Bar pitch (mm)	0.8~3
Center wavelength variation at 25 °C (nm)	±3/±10
Typical spectral bandwidth (FWHM)	<3
Divergence (degree) (FWHM)	<39⊥<10∥
Polarization	TE
Wavelength shift (nm/℃)	~0.28
Electrical parameters	
Working mode	QCW
Maximum duty cycle (%)	≤2%
Pulse length (us)	50~1000
Frequency (Hz)	1~1000
Operation current (A)	≤100~500
Operating voltage (V)	≤2*N
Typical slope (W/A)	>1.1
Electro-optic conversion efficiency (%)	>50
Thermal parameters	
Operation temperature (℃)	-40~60
Storage temperature (℃)	-50~85
Storage humidity (%)	<70
Cooling	TEC/air cooling

Note：
- STO-ARCQCW-MA-100~500-N represent N*100-500W laser stack which is mounted on an arc heatsink. The laser power of single bar is 100W, 200W, 300W or 500W.
- The wavelengths of each bar in a single device can be arranged and combined according to the heat dissipation conditions.
- The above parameters are measured at the heat sink temperature of 25ºC.
- Heat sink structure can be customized according to customer's special requirements

(3) Reliable QCW Diode Laser Stacks in Annular Heatsink

The QCW laser is made into a ring, which improves the uniformity of the pump while making use of the lightweight design of the pump structure. Au-Sn packaging technology makes the laser have high reliability even in harsh working environment.



Feature

- Wavelength: 808nm or up on request
- Output power: 500W up to 10kW
- Operation mode: QCW
- Cooling: actively cooled / passively cooled

Benefits

- Efficient: High output power up to 4800W.
- Compact: Arc and lightweight design is easily integrated into pump module.
- Robust: Shock and vibration resistant.
- Reliable and high-quality: Gold and Tin (hard solder) mounting. Works even under the most demanding climatic conditions.
- Wavelength combination: beneficial for full temperature pumping design.

Application

- High energy research: QCW pumping sources for solid-state lasers.
- Medical technology: Long-pulse operation, use in esthetics (epilation) and dermatology.
- Pump source for solid-state lasers in the 1320nm range for parenchyma surgery.
- Defense: Short-pulse operation, use as a pumping source, for lighting or in LIDAR systems.
- Industry: Pump source for solid-state and fiber lasers.

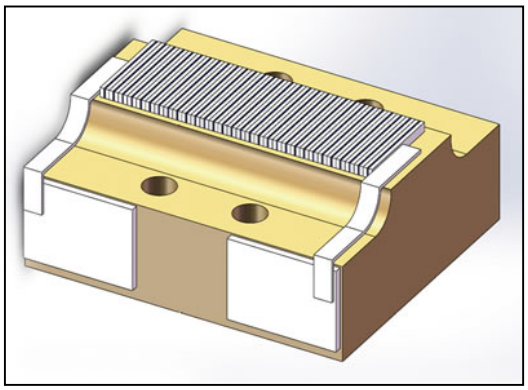
Model	STO-ARCQCW-MA-100~500-N
Optical parameters	
Output power(W)	QCW 100~500*N
Center wavelength at 25 °C(nm)	808
Number of bars in one stack	1~40
Bar pitch(mm)	0.8~3
Center wavelength variation at 25 °C(nm)	±3/±10
Typical spectral bandwidth (FWHM)	<3
Divergence(degree)(FWHM)	<39⊥<10∥
Polarization	TE
Wavelength shift(nm/℃)	~0.28
Electrical parameters	
Working mode	QCW
Maximum duty cycle(%)	≤2%
Pulse length(us)	50~1000
Frequency(Hz)	1~1000
Operation current(A)	≤100~500
Operating voltage(V)	≤2*N
Typical slope(W/A)	>1.1
Electro-optic conversion efficiency(%)	>50
Thermal parameters	
Operation temperature(℃)	-40~60
Storage temperature(℃)	-50~85
Storage humidity(%)	<70
Cooling	passively cooled/actively cooled
Flow rate per bar(L/min)	0.3-0.8

Note：

- STO-ARCQCW-MA-100~500-N represents N*100-500W laser stack which is mounted on an annular heatsink. The laser power of single bar is 100W, 200W, 300W or 500W.
- The wavelengths of each bar in a single device can be arranged and combined according to the heat dissipation conditions.
- The above parameters are measured at the heat sink temperature of 25°C.
- Heat sink structure can be customized according to customer's special requirements
- The duty cycle is usually less than 2%. In case of special high duty cycle requirements, the laser structure can be customized. Then duty circle up to 20%.

(4) Vertical QCW Diode Laser Stacks

We use Gold and Tin to assemble our vertical QCW stacks. This technology makes the laser have high reliability even in harsh working environment.



Feature

- Wavelength: 808nm or up on request
- Output power: 500W up to 10kW
- Operation mode: QCW
- Cooling: actively cooled / passively cooled
- FAC available

Benefits

- Customized upon request to adjust pumping structure.
- Robust: Shock and vibration resistant.
- Reliable and high-quality: Gold and Tin (hard solder) mounting. Works even under the most demanding climatic conditions.
- Wavelength combination: beneficial for full temperature pumping design.
- Duty circle up to 20%.

Application

- High energy research: QCW pumping sources for solid-state lasers.
- Medical technology: Long-pulse operation, use in esthetics (epilation) and dermatology.
- Pump source for solid-state lasers in the 1320 nm range for parenchyma surgery.
- Defense: Short-pulse operation, used as a pumping source, for lighting or in LIDAR systems.
- Industry: Pump source for solid-state and fiber lasers.

Model	STO-VSQCW-MI-MA-100~500-N	STO-VSQCW-MI-MA-100~500-N-FAC
Optical parameters		
Output power(W)	QCW 100~500*N	
Output power after collimation(W)		90~450*N
Center wavelength at 25 °C(nm)	808	808
Number of bars in one stack	1~20	1~20
Bar pitch(mm)	0.8~3	0.8~3
Center wavelength variation at 25 °C(nm)	±3/±10	±3/±10
Typical spectral bandwidth (FWHM)	<3	<3
Typical fast axis divergence 95 %(°)	66	
Typical slow axis divergence 95 %(°)	10	10
Fast axis divergence (full power)(°)		<0.5
Polarization	TE	TE
Wavelength shift(nm/℃)	~0.28	~0.28
Electrical parameters		
Working mode	QCW	QCW
Maximum duty cycle(%)	≤20%	≤20%
Pulse length(us)	50~1000	50~1000
Frequency(Hz)	1~1000	1~1000
Operation current(A)	≤100~500	≤100~500
Operating voltage(V)	≤2*N	≤2*N

Typical slope(W/A)	>1.1	>1.1
Electro-optic conversion efficiency(%)	>50	>50
Thermal parameters		
Operation temperature(℃)	-40~60	-40~60
Storage temperature(℃)	-50~85	-50~85
Storage humidity(%)	<70	<70
Cooling	passively cooled/actively cooled	passively cooled/actively cooled
Flow rate per bar(L/min)	0.3-0.8	0.3-0.8

Note：

- STO-VSQCW-MI/MA-100~500-N. MI means micro channel cooler as a heatsink which needs deionized water. MA means passively cooled or pure water cooled heatsink.
- STO-VSQCW-MI/MA-100~500-N. 100~500 represents that the laser power per bar can be 100W, 200W, 300W or 500W.
- The above parameters are measured at the heat sink temperature of 25°C.
- The wavelengths of each bar in a single device can be arranged and combined according to the heat dissipation conditions.
- Heat sink structure can be customized according to customer's special requirements

(5) Vertical CW Diode Laser Stacks

Our vertical stacks can be used to increase the optical output power of your diode lasers To do so, we stack up to 12 mounted laser bars to form a diode laser stack or an assembly. Each of these laser bars individually supplies up to 100W in CW mode. Because of the small gaps between the laser bars, you obtain maximum brightness from the stacks, enabling you to work highly effectively. You can choose between laser diode stacks with a fast-axis (FA) or without collimation.

Feature

- High optical output power of 100W CW per bar
- Wavelength: 808 nm ±3nm
- High efficiency, low divergence
- Lifetime >10,000 hours, high reliability
- Collimation: fast axis / without

Application

- Material processing
- Medical technology
- Pumping source for fiber lasers and solid-state lasers.

Model	STO-VSCW-MI-40~100-N	STO-VSCW-MI-40~100-N-FAC
Optical parameters		
Output power(W)	CW 40~100*N	
Output power after collimation(W)		36~90*N
Center wavelength at 25 °C(nm)	808	808
Number of bars in one stack	1~12	1~12
Bar pitch(mm)	1.8/0.8~3	1.8/0.8~3
Center wavelength variation at 25 °C (nm)	±3/±10	±3/±10
Typical spectral bandwidth (FWHM)	<3	<3
Typical fast axis divergence 95 %(°)	66	
Typical slow axis divergence 95 %(°)	10	10
Fast axis divergence (full power)(°)		<0.5
Polarization	TE	TE
Wavelength shift(nm/℃)	~0.28	~0.28
Electrical parameters		
Operation current(A)	≤40~100	≤40~100
Operating voltage(V)	≤2*N	≤2*N
Typical slope(W/A)	>1.1	>1.1
Electro-optic conversion efficiency(%)	>50	>50
Thermal parameters		

Operation temperature(℃)	20~30	20~30
Storage temperature(℃)	0~55	0~55
Storage humidity(%)	<70	<70
Cooling	deionized water	deionized water
Flow rate per bar(L/min)	0.3-0.8	0.3-0.8

