



DoGain

DoGain Optoelectronic Technology (Suzhou) Co., Inc.

Address: Bld 32, No. 99 Jinjihu Avenue,
215123 Suzhou, Jiangsu, China

Website: www.dogain-tech.com

Tel: 0086-512-6238 5166

DoGain

DoGain Optoelectronic Technology (Suzhou) Co., Inc.

Advanced Manufacturer of
Semiconductor-based Diode Laser Chips and Modules

01 Company Overview

Advanced Manufacturer of Semiconductor-based Diode Laser Chips and Modules



DoGain

Dogain Optoelectronic Technology (Suzhou) Co.,LTD. (Dogain Optoelectronic), founded in 2017, is a semiconductor based diode laser manufacture with headquarter located in Suzhou, China.

Dogain Optoelectronic positions upstream of optoelectronic industry, with flexibility in diode laser chip fabrication, packaging, testing and characterization, provides product portfolios covering high-power diode laser components, 980nm pumps and VCSELs.

Dogain Optoelectronic dedicates to be a global R&D center and manufacture center of diode lasers for applications of industry processing, telecom, sensing, medical & health etc.



Attitude

Enjoy doing
Enjoy gaining



Mission

Gather talents to provide world's 1st class semiconductor-based diode lasers.



Core Value

Perfection, Innovation, Win-win, Keeping improving



Vision

World's leading R&D center and manufacturer for semiconductor-based diode lasers

Layout 02

Advanced Manufacturer of Semiconductor-based Diode Laser Chips and Modules

Jiangsu-Suzhou (Headquarter)
DoGain Optoelectronic Technology (Suzhou) Co., Inc.

Shaaxin-Xi'an (Sales Office)
Xi'an Subsidiary

Guangdong-Shenzhen (R&D)
Shenzhen Subsidiary

Jiangsu-Zhenjiang (Packaging) Jiangsu Tianyuan Technology Co., Ltd.

Jiangsu-Nantong (Manufacture Center)
DoGain Optronics (Nantong) Technology Co., Ltd.



2023

All-round development

- Renamed "DoGain Optoelectronic Technology (Suzhou) Co., Inc."
- Two subsidiaries, "Suzhou DoGain Optoelectronic Device Co., Ltd." and "Suzhou DoGain Vertical Cavity Chip Co., Ltd." were founded.
- Setting up Beijing, Wuhan, Shenzhen and Xi'an 4 Regional marketing centers, as well as Overseas marketing center.
- World's first 55W 9xxnm single emitter chip is released.
- 940nm diode laser chip and fiber coupled module, with high temperature resistance performance for vehicle LIDAR is introduced.

2022

Mass production

- Fiber-coupled module manufacture center completed and put into production.
- Awarded the most promising high-tech enterprise and provincial-enterprise technology center.

Volume production

- Completed B++ round and C round fund-raising.
- Acquired ISO9001 Quality System Certification.
- VCSEL, 980nm single mode pumps started to sell.
- New R&D building completed and went into service.
- Started volume sales of HPL SE chips and HPL fiber-coupled module.

2021

Technique development

- Completed whole production process optimization, all products passed reliability tests.
- Mass production of lasers for pumping, medical and industrial.
- Awarded municipal enterprise technology center, chosen to be municipal unicorn.
- Completed B+ round fund-raising.

2020

Infrastructure

- Completed installation and operation of first MOCVD equipment.
- Successfully developed epitaxy technology, enter into new stage of independent R&D.
- R&D. Constructed FAB production line and packaging line, started chip production.

2019

Initialization

- Completed A round fund-raising.
- Completed construction of 2550m² class1000 clean room and chip production line.

2018

Foundation

- Registered DoGain brand, received first investment funding
- Completed angle round fund-raising, start full IDM building processes