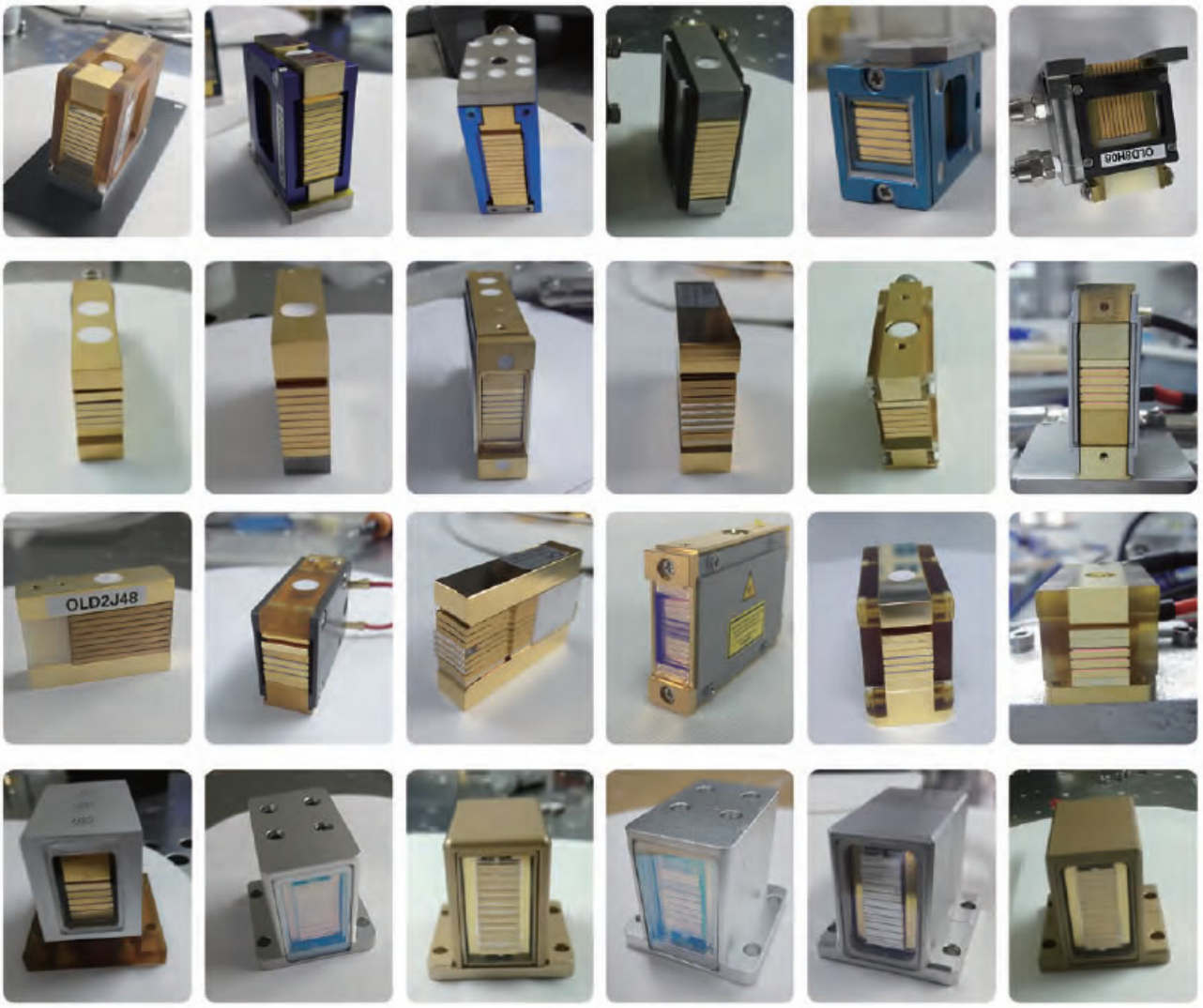
Note：

- STO-VSCW-MI-40~100-N. MI represents we use micro channel cooler as a heatsink which needs deionized water.
- STO-VSCW-MI-40~100-N. 40~100 represents the laser power per bar can be 40W, 60W or 100W. 100W bar only can be used in cosmetic applications.

3. OEM Laser Diode Stacks for Hair Removal

3.1 Laser Diode Stacks for Hair Removal

We supply various diode stacks for laser hair removal. These stacks can custom-designed and –made according to your specific requirements.



Model No.	STO-VS-MI-100-N
Application	Laser hair removal handpiece
Operation mode	CW
Bar numbers in one stack	N=1-20 bars
Power per sub-mounts	100W
Central wavelength at 25℃	810nm/755nm/1064nm
Typical Operation current	90A
Maximum Operation current	100A

3.2 Laser Hair Removal Handpieces

Laser wavelengths 755nm/810nm/1064nm are suitable to all types of skins. Spot sizes are optional and available at 11x11mm ,10x17mm,15x25mm, 20x30mm etc. Other spot sizes available upon request.

Following is our standard hair removal handpieces.

Sunny 755nm, Best effect for tiny thin hair
755nm laser is allowing for even better energy absorption by the melanin chromophore. making it ideal for the widest range of hair types and color- especially light-colored and thin hair.

Golden 810nm,Double cooling, comfortable and no hurt
810nm laser offers deep penetration of the hair follicle with high average power, a high repetition rate for fast treatment. The 810nm has a moderate melanin absorption level making it safe for darker skin types. Cooling uses fine copper gold-plating surround sapphire crystal and 2 pcs TEC. Reliable performance, safe and comfortable.

Ocean 1064nm,Best solution for darker skin
1064nm laser is allowing for moderate energy absorption by the melanin chromophore. making it a focused solution for hair on darker skin types. At the same time, the 1064nm offers the deepest penetration of the hair follicle.

20x30 mm Bright Large spot size. Half the treatment time
Use 20*30mm large spot, with imported Germany 1200w 810nm Micro channel diode laser stack. Reduce the treatment time much.

Ivyice ,Three-in-one handpiece
Diode laser, 755 nm+810nm+1064nm triple wavelength laser hair removal, Spot size 15×25 mm, up to 10Hz, three mixed wavelengths for all skin types.

FACIAL TIP. Reaching the hard to reach
The unique Facial Tip allows treatment of hard to reach areas, including the ears, nostrils and glabella.

3.3 Repair of Handpieces

We provide diode laser stack repair service and laser hair removal handpiece refurbishment for various brands in the market. Our experienced technicians can provide various of handpiece repair and refurbishment services with high quality. We use top quality diode bars from Germany and strictly control each process of repairing to make all the repaired handpieces have long life time and high

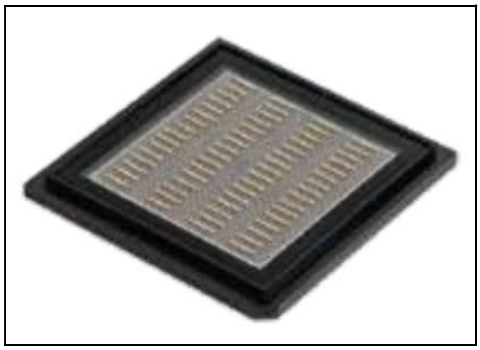
reliability.

We provide various services to both laser manufacturers and end users with the following advantages:

- Fast Services: Usually regular laser heads can be repaired and returned within 3 days.
- High Quality Diodes: The repaired lasers will be equal or even better than original laser heads in performance with powerful output power and excellent beam quality.
- Lower Cost: Reduce the cost for laser system maintenance.
- Warranty: Our warranty is 12 months.
- Customization available upon request.

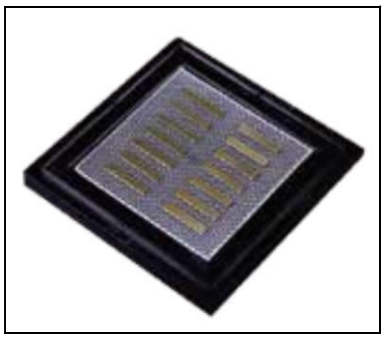
STCX Series High-power Diode Laser Chips/Bars/Arrays/Stacks

(1) High-power Single Emitter Laser Chips – BC Series



Optical					
Center Wavelength	nm	915	915	976	976
Wavelength Tolerance	nm	±10	±10	±3	±3
Output Power	W	25	30	25	30
Operating Mode		CW	CW	CW	CW
Fast-axis Divergence	Deg	55	55	55	55
Slow-axis Divergence	Deg	9.5	9.5	9.5	9.5
Spectral Width (FWHM)	nm	4	4	4	4
Wavelength Temp Coefficient	nm/°C	0.3	0.3	0.33	0.33
TE Polarization	%	97	97	97	97
Electrical					
Emitter Width	μm	195	230	195	230
Cavity Length	mm	4.5	4.5	4.5	4.5
Width	μm	400	400	400	400
Thickness	μm	145	145	145	145
Geometric					
Electro-optic Conversion Eff.	%	62	62	63	63
Slope Efficiency	W/A	1.15	1.15	1.1	1.1
Thershold Current	A	1.5	1.8	1.1	1.5
Operating Current	A	25	30	25	30
Operating Voltage	V	1.65	1.65	1.55	1.55

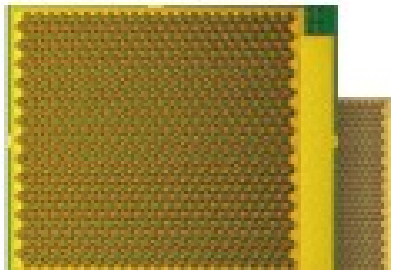
(2) High-power Diode Bar – BB Series



Optical							
Center Wavelength	nm	808	808	808	808	940	940
Wavelength Tolerance	nm	±10	±10	±10	±3	±3	±3
Output Power	W	50	60	100	≥500	200	≥700
Fast-axis Divergence	Deg	≤65	≤65	≤65	≤65	≤55	≤55
Slow-axis Divergence	Deg	≤8.5	≤8.5	≤8.5	≤8.5	≤8.5	≤8.5
Spectral Width (FWHM)	nm	≤2.5	≤2.5	≤3	≤3.5	≤3	5
TE Polarization	TM/TE	TE	TE	TE	TE	TE	TE
Wavelength Temp Coefficient	nm/°C	0.28	0.28	0.28	0.28	0.3	0.3

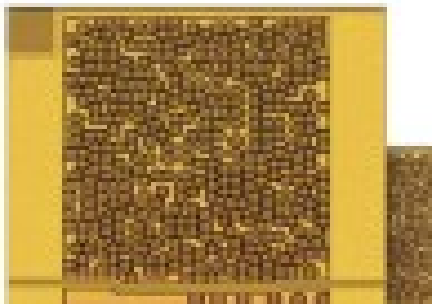
Electrical							
Electro-optic Conversion Eff	%	≥55	≥55	≥55	≥58	≥63	≥63
Slope Efficiency	W/A	1.25	1.25	1.25	1.25	1	1.15
Threshold Current	A	8	12	15	25	25	25
Operating Current	A	50	60	105	≤430	220	650
Operating Voltage	V	1.8	1.8	1.8	2.0	1.55	1.7
Pulse Width	us	-	-	-	200	-	500
Pulse frequency	Hz	-	-	-	400	-	160
Pulse duty cycle	%	-	-	-	8	-	8
Geometric							
Number of Emitters	#	19	49	49	34	24	34
Emitter Width	μm	150	100	100	232	200	232
Emitter Pitch	μm	500	200	200	290	400	290
Fill Factor	%	30	50	50	80	50	80
Cavity Length	mm	1.0	1.0	1.5	1.5	3	2
Bar Thickness	μm	145	145	145	115	115	115
Bar Length	mm	10	10	10	10.25	10.25	10.25
Thermal							
Operating Temperature	°C	25	25	25	25	20	25
Storage Temperature	°C	40~80	-40~80	40~80	40~80	-40~80	40~80
Flow Velocity	L/min	/	0.25	0.25	0.20	0.25	0.25

(3) High-power Diode VCSEL Chips – TOF series



Optical						
Center Wavelength@Iop	nm	808	808	850	940	940
Output Power	W	1	2.9	4.1	2.6	3
Far Field Divergence Angle	°	20.5	22	22.1	19.8	21
Spectral width (half width)	nm	0.77	0.76	0.72	1.5	1.2
Electrical						
E-O Conversion Efficiency	%	37	38	39	41.6	42
Slope Efficiency	W/A	0.93	1	1	1.05	1.02
Threshold current	A	0.2	0.6	1.3	0.33	0.37
Operating current	A	1.3	3.5	5.3	2.8	3.5
Operating Voltage	V	2.1	2.1	2	2.2	2.1
Geometric						
Emitter number	#	224	621	1216	305	364
Emitter Arrangement	#	Dense	Dense	Dense	Dense	Dense
Spot Size	μm	8	8	10	11	11
Minimum Pitch	μm	37	47	47	33	40
Array Size	μm²	894*891	1205*1006	1670*1844	815*715	1000*900
Others						
Environment Attributes		Rohs2.0	Rohs2.0	Rohs2.0	Rohs2.0	Rohs2.0
Test temperature	°C	50	50	50	50	50

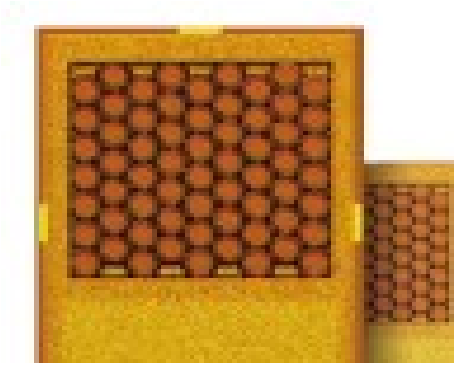
(4) High-power Diode VCSEL Chips – SL Series



Optical				
Center Wavelength@Iop	nm	934	942	946
Output Power	W	/	1.6	1.8
Far Field Divergence Angle	°	20.2	21.2	22.2
Spectral Width (FWHM)	nm	/	1.8	2.3
Electrical				
E-O Conversion Efficiency	%	42.1	43.1	46.1
Slope Efficiency	W/A	0.8	0.95	1.1
Threshold Current	A	/	0.18	0.28
Operating Current	A	/	1.8	2
Operating Voltage	V	/	2.0	2.4
Geometric				
Emitter Number	#		377	

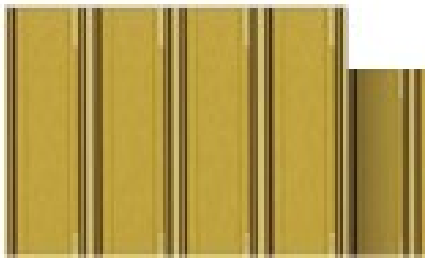
Emitter Arrangement	#		Random	
Spot Size	μm		8	
Minimum Pitch	μm		-	
Array Size	μm²		798*741	
Others				
Environment Attributes			Rohs2.0	
Test Temperature	°C		50	

(5) High-Efficiency Diode LIDAR Chips – LR Series



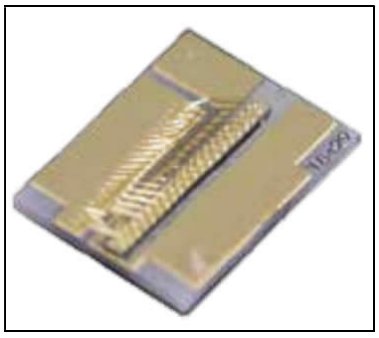
Optical			
Center Wavelength	nm	905	940
Wavelength Tolerance	nm	±6	±6
Output Power	W	75	75
Far Field Divergence Angle	°	18	18
Spectrak Width (FWHM)	nm	1.6	1.6
Electrical			
E-O Conversion Efficiency	%	20	20
Slope Effieciency	W/A	6	6
Threshold current	A	0.2	0.2
Operating current	A	15	15
Operating Voltage	V	25	25
Geometric			
Emitter number	#	63	63
Emitter Arrangement	#	Dense	Dense
Spot Size	μm	18	18
Emitter minimum pitch	μm	36	36
Array Size	μm²	540 x x420	540 x x420
Others			
Environment Attributes		Rohs2.0	Rohs2.0
Test Temperature	°C	25	25

(6) High-Efficiency Diode LIDAR Chips – EEL Series



Optical			
Center Wavelength	nm	905	905
Wavelength Tolerance	nm	±10	±10
Output Power	W	500	1200
Operation Mode	#	Plus	Plus
Fast Axis Divergence	DEG	24	24
Slow Axis Divergence	DEG	8	8
Spectrak Width (FWHM)	nm	6	6
Wavelength Temperature Coefficient	nm/°C	0.3	0.3
Electrical			
Slope Effieciency	W/A	3.3	4.4
Threshold current	A	3	6
Operating current	A	160	320
Operating Voltage	V	11	15
Geometric			
Emitter width	um	200	200
Cavity length	#	0.8	0.8
Width	μm	400	400
Emitter number	#	4	8
Thickness	μm	145	145

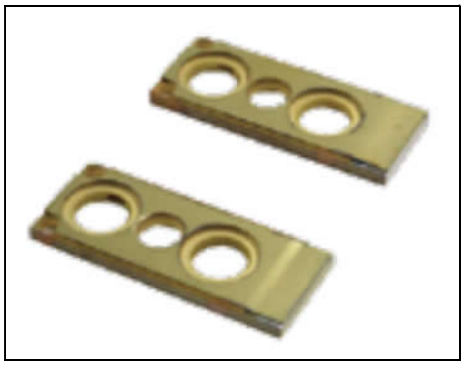
(7) High-power Diode Laser Device – COS Series



Optical					
Center Wavelength	nm	915	915	976	976
Wavelength Tolerance	nm	±10	±10	±3	±3
Output Power	W	25	30	25	30
Operating Mode	#	CW	CW	CW	CW
Fast-axis Divergence	Deg	55	55	55	55
Slow-axis Divergence	Deg	9.5	9.5	9.5	9.5
Spectral Width (FWHM)	nm	4	4	4	4
Wavelength Temperature Coefficient	nm/°C	0.3	0.3	0.33	0.33

TE Polarization	%	97	97	97	97
Electric					
Electrio-optic Conversion Eff	%	62	62	63	63
Slope Efficiency	W/A	1.15	1.15	1.1	1.1
Thershold Current	A	1.5	1.8	1.1	1.5
Operating Current	A	25	30	25	30
Operating Voltage	V	1.65	1.65	1.55	1.55
Geometric					
Emitter Width	μm	195	230	195	230
Cavity Length	mm	4.5	4.5	4.5	4.5
Width	μm	400	400	400	400
Thickness	μm	145	145	145	145

(8) High-power Diode Laser Devices – MCC Series



Optical							
Center Wavelength	nm	808	808	808	808	940	940
Wavelength Tolerance	nm	±10	±10	±10	±10	±3	±3
Output Power	W	50	60	100	≥500	200	200
Fast-axis Divergence	Deg	≤65	≤65	≤65	≤65	≤55	≤55
Slow-axis Divergence	Deg	≤8.5	≤8.5	≤8.5	≤8.5	≤8.5	≤8.5
Spectral Width (FWHM)	nm	≤2.5	≤2.5	≤3	≤3.5	≤3	≤3
Polarization Mode	TM/TE	TE	TE	TE	TE	TE	TE
Wavelength Temperature Coefficient	nm/°C	0.28	0.28	0.28	0.28	0.3	0.3
Electrical							
Electrio-optic Conversion Eff	%	≥55	≥55	≥55	≥58	≥63	≥63
Slope Efficiency	W/A	1.25	1.25	1.25	1.25	1	1.15
Thershold Current	A	8	12	15	25	25	25
Operating Current	A	50	60	105	≤430	220	650
Operating Voltage	V	1.8	1.8	1.8	2.0	1.55	1.7
Pulse Width	us	-	-	-	200	-	500
Pulse frequency	Hz	-	-	-	400	-	160
Pulse Duty Cycle	%	-	-	-	8	-	8
Geometric							
Number of Emitters	#	19	49	49	34	24	34
Emitter Width	μm	150	100	100	232	200	232
Emitter Pitch	μm	500	200	200	290	400	290
Fill Factor	%	30	50	50	80	50	80
Cavity Length	mm	1.0	1.0	1.5	1.5	3	2
Bar Thickness	μm	145	145	145	115	115	115
Bar Length	mm	10	10	10	10.25	10.25	10.25
Thermal							
Operating Temp.	°C	25	25	25	25	20	25
Storage temp.	°C	-40~80	-40~80	-40~80	-40~80	-40~80	-40~80
Water Flow Rate	L/min	/	0.25	0.25	0.20	0.25	0.25