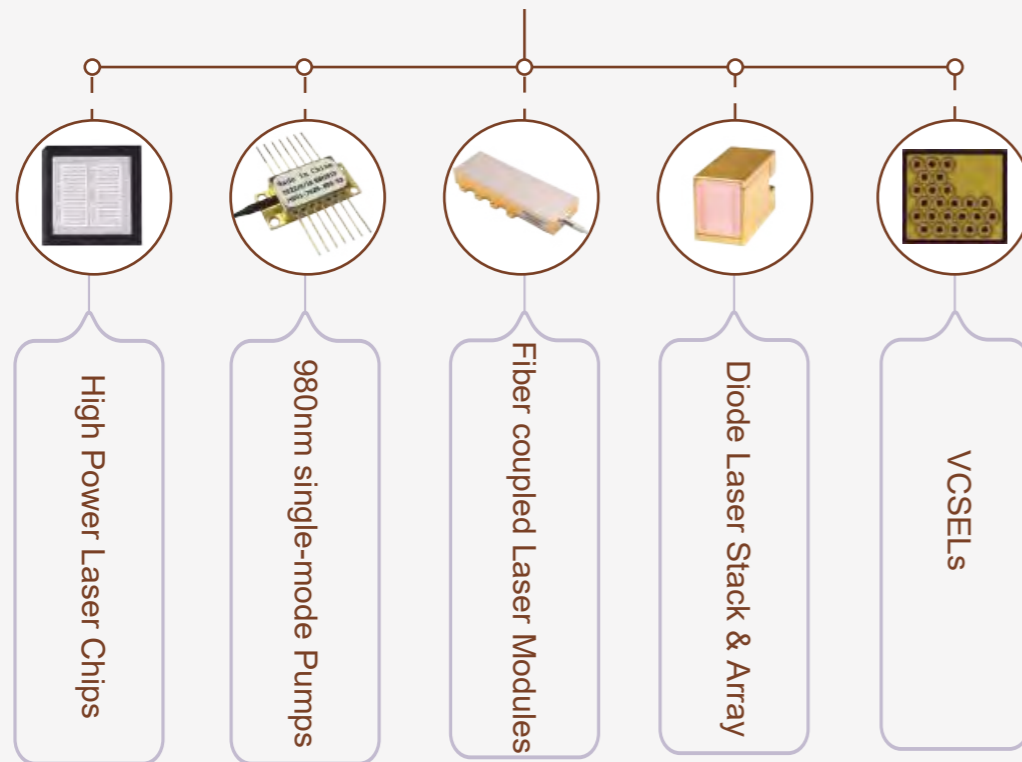
2017



> 150 Patents Authorized
> 51 patents for invention (Updated Aug. 2022)



Five Key Product Categories



High Power Multi-mode SE Chips: 700 nm ~ 1100 nm 5 W - 45 W

High power semiconductor laser chips are key components for laser pumping, material processing and advanced manufacture. With wavelength range of 700 nm ~ 1100 nm and output power of 5 W ~ 45 W for single emitter

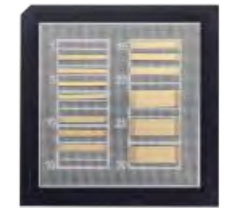
- Wavelength: 700 nm ~ 1100 nm
- Output power: 5 W ~ 45 W
- Emitting width: 100 μ m ~ 320 μ m
- Cavity length: 1 mm ~ 5.5 mm
- Polarization: TE 95 % ~ 97 %
- Features: High PER, small divergence, high EO efficiency, high wavelength uniformity



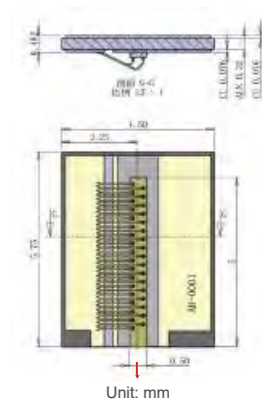
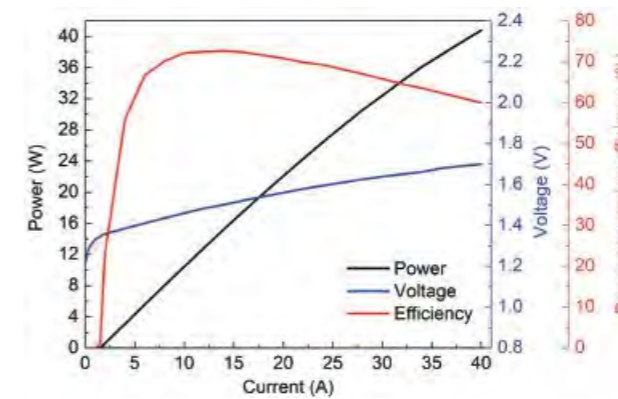
High Power Bar chips: 700 nm ~ 1100 nm 50 W - 700 W