(9) High-power Diode Laser Stacks – MCP Series

Optical				
Center Wavelength	nm	808	808	808
Wavelength Tolerance	nm	±10	±10	±3
Output Power	W	60	100	300
Number of Bars	#	2 ～ 60	2 ～ 60	2 ～ 60
Spectral Width (FWHM)	nm	≤8	≤8	4
Operating Mode	#	CW	CW	QCW
Fast-axis Divergence	Deg	≤42	≤42	40
Slow-axis Divergence	Deg	≤10	≤10	10
Wavelength Temp Coefficient	nm/°C	0.28	0.28	0.28
Electrical				
Power Conversion Efficiency	%	50	50	50
Slope Efficiency/Bar	W/A	≥1.1	≥1.1	1.1
Threshold Current	A	25	28	28
Operating Current	A	65	110	290
Operating Voltage/Bar	V	≤2	≤2	1.8
Thermal				
Operating Temperature	°C	25	25	25
Storage Temperature	°C	0~55	0~55	0~55
Bar/Water Velocity/Bar	l/m	0.3~0.5	0.3~0.5	0.3
Entrace Maximum Pressure	psi	55	55	55
Water Type	-	DI Water	DI Water	
Deionized Water Resistivity(DI)	kΩ·cm	200~500	200~500	200~500
Pure Water Filter Particles	μm	＜20	＜20	＜20

(10) High-power Diode Laser Stacks – QCP Series

Optical			
Center Wavelength	nm	808	808
Wavelength Tolerance	nm	±3	±10
Bar Output Power/Bar	W	300	40
Number of Bars	#	2 ～ 24	60
Total Output Power	W	-	2400
Bar-to-Bar Spacing	mm	0.4 ～ 1.8	0.9
Spectral Width (FWHM)	mm	4	8
Pulse Width	μs	50-500	10-100
Repetition Rate	Hz	1-200	1-10

Fast-axis Divergence(FWHM)	Deg	40	40
Slow-axis Divergence(FWHM)	Deg	10	10
Wavelength Temp Coefficient	nm/°C	0.28	0.28
Electrical			
Power Conversion Efficiency	%	50	50
Slope Efficiency/Bar	W/A	1.1	1.1
Threshold Current	A	20	10
Operating Current	A	300	50
Operating Voltage/Bar	V	2	1.8
Thermal			
Water Type	-	Pure Water	Pure Water
Operating Temperature	°C	25	25
Storage Temperature	°C	-40-85	-40-85

STJ Series Laser Emitters, Bars & Stacks

1. Unmounted Laser Emitters & Bars

Thanks to precise controls, our laser bars, semi-bars and single emitters meet the highest quality standards of our customers. We produce our semiconductor materials under the strictest quality controls. We work only with state-of-the-art epitaxy, processing and facet coating technology. Our bars, semi-bars and single emitters for high-power diode lasers therefore meet the most exacting demands: They are extremely reliable, efficient and durable.

Our semiconductor products are easily assembled using standard soldering methods. The material supports both soft solder (indium) and hard solder (gold/tin). We deliver our laser bars to you with emitter structures separated on the p-side as standard. On request, we can also produce bars with continuous p-side metalization and adapted facet coatings, using low AR coatings for the assembly of external resonators.

Product feature

- Wavelength: 760 - 1060nm
- Output power: 6 - 500W
- Operation mode: CW / QCW
- Filling factor: - - 75%
- Resonator length: 0.6 - 4.0mm

Benefits

- Highest quality: We strictly monitor the production of our semiconductor products in clearly defined processes.
- Powerful: High, reliable output power and ideal beam characteristics.
- Economical: Our semiconductors are very efficient and are characterized by a long service life.

Fields of Application

- Industry: Semiconductors for high-power diode lasers in direct material processing, for heating or lighting. Semiconductors as pumping sources for fiber and solid-state lasers. Use in printing technology.
- Medicine: Esthetics, dermatology and surgery.

Technical Specifications

- InGaAs-based semiconductors
- Optical output power: 6watts to 200watts cw and 500watts qcw
- Standard wavelengths: 760 to 1060nanometers (others available on request)
- Fill factors: 10%, 20%, 30%, 50%, 75% (others available on request)
- Resonator lengths: 0.6mm, 1.0mm, 1.5mm, 2.0mm, 4.0mm (others available on request)
- Optional: low AR coating (typically < 0.3%)
- Optional: continuous metallization

Part number	Wavelength, nm	Output power, W	Operation mode	Filling factor, %	Resonator length, mm
STJ-JDL-BAB-30-19-760-TE-40-1.5	760	40	CW	30	1.5
STJ-JDL-BAB-30-19-792-TE-60-2.0	792	60	CW	30	2.0
STJ-JDL-BAE-25-100-808-TM-6-4.0	808	6	CW	-	4.0

STJ-JDL-BAE-33-200-808-TM-8-4.0	808	8	CW	-	4.0
STJ-JDL-BAE-33-200-808-TM-10-4.0	808	10	CW	-	4.0
STJ-JDL-BAB-30-19-808-TE-20-0.6	808	20	CW	30	0.6
STJ-JDL-BAB-30-19-808-TE-40-1.0	808	40	CW	30	1.0
STJ-JDL-BAB-50-47-808-TE-40-1.0	808	40	CW	50	1.0
STJ-JDL-BAB-20-19-808-TE-50-1.5	808	50	CW	20	1.5
STJ-JDL-BAB-30-19-808-TE-50-1.5	808	50	CW	30	1.5
STJ-JDL-BAB-20-19-808-TE-60-2.0	808	60	CW	20	2.0
STJ-JDL-BAB-30-19-808-TE-60-2.0	808	60	CW	30	2.0
STJ-JDL-BAB-50-47-808-TE-60-1.5	808	60	CW	50	1.5
STJ-JDL-BAB-50-47-808-TE-80-2.0	808	80	CW	50	2.0
STJ-JDL-BAB-75-62-808-TE-300-1.5	808	300	QCW	75	1.5
STJ-JDL-BAB-75-37-880-TE-500-1.5	880	500	QCW	75	1.5
STJ-JDL-BAB-50-23-905-TE-200-4.0	905	200	CW	50	4.0
STJ-JDL-BAB-30-19-915-TE-40-1.0	915	40	CW	30	1.0
STJ-JDL-BAB-20-19-915-TE-60-1.5	915	60	CW	20	1.5
STJ-JDL-BAB-20-19-915-TE-80-2.0	915	80	CW	20	2.0
STJ-JDL-BAB-30-19-915-TE-80-2.0	915	80	CW	30	2.0
STJ-JDL-BAB-50-23-915-TE-200-4.0	915	200	CW	50	4.0
STJ-JDL-BAB-20-19-940-TE-60-1.5	940	60	CW	20	1.5
STJ-JDL-BAB-30-19-940-TE-60-1.5	940	60	CW	30	1.5
STJ-JDL-BAB-20-19-940-TE-80-2.0	940	80	CW	20	2.0
STJ-JDL-BAB-30-19-940-TE-80-2.0	940	80	CW	30	2.0
STJ-JDL-BAB-50-47-940-TE-80-1.5	940	80	CW	50	1.5
STJ-JDL-BAB-50-47-940-TE-120-2.0	940	120	CW	50	2.0
STJ-JDL-BAB-50-23-940-TE-200-4.0	940	200	CW	50	4.0
STJ-JDL-BAB-50-45-940-TE-200-4.0	940	200	CW	50	4.0
STJ-JDL-BAB-75-37-940-TE-300-1.5	940	300	QCW	75	1.5
STJ-JDL-BAB-20-19-976-TE-60-1.5	976	60	CW	20	1.5
STJ-JDL-BAB-30-19-976-TE-60-1.5	976	60	CW	30	1.5
STJ-JDL-BAB-20-19-976-TE-80-2.0	976	80	CW	20	2.0
STJ-JDL-BAB-30-19-976-TE-80-2.0	976	80	CW	30	2.0
STJ-JDL-BAB-50-47-976-TE-80-1.5	976	80	CW	50	1.5
STJ-JDL-BAB-50-47-976-TE-120-2.0	976	120	CW	50	2.0
STJ-JDL-BAB-50-23-1020-TE-120-2.0	1020	120	CW	50	2.0
STJ-JDL-BAB-50-23-1020-TE-200-4.0	1020	200	CW	50	4.0
STJ-JDL-BAE-17-090-1060-TE-10-4.0	1060	10	CW		4.0
STJ-JDL-BAB-30-19-1060-TE-40-1_0	1060	40	CW	30	1.0
STJ-JDL-BAB-30-19-1060-TE-60-1_5	1060	60	CW	30	1.5
STJ-JDL-BAB-20-19-1060-TE-80-2.0	1060	80	CW	20	2.0
STJ-JDL-BAB-50-23-1060-TE-120-2_0	1060	120	CW	50	2.0
STJ-JDL-BAB-50-23-1060-TE-200-4_0	1060	200	CW	50	4.0
STJ-JDL-BAB-50-47-1060-TE-250-1.5	1060	250	QCW	50	1.5
STJ-JDL-BAB-75-37-1060-TE-350-1.5	1060	350	QCW	75	1.5

2. Mounted Diode Bars & Single Emitters

You can choose between CW and QCW operation. We offer standard wavelengths of 808 nm, 940 nm and 980 nm. On request, we can optimize diode lasers for other wavelengths thanks to the flexibility of our own semiconductor production facility. You also receive different emission heights in standardized packages. The collimation is available in Fast-Axis (FA) only or in Fast-Axis (FA/SA).

Our patented CN design means that the bars of our mounted diode lasers are cooled on both sides. This means you can achieve thermal resistances that are very close to those of a microchannel

heat sink. Our diode lasers also deliver high output power and a low smile.

Product feature

- Wavelength: 808 - 1470nm
- Output power: 23 - 300W
- Operation mode: CW / QCW
- Cooling: actively cooled / passively cooled
- Collimation: fast axis / fast axis and slow axis / without
- Heatsink: actively cooled / CN / CS

Benefits

- Maximum efficiency: High optical output power of 8 --W to 200 W CW and 300 W QCW.
- Reliable: Long lifetime through predominant use of our semiconductor lasers.
- Versatile: Flexible integration into different systems.
- Precise: Low smile.
- Easy integration: Compact and robust designs.

Fields of Application

- Material processing: Plastic welding, soldering, hardening and annealing of metals.
- Medical technology: Hair removal, surgery, dentistry and ophthalmology.
- Illumination: IR monitoring.
- Metrology: Particle counting.
- Printing industry: Computer-to-Plate (CtP).
- Science and research: Excitation light source.
- Industry: Pumping sources for fiber lasers and solid-state lasers.

Product name / data sheet	Wavelength in nm	Output power in W	Operation mode	Cooling	Collimation	Heatsink
STJ-JOLD-32-CPBN-1L	808	32	CW	passively cooled	fast & slow axis	CS
STJ-JOLD-35-CPFN-1L	808	35	CW	passively cooled	fast axis	CS
STJ-JOLD-40-CPNN-1L	808	40	CW	passively cooled	without	CS
STJ-JOLD-40-xPNN-1L-808nm	808	40	CW	passively cooled	without	CS
STJ-JOLD-50-CPBN-1L	808	50	CW	passively cooled	fast & slow axis	CS
STJ-JOLD-50-CANN-1L	808	50	CW	actively cooled	without	actively cooled
STJ-JOLD-55-CPFN-1L	808	55	CW	passively cooled	fast axis	CS
STJ-JOLD-60-CPNN-1L	808	60	CW	passively cooled	without	CS
STJ-JOLD-60-xPNN-1L-808nm	808	60	CW	passively cooled	without	CS
STJ-JOLD-80-CANN-1L	808	80	CW	actively cooled	without	actively cooled
STJ-JOLD-90-QPFN-1L	808	90	QCW	passively cooled	fast axis	CS
STJ-JOLD-100-QANN-1L	808	100	QCW	actively cooled	without	actively cooled
STJ-JOLD-100-QPNN-1L	808	100	QCW	passively cooled	without	CS
STJ-JOLD-100-xPNN-1L-808nm	808	100	QCW	passively cooled	without	CS
STJ-JOLD-225-QPFN-1L	808	225	QCW	passively cooled	fast axis	CS
STJ-JOLD-250-QPNN-1L	808	250	QCW	passively cooled	without	CS
STJ-JOLD-270-QPFN-1L	808	270	QCW	passively cooled	fast axis	CS
STJ-JOLD-300-QPNN-1L	808	300	QCW	passively cooled	without	CS
STJ-JOLD-300-QPxN-1L-808nm	808	300	QCW	passively cooled	without	CS
STJ-JOLD-32-CPBN-1L	880	32	CW	passively cooled	fast & slow axis	CS
STJ-JOLD-35-CPFN-1L	880	35	CW	passively cooled	fast axis	CS
STJ-JOLD-40-CPNN-1L	880	40	CW	passively cooled	without	CS
STJ-JOLD-50-CPBN-1L	880	50	CW	passively cooled	fast & slow axis	CS
STJ-JOLD-55-CPFN-1L	880	55	CW	passively cooled	fast axis	CS
STJ-JOLD-60-CPNN-1L	880	60	CW	passively cooled	without	CS
STJ-JOLD-60-xPNN-1L-880nm	880	60	CW	passively cooled	without	CS
STJ-JOLD-68-CPBN-1L	880	68	CW	passively cooled	fast & slow axis	CS
STJ-JOLD-80-CPNN-1L	880	80	CW	passively cooled	without	CS
STJ-JOLD-32-CPBN-1L	915	32	CW	passively cooled	fast & slow axis	CS
STJ-JOLD-35-CPFN-1L	915	35	CW	passively cooled	fast axis	CS
STJ-JOLD-40-CPNN-1L	915	40	CW	passively cooled	without	CS
STJ-JOLD-40-xPNN-1L-915nm	915	40	CW	passively cooled	without	CS
STJ-JOLD-50-CPBN-1L	915	50	CW	passively cooled	fast & slow axis	CS

STJ-JOLD-55-CPFN-1L	915	55	CW	passively cooled	fast axis	CS
STJ-JOLD-60-CPNN-1L	915	60	CW	passively cooled	without	CS
STJ-JOLD-60-xPNN-1L-915nm	915	60	CW	passively cooled	without	CS
STJ-JOLD-68-CPBN-1L	915	68	CW	passively cooled	fast & slow axis	CS
STJ-JOLD-80-CPNN-1L	915	80	CW	passively cooled	without	CS
STJ-JOLD-40-xPNN-1L-938nm	938	40	CW	passively cooled	without	CS
STJ-JOLD-60-xPNN-1L-938nm	938	60	CW	passively cooled	without	CS
STJ-JOLD-100-xPNN-1L-938nm	938	100	QCW	passively cooled	without	CS
STJ-JOLD-32-CPBN-1L	940	32	CW	passively cooled	fast & slow axis	CS
STJ-JOLD-35-CPFN-1L	940	35	CW	passively cooled	fast axis	CS
STJ-JOLD-40-CPNN-1L	940	40	CW	passively cooled	without	CS
STJ-JOLD-50-CPBN-1L	940	50	CW	passively cooled	fast & slow axis	CS
STJ-JOLD-55-CPFN-1L	940	55	CW	passively cooled	fast axis	CS
STJ-JOLD-60-CANN-1L	940	60	CW	actively cooled	without	actively cooled
STJ-JOLD-60-CPNN-1L	940	60	CW	passively cooled	without	CS
STJ-JOLD-68-CPBN-1L	940	68	CW	passively cooled	fast & slow axis	CS
STJ-JOLD-80-CANN-1L	940	80	CW	actively cooled	without	actively cooled
STJ-JOLD-80-CPNN-1L	940	80	CW	passively cooled	without	CS
STJ-JOLD-90-CPFN-1L	940	90	CW	passively cooled	fast axis	CS
STJ-JOLD-90-QPFN-1L	940	90	QCW	passively cooled	fast axis	CS
STJ-JOLD-100-QANN-1L	940	100	QCW	actively cooled	without	actively cooled
STJ-JOLD-100-CPNN-1L	940	100	CW	passively cooled	without	CS
STJ-JOLD-100-QPNN-1L	940	100	QCW	passively cooled	without	CS
STJ-JOLD-120-CPNN-1L	940	120	CW	passively cooled	without	CN
STJ-JOLD-160-CPNN-1L	940	160	CW	passively cooled	without	CN
STJ-JOLD-180-CPFN-1L	940	180	CW	passively cooled	fast axis	CN
STJ-JOLD-200-CPNN-1L	940	200	CW	passively cooled	without	CN
STJ-JOLD-40-xPNN-1L-976nm	976	40	CW	passively cooled	without	CS
STJ-JOLD-60-xPNN-1L-976nm	976	60	CW	passively cooled	without	CS
STJ-JOLD-32-CPBN-1L	980	32	CW	passively cooled	fast & slow axis	CS
STJ-JOLD-35-CPFN-1L	980	35	CW	passively cooled	fast axis	CS
STJ-JOLD-40-CPNN-1L	980	40	CW	passively cooled	without	CS
STJ-JOLD-50-CPBN-1L	980	50	CW	passively cooled	fast & slow axis	CS
STJ-JOLD-50-CANN-1L	980	50	CW	actively cooled	without	actively cooled
STJ-JOLD-55-CPFN-1L	980	55	CW	passively cooled	fast axis	CS
STJ-JOLD-60-CPNN-1L	980	60	CW	passively cooled	without	CS
STJ-JOLD-68-CPBN-1L	980	68	CW	passively cooled	fast & slow axis	CS
STJ-JOLD-80-CANN-1L	980	80	CW	actively cooled	without	actively cooled
STJ-JOLD-80-CPNN-1L	980	80	CW	passively cooled	without	CS
STJ-JOLD-90-CPFN-1L	980	90	CW	passively cooled	fast axis	CS
STJ-JOLD-100-CPNN-1L	980	100	CW	passively cooled	without	CS
STJ-JOLD-120-CPNN-1L	980	120	CW	passively cooled	without	CN
STJ-JOLD-160-CPNN-1L	980	160	CW	passively cooled	without	CN
STJ-JOLD-23-CPFN-1L	1470	23	CW	passively cooled	fast axis	CN
STJ-JOLD-25-CPNN-1L	1470	25	CW	passively cooled	without	CN

3. CW Diode Laser Stacks

Up to 12 laser bars to form actively cooled stacks for CW mode.

Our vertical stacks can be used to increase the optical output power of your diode laser. To do so, we stack up to 12 mounted laser bars to form a diode laser stack or an assembly. Each of these laser bars individually supplies up to 120watts in CW mode. Because of the small gaps between the laser bars, you obtain maximum brilliance from the stacks, enabling you to work highly effective. You can choose between laser diode stacks with a Fast-Axis (FA) or combined Fast-Axis/Slow-Axis (SA) collimation.

Product feature

- Wavelength: 808 - 980nm
- Output power: 128 - 1440W
- Operation mode: CW
- Cooling: actively cooled / passively cooled

- Collimation: fast axis / fast axis and slow axis / without

Benefits

- Best price/performance ratio: Because of the small gaps between the laser bars.
- Powerful: Each of the 12 laser bars individually supplies up to 120 watts in CW mode.
- Flexible: CW or QCW mode.
- Easy to integrate: Compact designs.

Fields of Application

- Material processing: Curing of metals, annealing.
- Medical technology: Esthetics, dermatology.
- Industry: Pumping source for fiber lasers and solid-state lasers.
- Science and research: Pumping source for fiber lasers.