High power semiconductor laser chips are key components for laser pumping, material processing and advanced manufacture. With wavelength range of 700 nm ~ 1100nm, and output power of 50 W ~ 200W (CW) 100 W ~ 700W for single bar

- Wavelength: 700 nm ~ 1100 nm
- Output power: CW 50 W ~ 200 W
- QCW 100 W ~ 700 W
- Fill factor: 20 % ~ 80 %
- Cavity length: 1 ~ 4 mm
- Polarization: TE
- Features: High EO efficiency, high COMD, high wavelength uniformity



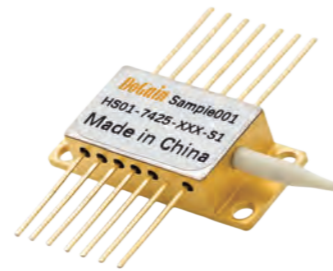
Performance



980 nm pumps – HS Series

Features

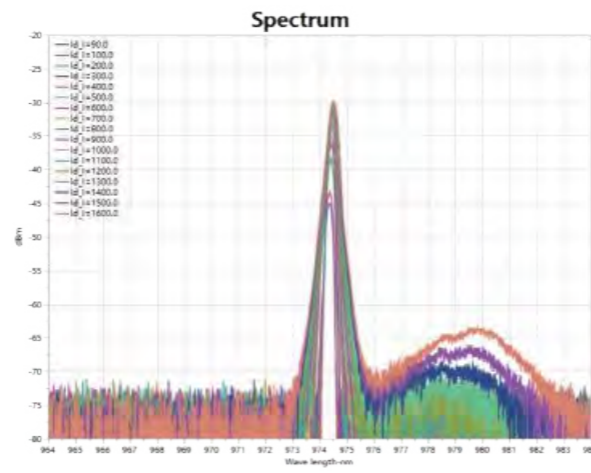
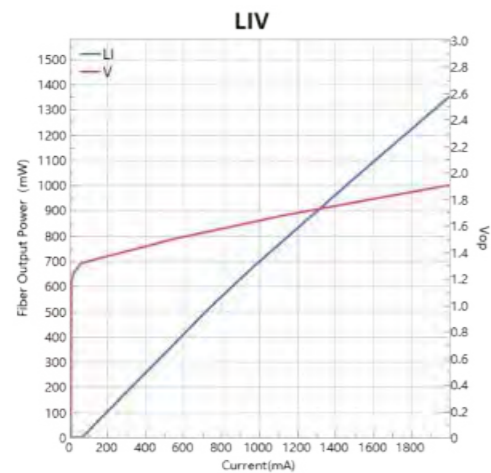
- Using Dogain Optoelectronic independent-developed chips
- 14 pin Butterfly packaging
- Maximum output power of 1100 mW (Kink-free) from single mode fiber
- Working temperature range: -20 ~ 75 °C
- High efficient TEC temperature control (Ts=25°C)
- High wavelength stabilization with FBG
- Unique fiber couple technology, high efficiency, high stabilization
- SM/PM fiber and FC-APC/UPC connector optional
- Apply to Telcordia GR-468-CORE standards



Applications

- Multi-stage DWDM system (EDFAs)
- Low noise EDFAs
- Pumping for ultrafast laser seeds
- Pumping for ASE sources
- CATV