Part number	Wavelength in nm	Output power in W	Operation mode	Cooling	Collimation
STJ-JOLD-128-CABN-4A	808	128	CW	actively cooled	fast & slow axis
STJ-JOLD-135-CAFN-3A	808	135	CW	actively cooled	fast axis
STJ-JOLD-150-CANN-3A	808	150	CW	actively cooled	without
STJ-JOLD-180-CAFN-4A	808	180	CW	actively cooled	fast axis
STJ-JOLD-192-CABN-6A	808	192	CW	actively cooled	fast & slow axis
STJ-JOLD-200-CABN-4A	808	200	CW	actively cooled	fast & slow axis
STJ-JOLD-200-CANN-4A	808	200	CW	actively cooled	without
STJ-JOLD-216-CAFN-3A	808	216	CW	actively cooled	fast axis
STJ-JOLD-225-CAFN-5A	808	225	CW	actively cooled	fast axis
STJ-JOLD-240-CANN-3A	808	240	CW	actively cooled	without
STJ-JOLD-250-CANN-5A	808	250	CW	actively cooled	without
STJ-JOLD-256-CABN-8A	808	256	CW	actively cooled	fast & slow axis
STJ-JOLD-270-CAFN-6A	808	270	CW	actively cooled	fast axis
STJ-JOLD-288-CAFN-4A	808	288	CW	actively cooled	fast axis
STJ-JOLD-300-CABN-6A	808	300	CW	actively cooled	fast & slow axis
STJ-JOLD-300-CANN-6A	808	300	CW	actively cooled	without
STJ-JOLD-310-HS-4L	808	310	CW	passively cooled	without
STJ-JOLD-320-CABN-10A	808	320	CW	actively cooled	fast & slow axis
STJ-JOLD-320-CANN-4A	808	320	CW	actively cooled	without
STJ-JOLD-360-CAFN-5A	808	360	CW	actively cooled	fast axis
STJ-JOLD-360-CAFN-8A	808	360	CW	actively cooled	fast axis
STJ-JOLD-384-CABN-12A	808	384	CW	actively cooled	fast & slow axis
STJ-JOLD-400-CABN-8A	808	400	CW	actively cooled	fast & slow axis
STJ-JOLD-400-CANN-5A	808	400	CW	actively cooled	without
STJ-JOLD-400-CANN-8A	808	400	CW	actively cooled	without
STJ-JOLD-432-CAFN-6A	808	432	CW	actively cooled	fast axis
STJ-JOLD-450-CAFN-10A	808	450	CW	actively cooled	fast axis
STJ-JOLD-480-CANN-6A	808	480	CW	actively cooled	without
STJ-JOLD-500-CABN-10A	808	500	CW	actively cooled	fast & slow axis
STJ-JOLD-500-CANN-10A	808	500	CW	actively cooled	without
STJ-JOLD-540-CAFN-12A-808nm	808	540	CW	actively cooled	fast axis
STJ-JOLD-576-CAFN-8A	808	576	CW	actively cooled	fast axis
STJ-JOLD-600-CABN-12A	808	600	CW	actively cooled	fast & slow axis
STJ-JOLD-600-CANN-12A	808	600	CW	actively cooled	without
STJ-JOLD-640-CANN-8A	808	640	CW	actively cooled	without
STJ-JOLD-720-CAFN-10A	808	720	CW	actively cooled	fast axis
STJ-JOLD-800-CANN-10A	808	800	CW	actively cooled	without
STJ-JOLD-864-CAFN-12A	808	864	CW	actively cooled	fast axis
STJ-JOLD-960-CANN-12A	808	960	CW	actively cooled	without
STJ-JOLD-128-CABN-4A	940	128	CW	actively cooled	fast & slow axis
STJ-JOLD-162-CAFN-3A	940	162	CW	actively cooled	fast axis

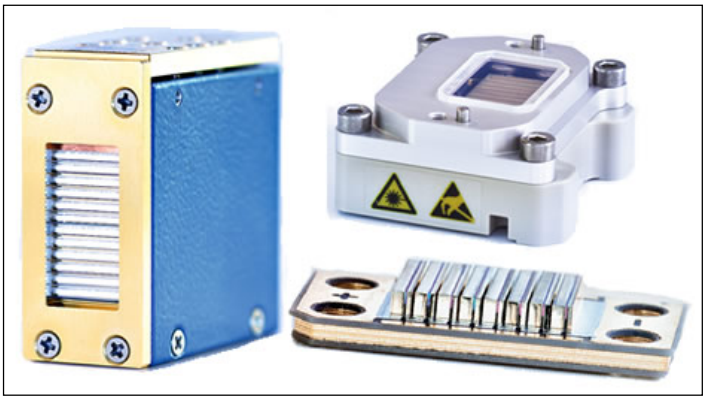
STJ-JOLD-180-CANN-3A	940	180	CW	actively cooled	without
STJ-JOLD-192-CABN-6A	940	192	CW	actively cooled	fast & slow axis
STJ-JOLD-200-CABN-4A	940	200	CW	actively cooled	fast & slow axis
STJ-JOLD-216-CAFN-3A	940	216	CW	actively cooled	fast axis
STJ-JOLD-216-CAFN-4A	940	216	CW	actively cooled	fast axis
STJ-JOLD-240-CANN-4A	940	240	CW	actively cooled	without
STJ-JOLD-256-CABN-8A	940	256	CW	actively cooled	fast & slow axis
STJ-JOLD-270-CAFN-3A	940	270	CW	actively cooled	fast axis
STJ-JOLD-270-CAFN-5A	940	270	CW	actively cooled	fast axis
STJ-JOLD-288-CAFN-4A	940	288	CW	actively cooled	fast axis
STJ-JOLD-300-CABN-6A	940	300	CW	actively cooled	fast & slow axis
STJ-JOLD-300-CANN-3A	940	300	CW	actively cooled	without
STJ-JOLD-300-CANN-5A	940	300	CW	actively cooled	without
STJ-JOLD-310-HS-4L	940	310	CW	passively cooled	without
STJ-JOLD-320-CABN-10A	940	320	CW	actively cooled	fast & slow axis
STJ-JOLD-324-CAFN-6A	940	324	CW	actively cooled	fast axis
STJ-JOLD-330-CAFN-3A	940	330	CW	actively cooled	fast axis
STJ-JOLD-360-CAFN-4A	940	360	CW	actively cooled	fast axis
STJ-JOLD-360-CAFN-5A	940	360	CW	actively cooled	fast axis
STJ-JOLD-360-CANN-3A	940	360	CW	actively cooled	without
STJ-JOLD-360-CANN-6A	940	360	CW	actively cooled	without
STJ-JOLD-384-CABN-12A	940	384	CW	actively cooled	fast & slow axis
STJ-JOLD-400-CABN-8A	940	400	CW	actively cooled	fast & slow axis
STJ-JOLD-400-CANN-4A	940	400	CW	actively cooled	without
STJ-JOLD-432-CAFN-6A	940	432	CW	actively cooled	fast axis
STJ-JOLD-432-CAFN-8A	940	432	CW	actively cooled	fast axis
STJ-JOLD-440-CAFN-4A	940	440	CW	actively cooled	fast axis
STJ-JOLD-450-CAFN-5A	940	450	CW	actively cooled	fast axis
STJ-JOLD-480-CANN-4A	940	480	CW	actively cooled	without
STJ-JOLD-480-CANN-4A	940	480	CW	actively cooled	without
STJ-JOLD-480-CANN-8A	940	480	CW	actively cooled	without
STJ-JOLD-500-CABN-10A	940	500	CW	actively cooled	fast & slow axis
STJ-JOLD-500-CANN-5A	940	500	CW	actively cooled	without
STJ-JOLD-540-CAFN-10A	940	540	CW	actively cooled	fast axis
STJ-JOLD-540-CAFN-6A	940	540	CW	actively cooled	fast axis
STJ-JOLD-550-CAFN-5A	940	550	CW	actively cooled	fast axis
STJ-JOLD-576-CAFN-8A	940	576	CW	actively cooled	fast axis
STJ-JOLD-600-CABN-12A	940	600	CW	actively cooled	fast & slow axis
STJ-JOLD-600-CANN-10A	940	600	CW	actively cooled	without
STJ-JOLD-600-CANN-5A	940	600	CW	actively cooled	without
STJ-JOLD-600-CANN-6A	940	600	CW	actively cooled	without
STJ-JOLD-648-CAFN-12A	940	648	CW	actively cooled	fast axis
STJ-JOLD-660-CAFN-6A	940	660	CW	actively cooled	fast axis
STJ-JOLD-720-CAFN-10A	940	720	CW	actively cooled	fast axis
STJ-JOLD-720-CAFN-8A	940	720	CW	actively cooled	fast axis
STJ-JOLD-720-CANN-12A	940	720	CW	actively cooled	without
STJ-JOLD-720-CANN-6A	940	720	CW	actively cooled	without
STJ-JOLD-800-CANN-8A	940	800	CW	actively cooled	without
STJ-JOLD-864-CAFN-12A	940	864	CW	actively cooled	fast axis
STJ-JOLD-880-CAFN-8A	940	880	CW	actively cooled	fast axis
STJ-JOLD-900-CAFN-10A	940	900	CW	actively cooled	fast axis
STJ-JOLD-960-CANN-8A	940	960	CW	actively cooled	without
STJ-JOLD-1000-CANN-10A	940	1000	CW	actively cooled	without
STJ-JOLD-1080-CAFN-12A	940	1080	CW	actively cooled	fast axis
STJ-JOLD-1100-CAFN-10A	940	1100	CW	actively cooled	fast axis
STJ-JOLD-1200-CANN-10A	940	1200	CW	actively cooled	without
STJ-JOLD-1200-CANN-12A	940	1200	CW	actively cooled	without
STJ-JOLD-1320-CAFN-12A	940	1320	CW	actively cooled	fast axis
STJ-JOLD-1440-CANN-12A	940	1440	CW	actively cooled	without