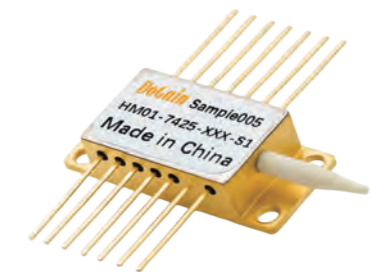
Performance



980 nm pumps – HM Series

Features

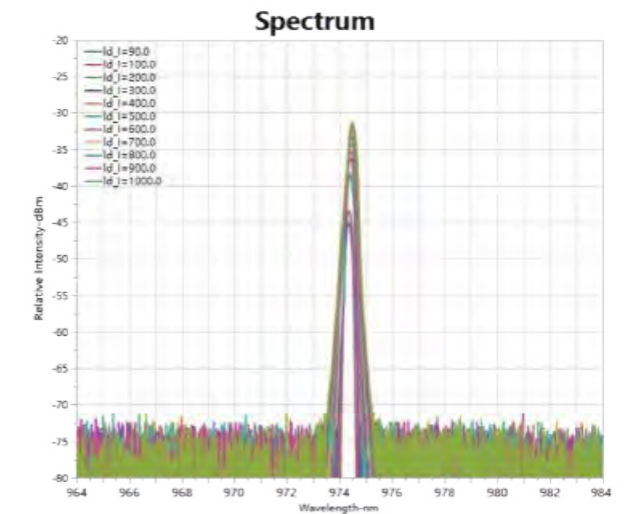
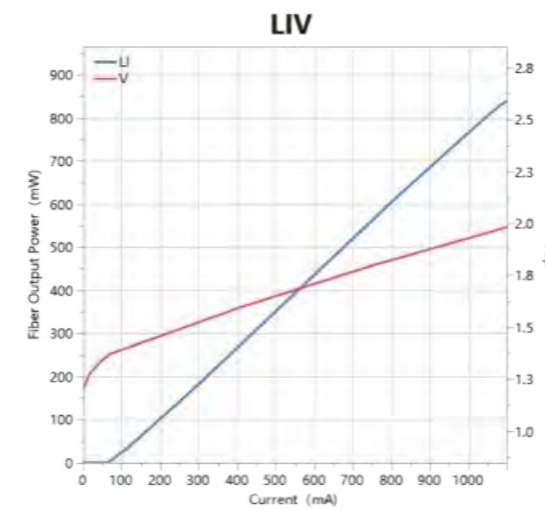
- Using Dogain Optoelectronic independent-developed chips
- 10 pin Butterfly packaging
- Maximum output power of 600 mW (Kink-free) from single mode fiber
- fiber Working temperature range: -20 ~ 75 °C
- High efficient TEC temperature control (Ts=25/40 °C)
- High wavelength stabilization with FBG
- Unique fiber couple technology, high efficiency, high stabilization
- SM/PM Fiber optional and FC-APC/UPC connector
- Apply to Telcordia GR-468-CORE standards



Applications

- Multi-stage DWDM system (EDFAs)
- Low noise EDFAs
- Pumping for ultrafast laser seeds
- Pumping for ASE source
- CATV

Performance



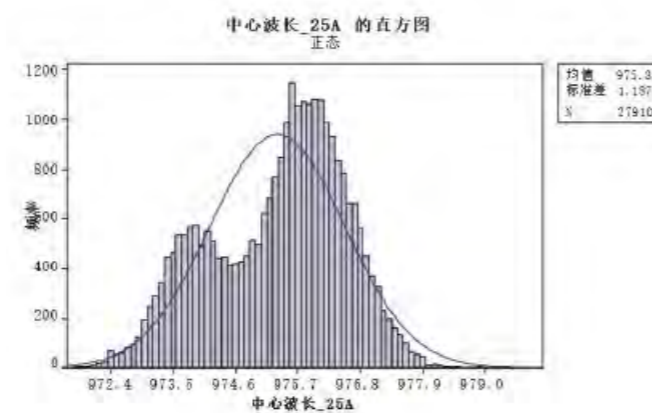
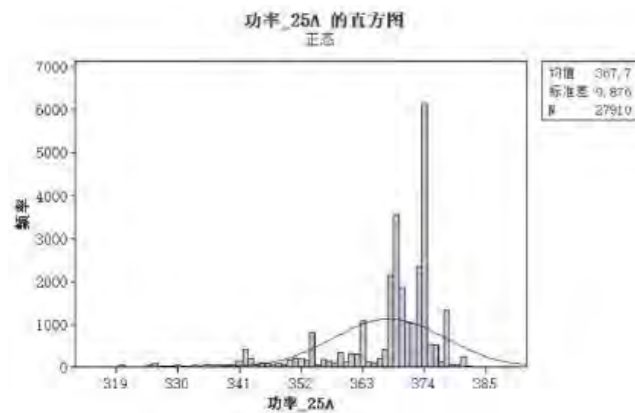
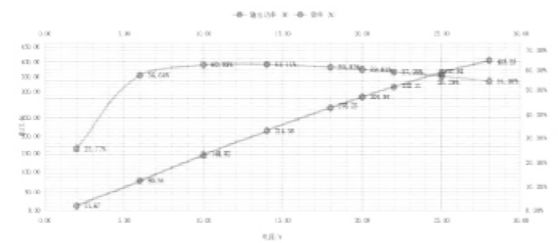
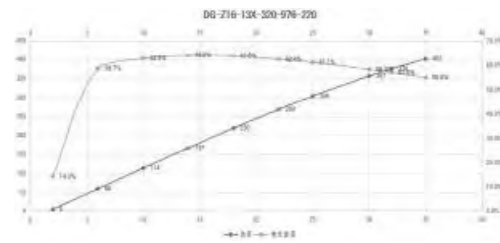
Multi-mode pumping module for Fiber laser