STJ-JOLD-128-CABN-4A	980	128	CW	actively cooled	fast & slow axis
STJ-JOLD-135-CAFN-3A	980	135	CW	actively cooled	fast axis
STJ-JOLD-150-CANN-3A	980	150	CW	actively cooled	without
STJ-JOLD-180-CAFN-4A	980	180	CW	actively cooled	fast axis
STJ-JOLD-192-CABN-6A	980	192	CW	actively cooled	fast & slow axis
STJ-JOLD-200-CABN-4A	980	200	CW	actively cooled	fast & slow axis
STJ-JOLD-200-CANN-4A	980	200	CW	actively cooled	without
STJ-JOLD-216-CAFN-3A	980	216	CW	actively cooled	fast axis
STJ-JOLD-225-CAFN-5A	980	225	CW	actively cooled	fast axis
STJ-JOLD-250-CANN-5A	980	250	CW	actively cooled	without
STJ-JOLD-256-CABN-8A	980	256	CW	actively cooled	fast & slow axis
STJ-JOLD-270-CAFN-3A	980	270	CW	actively cooled	fast axis
STJ-JOLD-270-CAFN-6A	980	270	CW	actively cooled	fast axis
STJ-JOLD-288-CAFN-4A	980	288	CW	actively cooled	fast axis
STJ-JOLD-300-CABN-6A	980	300	CW	actively cooled	fast & slow axis
STJ-JOLD-300-CANN-3A	980	300	CW	actively cooled	without
STJ-JOLD-300-CANN-6A	980	300	CW	actively cooled	without
STJ-JOLD-320-CABN-10A	980	320	CW	actively cooled	fast & slow axis
STJ-JOLD-330-CAFN-3A	980	330	CW	actively cooled	fast axis
STJ-JOLD-360-CAFN-4A	980	360	CW	actively cooled	fast axis
STJ-JOLD-360-CAFN-5A	980	360	CW	actively cooled	fast axis
STJ-JOLD-360-CAFN-8A	980	360	CW	actively cooled	fast axis
STJ-JOLD-360-CANN-3A	980	360	CW	actively cooled	without
STJ-JOLD-384-CABN-12A	980	384	CW	actively cooled	fast & slow axis
STJ-JOLD-400-CABN-8A	980	400	CW	actively cooled	fast & slow axis
STJ-JOLD-400-CANN-4A	980	400	CW	actively cooled	without
STJ-JOLD-400-CANN-8A	980	400	CW	actively cooled	without
STJ-JOLD-432-CAFN-6A	980	432	CW	actively cooled	fast axis
STJ-JOLD-440-CAFN-4A	980	440	CW	actively cooled	fast axis
STJ-JOLD-450-CAFN-10A	980	450	CW	actively cooled	fast axis
STJ-JOLD-450-CAFN-5A	980	450	CW	actively cooled	fast axis
STJ-JOLD-500-CABN-10A	980	500	CW	actively cooled	fast & slow axis
STJ-JOLD-500-CANN-10A	980	500	CW	actively cooled	without
STJ-JOLD-500-CANN-5A	980	500	CW	actively cooled	without
STJ-JOLD-540-CAFN-12A	980	540	CW	actively cooled	fast axis
STJ-JOLD-540-CAFN-6A	980	540	CW	actively cooled	fast axis
STJ-JOLD-550-CAFN-5A	980	550	CW	actively cooled	fast axis
STJ-JOLD-576-CAFN-8A	980	576	CW	actively cooled	fast axis
STJ-JOLD-600-CABN-12A	980	600	CW	actively cooled	fast & slow axis
STJ-JOLD-600-CANN-12A	980	600	CW	actively cooled	without
STJ-JOLD-600-CANN-5A	980	600	CW	actively cooled	without
STJ-JOLD-600-CANN-6A	980	600	CW	actively cooled	without
STJ-JOLD-660-CAFN-6A	980	660	CW	actively cooled	fast axis
STJ-JOLD-720-CAFN-10A	980	720	CW	actively cooled	fast axis
STJ-JOLD-720-CAFN-8A	980	720	CW	actively cooled	fast axis
STJ-JOLD-720-CANN-6A	980	720	CW	actively cooled	without
STJ-JOLD-800-CANN-8A	980	800	CW	actively cooled	without
STJ-JOLD-864-CAFN-12A	980	864	CW	actively cooled	fast axis
STJ-JOLD-880-CAFN-8A	980	880	CW	actively cooled	fast axis
STJ-JOLD-900-CAFN-10A	980	900	CW	actively cooled	fast axis
STJ-JOLD-960-CANN-8A	980	960	CW	actively cooled	without
STJ-JOLD-1000-CANN-10A	980	1000	CW	actively cooled	without
STJ-JOLD-1080-CAFN-12A	980	1080	CW	actively cooled	fast axis
STJ-JOLD-1100-CAFN-10A	980	1100	CW	actively cooled	fast axis
STJ-JOLD-1200-CANN-10A	980	1200	CW	actively cooled	without
STJ-JOLD-1200-CANN-12A	980	1200	CW	actively cooled	without
STJ-JOLD-1320-CAFN-12A	980	1320	CW	actively cooled	fast axis
STJ-JOLD-1440-CANN-12A	980	1440	CW	actively cooled	without

4. QCW diode laser stacks

Our passively cooled diode laser stacks and assemblies for QCW operation are highly efficient – even under harsh environmental conditions. We assemble our vertical and horizontal stacks using gold and tin solder (hard solder) as standard. This enables hard-pulse operation under demanding climatic conditions. Because of their lightweight construction, the stacks also easily withstand vibrations and shocks. Thanks to their reliability and efficiency, our diode laser stacks are also used as pumping sources for solid-state lasers, including in the field of high energy research.

As standard, we form passively cooled vertical stacks consisting up to 16 laser elements or arrange up to 4 laser elements in a row. Other configurations are available upon request. You can thus achieve output power up into the kW range.



Product feature

- Wavelength: 808 - 940nm
- Output power: 270 - 2400W
- Operation mode: QCW
- Cooling: actively cooled / passively cooled
- Collimation: fast axis / without

Benefits

- Efficient: High output power up into the kW range.
- Compact: Small and lightweight design is easily integrated.
- Robust: Shock and vibration resistant.
- Reliable: Works even under the most demanding climatic conditions.
- High-quality: We only use hard solder.
- Fields of Application
- High energy research: QCW pumping sources for solid-state lasers.
- Medical technology: Long-pulse operation, use in esthetics (epilation) and dermatology.
- Defense: Short-pulse operation, use as a pumping source, for lighting or in LIDAR systems.
- Industry: Excitation light source for solid-state and fiber lasers.

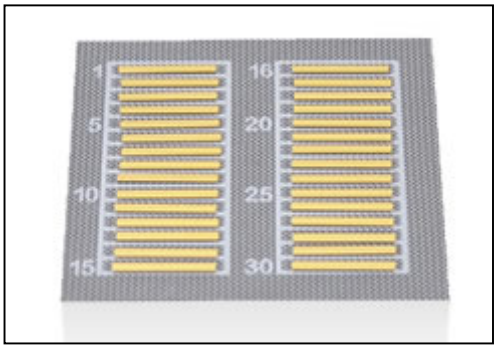
Part number	Wavelength in nm	Output power in W	Operation mode	Cooling	Collimation
STJ-JOLD-270-QAFN-3A	808	270	QCW	actively cooled	fast axis
STJ-JOLD-300-QANN-3A	808	300	QCW	actively cooled	without
STJ-JOLD-360-QAFN-4A	808	360	QCW	actively cooled	fast axis
STJ-JOLD-400-QANN-4A	808	400	QCW	actively cooled	without
STJ-JOLD-450-QAFN-5A	808	450	QCW	actively cooled	fast axis
STJ-JOLD-500-QANN-5A	808	500	QCW	actively cooled	without
STJ-JOLD-540-QAFN-6A	808	540	QCW	actively cooled	fast axis
STJ-JOLD-600-QANN-6A	808	600	QCW	actively cooled	without
STJ-JOLD-720-QAFN-8A	808	720	QCW	actively cooled	fast axis
STJ-JOLD-780-QAF-8A-med	808	780	QCW	passively cooled	fast axis
STJ-JOLD-780-QA-8A-med	808	780	QCW	passively cooled	without
STJ-JOLD-800-QANN-8A	808	800	QCW	actively cooled	without
STJ-JOLD-810-QF-3A	808	810	QCW	passively cooled	without
STJ-JOLD-900-QAFN-10A	808	900	QCW	actively cooled	fast axis
STJ-JOLD-900-Q-3A	808	900	QCW	passively cooled	without
STJ-JOLD-1000-QANN-10A	808	1000	QCW	actively cooled	without
STJ-JOLD-1080-QAFN-12A	808	1080	QCW	actively cooled	fast axis
STJ-JOLD-1200-QANN-12A	808	1200	QCW	actively cooled	without
STJ-JOLD-1560-QAF-2x8A-med	808	1560	QCW	passively cooled	fast axis
STJ-JOLD-1600-QA-2x8A-med	808	1600	QCW	passively cooled	without
STJ-JOLD-2160-QF-8A	808	2160	QCW	passively cooled	without
STJ-JOLD-2400-Q-8A	808	2400	QCW	passively cooled	without
STJ-JOLD-2400-QA-8A-industry	808	2400	QCW	passively cooled	without
STJ-JOLD-270-QAFN-3A	940	270	QCW	actively cooled	fast axis
STJ-JOLD-300-QANN-3A	940	300	QCW	actively cooled	without
STJ-JOLD-360-QAFN-4A	940	360	QCW	actively cooled	fast axis

STJ-JOLD-400-QANN-4A	940	400	QCW	actively cooled	without
STJ-JOLD-450-QAFN-5A	940	450	QCW	actively cooled	fast axis
STJ-JOLD-500-QANN-5A	940	500	QCW	actively cooled	without
STJ-JOLD-540-QAFN-6A	940	540	QCW	actively cooled	fast axis
STJ-JOLD-600-QANN-6A	940	600	QCW	actively cooled	without
STJ-JOLD-720-QAFN-8A	940	720	QCW	actively cooled	fast axis
STJ-JOLD-800-QANN-8A	940	800	QCW	actively cooled	without
STJ-JOLD-810-QF-3A	940	810	QCW	passively cooled	without
STJ-JOLD-900-QAFN-10A	940	900	QCW	actively cooled	fast axis
STJ-JOLD-900-Q-3A	940	900	QCW	passively cooled	without
STJ-JOLD-1000-QANN-10A	940	1000	QCW	actively cooled	without
STJ-JOLD-1080-QAFN-12A	940	1080	QCW	actively cooled	fast axis
STJ-JOLD-1200-QANN-12A	940	1200	QCW	actively cooled	without
STJ-JOLD-2160-QF-8A	940	2160	QCW	passively cooled	without
STJ-JOLD-2400-Q-8A	940	2400	QCW	passively cooled	without
STJ-JOLD-2400-QA-8A-industry	940	2400	QCW	passively cooled	without

STHT Series Diode Emitters, Bars, Arrays & Stacks

Laser diode chips, bars & stacks are the key components in laser pumping, industrial laser processing and advanced machining. We can provide various chips, bars and stacks in the wavelengths 0.75-1.06um, single emitters and chips at single mode and multi-mode, a few hundred watts, COS/COC/MCC packages. Customized products are available upon request. These products are widely used in laser industrial material processing, medical application, communications, safety protection, intelligent sensing, and scientific research.