Features

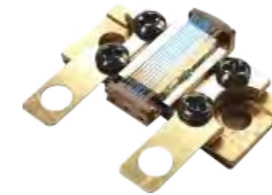
- Wavelength: 792 nm, 808 nm, 878.6 nm, 880 nm, 885 nm, 915 nm, 976 nm
- Fiber type: Output power:
 - 105/125 um 10 ~ 200 W
 - 135/155 um 30 ~ 300 W
 - 200/220 um 25 ~ 640 W
 - 220/242 um 320 ~ 640 W
- Connector: SMA905/FC
- Features: High EO efficiency, compact size, high reliability, high stability



Performance



Conduction-cooled stacks



- High peak power
- High reliability, long lifetime
- Work in harsh environment
- AuSn hard-solder packaging

Wavelength Coverage 760 nm - 1100 nm				
Typical Parameters (at 25°C)	Units	Typical Value		
Peak Power	W	2000 ~ 24000	6000	15000
Bar Width	mm	10	3	5
Operation Mode		Pulsed		
Operating Current	A	100 ~ 800	120	200
Number of Bars	#	up to 30	up to 60	up to 80
Operating Voltage	V	1.7 ~ 2.2		
EO Conversion Efficiency	%	~ 60		
Bar to Bar Pitch	mm	0.35, 0.43, 0.73, 1.21		
Beam Divergence				
Fast Axis (FWHM)	°	35		
Slow Axis (FWHM)	°	10		
Advanced Fast Axis Beam Collimation	°	0.5 ~ 5		
Option	#	Multi-wavelength in a single array; Operation Tem. Up to 85°C; Customizable Packaging		

Water cooled vertical stacks



- AuSn hard solder packaging
- High power, high pulse energy
- Narrow spectrum, low smile

Wavelength Coverage 760 nm - 1100 nm				
Typical Parameters (at 25°C)	Units	Typical Value		
Peak Power	W	80000	200~3000	200~6000
Bar Width	mm	10		
Operation Mode		Pulsed		CW
Operating Current	A	500, 600, 800	50,100	100, 150, 200
Number of Bars	#	up to 100	up to 30	up to 40
Operating Voltage	V	~ 2.1	1.8	~ 2
EO Conversion Efficiency	%	~ 60	55	55
Bar to Bar Pitch	mm	1.5, 1.83	1.2, 1.83, 2.56, 3.41	1.83
Duty Cycle	%	up to 20	up to 40	
Beam Divergence				
Fast Axis (FWHM)	°	35		
Slow Axis (FWHM)	°	10		
Advanced Fast Axis Beam Collimation	°	0.5 ~ 5		
Option	#	Multi-wavelength in one stack; Customizable Packaging		

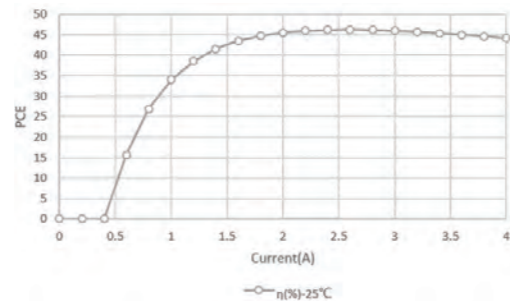
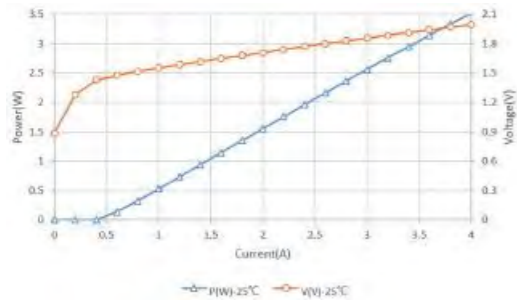


- Volume production capability
- Customization of wavelength, power and angle
- Complete production line covering VCSEL epitaxial and FAB processes
- World's leader of industrial equipments and techniques for semiconductor laser chip