1. Unmounted Single Diode Emitters and Bars



Semiconductor lasers are one of most of today's industrial lasers. Whether direct material processing or optical pumping of solid-state lasers, fiber lasers or disc lasers, the unmounted single emitters and bars are the key component for the initial conversion of electrical energy into light.

We have been focusing on the semiconductor wafer technology from 1998, delivers the multimode high power at wavelengths between 808 and 1064nm.

- High Power multimode unmounted bars up to 40W CW and 200W QCW output
- Unmounted single emitters up to 2W CW Power
- Available wavelengths include 808nm and 980nm

Part No.	Wavelength	Output Power	Emitter Width	Cavity Length	Width
STHT-CLDM-0808-0500-02	808±5nm	500mW	50μm	600μm	500μm
STHT-CLDM-0808-1000-02	808±5nm	1W	100μm	900μm	500μm
STHT-CLDM-0808-2000-02	808±5nm	2W	100/150μm	1500/1000μm	500μm
STHT-CLDM-0980-0500-02	980±10nm	500mW	50μm	600μm	500μm
STHT-CLDM-0980-1000-02	980±10nm	1W	100μm	900μm	500μm
STHT-CLDM-0980-2000-02	980±10nm	2W	150μm	1000μm	500μm

Unmounted Bars	Wavelength	Output Power	Operation Mode	Fill Factor	Number of single emitters
STHT-LDAC1-0808-0020	808±5nm	20W	CW	20%	19
STHT-LDAC1-0808-0040	808±5nm	40W	CW	30%	19
STHT-LDAQ1-0808-0100	808±5nm	100W	QCW	87%	100
STHT-LDAQ1-0808-0200	808±5nm	200W	QCW	71%	58

2. Packaged Diode Single Emitters

LDM series packaged single emitters are Fabry-Perot cavity semiconductor lasers based on Quantum-well epitaxy and ridge waveguide structure design. Our packaged single emitters provide excellent reliability and performance.

- Center wavelength includes 635nm, 650nm, 670nm, 785nm, 808nm, 830nm, 9xxnm and 1064 nm
- Package designs include TO mounts, COS mounts, C-mounts and F-mounts
- Provide beam shaping services like fast-axis compression according to customer demands
-

Part No.	Wavelength nm	Output Power(20°C)	Operating Current	Operating Voltage	Package
STHT-LDM-0635-500m	635	500mW	≤1.35A	≤2.3V	C-Mount / TO3
STHT-LDM-0650-300m	650	300mW	≤1.0A	≤2.3V	C-Mount / TO3

STHT-LDM-0670-300m	670	300mW	≤1.0A	≤2.3V	C-Mount / TO3
STHT-LDM-0808-200m	808	200mW	≤220mA	≤2.0V	TO56
STHT-LDM-0808-300m	808	300mW	≤330mA	≤2.0V	TO56
STHT-LDM-0808-500m	808	500mW	≤560mA	≤2.0V	TO9
STHT-LDM-0808-001W	808	1W	≤1.24A	≤2.0V	TO9
STHT-LDM-0808-002W	808	2W	≤2.1A	≤2.0V	CoS/ F-Mount /C-Mount
STHT-LDM-0808-003W	808	3W	≤3.3A	≤2.0V	CoS/ F-Mount/ C-Mount
STHT-LDM-0808-005W	808	5W	≤5.5A	≤2.0V	CoS/ F-Mount/ C-Mount
STHT-LDMP-0808-007W	808	7W (ms pulse)	≤7.8A	≤3.0V	TO56
STHT-LDM-0808-008W	808	8W	≤10A	≤2.0V	CoS/ F-Mount/ C-Mount
STHT-LDM-0830-001W	830	1W	≤1.3A	≤2.0V	CoS/ C-Mount
STHT-LDMP-0830-005W	830	5W (ms pulse)	≤5.30A	≤3.0V	TO56
STHT-LDM-0915-010W	915	10W	≤11A	≤2.2V	CoS/ F-Mount
STHT-LDM-0940-003W	940	3W	≤3.2A	≤2.0V	CoS/ F-Mount/ C-Mount
STHT-LDM-0980-500m	980	500mW	≤700mA	≤2.0V	TO9
STHT-LDM-0980-001W	980	1W	≤1.3A	≤2.0V	TO9
STHT-LDM-0980-002W	980	2W	≤2.3A	≤2.0V	CoS/ C-Mount
STHT-LDM-0980-003W	980	3W	≤3.6A	≤2.0V	CoS/ C-Mount
STHLDMP-980-005W	980	5W (ms pulse)	≤5.8A	≤3.0V	TO56

3. Diode Laser Packaged Bars and Arrays

LDA series high power packaged bars provide OEM customers with scalable power up to kilowatts for pumping, industrial, medical and applications. The packaged laser bars can be configured for enhanced brightness through stacking, scaled linearly or vertically for optimized light and material integration. LDA series offer:

- Wavelengths at 808nm to 1100nm range
- Modular and Compact design for ease of integration
- Up to 100W CW and 300W QCW laser diode bars for high brightness
- Packaged 10mm laser diode bar, various standard bar configurations (custom bar configurations available on request)

Packaged Bars	Center Wavelength	Output Power	Operation Mode	Cooling
STHT-LDAC1-0808-020W	808nm	20W	CW	Conduction-cooled
STHT-LDAC1-0808-040W	808nm	40W	CW	Conduction-cooled
STHT-LDAC1-0808-060W	808nm	60W	CW	Conduction-cooled
STHT-LDAC1-09xx-060W	9xxnm	60W	CW	Conduction-cooled
STHT-LDAC1-1064-040W	1064nm	40W	CW	Conduction-cooled
STHT-LDAC1-0808-040W	808nm	40W	CW	Microchannel-cooled
STHT-LDAC1-0808-060W	808nm	60W	CW	Microchannel-cooled
STHT-LDAC1-0808-100W	808nm	100W	CW	Microchannel-cooled
STHT-LDAC1-09xx-060W	9xxnm	60W	CW	Microchannel-cooled
STHT-LDAC1-1064-040W	1064nm	40W	CW	Microchannel-cooled
STHT-LDAQ1-0808-100W	808nm	100W	QCW	Conduction-cooled
STHT-LDAQ1-0808-200W	808nm	200W	QCW	Conduction-cooled
STHT-LDAQ1-0808-300W	808nm	300W	QCW	Conduction-cooled

Vertical Arrays	Center Wavelength	Power per bar	Operation Mode	Cooling

STHT-LDAC2-0808-xxx	808nm	40-100W	CW	Microchannel-cooled
STHT-LDAC2-09xx-xxx	9xxnm	40-100W	CW	Microchannel-cooled
STHT-LDAC2-1064-040W	1064nm	40W	CW	Microchannel-cooled
STHT-LDAQ2-0808-xxx	808nm	100-300W	QCW	Conduction-cooled
STHT-LDAQ2-0940-xxx	940nm	100-200W	QCW	Conduction-cooled

Horizontal Arrays	Center Wavelength	Power per bar	Operation Mode	Cooling
STHT-LDAC3-0808-xxx	808nm	40-100W	CW	Microchannel-cooled
STHT-LDAC3-09xx-xxx	9xxnm	40-100W	CW	Microchannel-cooled
STHT-LDAC3-1064-040W	1064nm	40W	CW	Microchannel-cooled
STHT-LDAC3-0808-xxx	808nm	40-100W	CW	Macrochannel-cooled
STHT-LDAC3-09xx-xxx	9xxnm	40-100W	CW	Macrochannel-cooled
STHT-LDAC3-1064-040W	1064nm	40W	CW	Macrochannel-cooled
STHT-LDAQ3-0808-xxx	808nm	100-300W	QCW	Macrochannel-cooled
STHT-LDAQ3-0940-xxx	940nm	100-200W	QCW	Macrochannel-cooled

- 9xxnm center wavelength includes 915nm/940nm/980nm.
- Please contact us to discuss your specific requirements.

4. Diode Laser Arrays for Hair Removal

The vertical arrays specially designed for hair removal application, can stack up to 10 packaged laser bars to form a high-power diode laser assembly. Each of these laser bars individually provides up to 100watts in CW mode. The small gaps between the laser bars make the module obtain maximum brilliance from the arrays, enabling the module to work with high efficiency

- Power up to 1000W
- Compact designs
- Reliable package with hard solder

Part No.	STHT-LDAQ2-0808-300	STHT-LDAQ2-0808-500	STHT-LDAQ2-0808-800	STHT-LDAQ2-0808-1000
Operation Mode	QCW	QCW	QCW	QCW
Center Wavelength nm	808 ± 10	808 ± 10	808 ± 10	808 ± 10
Output Power W	300	500	800	1000
Bar Numbers	5/ 6	10	8	10
Operating Current A	≤50	≤50	≤100	≤100
Operating Voltage V/bar	≤2	≤2	≤2	≤2
Pulse Width ms	≤400	≤400	≤200	≤200
Duty Cycle %	≤40	≤40	≤20	≤20
Bar pitch mm	2	2	2.8	2.8
Emitting Area mm	10×11	10×19.5	10x20	10x25.5
Operating Temp. ℃	15～35	15～35	15～35	15～35
Storage Temp. ℃	-10～50	-10～50	-10～50	-10～50
Flow Rate L/min	>4	>4	>4	>4