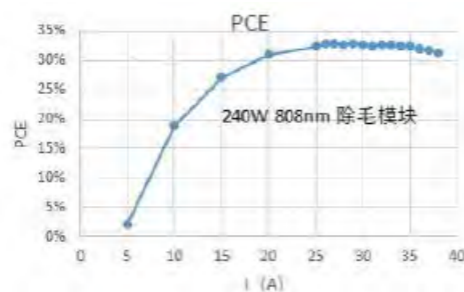
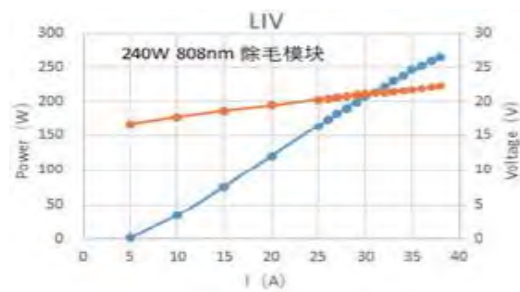
VCSEL Chips



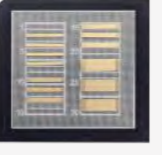
- Wavelengths: 680 nm, 808 nm, 850 nm, 905 nm, 940 nm
- Structural: Single emitter, array, structure light, addressable, in-line
- Power scale: 5 mW, 10 mW, 15 mW, 210 mW, 500 mW, 1 W, 2 W, 3 W, 5 W, 8 W, 15 W, 50 W
- Feature: High EO conversion efficiency, high reliability and high temperature stability



VCSEL Module

- Packaging type: 3532, 3535, 3838, 5050
- Ultra high power: 60 W, 120 W, 240 W, 300 W, others customizable
- TO module: Line module with narrow spectrum, collimated module, dimension and angle customizable
- Module: 40*30, 60*45, 72*58, 110*90 view angle, accept customization with ordered WL, power and angle
- Applications: Facial recognition, Surveillance, UAV drone, Robot, Distance measurement and Hair removal etc.



Product	Description	Part Number	Appearance	
Epitaxy	GaAs Structural epitaxial wafer	3/4 6 inch		
SE Chips	Multi-mode 792nm 6\10W SE chips	DG-UMC-100-792-TE-6-4.0		
		DG-UMC-190-792-TE-10-4.0		
	Multi-mode 808nm 6\10\15W SE chips	DG-UMC-100-808-TE-6-4.0		
		DG-UMC-190-808-TE-10-4.0		
	Multi-mode 880nm 10\12\15\18W SE chips	DG-UMC-230-808-TE-15-5.0		
		DG-UMC-100-880-TE-10-4.5		
		DG-UMC-160-880-TE-12-4.5		
		DG-UMC-190-880-TE-15-4.5		
	Multi-mode 915nm 12\18\22\25\30\33\35W SE chips	DG-UMC-230-880-TE-18-4.5		
		DG-UMC-100-915-TE-12-4.5		
		DG-UMC-160-915-TE-18-4.5		
		DG-UMC-190-915-TE-22-4.5		
		DG-UMC-230-915-TE-25-4.5		
		DG-UMC-230-915-TE-30-5.0		
		DG-UMC-260-915-TE-33-5.0		
		DG-UMC-290-915-TE-35-5.0		
	Multi-mode 945nm 12\18\22\25W SE chips	DG-UMC-320-915-TE-35-5.5		
		DG-UMC-100-945-TE-12-4.5		
		DG-UMC-160-945-TE-18-4.5		
		DG-UMC-190-945-TE-22-4.5		
Multi-mode 975nm 12\18\22\25\30\33\35W SE chips	DG-UMC-230-945-TE-25-4.5			
	DG-UMC-100-975-TE-12-4.5			
	DG-UMC-160-975-TE-18-4.5			
	DG-UMC-190-975-TE-22-4.5			
Single-mode 980nm 400\600\900\1500 mW SE chips	DG-UMC-230-975-TE-25-4.5			
	DG-UMC-230-975-TE-30-5.0			
	DG-UMC-260-975-TE-33-5.0			
	DG-UMC-290-975-TE-35-5.0			
Bar Chips	780\792\808nm CW 50~150W Bars	DG-UMC-320-975-TE-35-5.0		
		DG-UMC-320-975-TE-35-5.5		
		780\792\808nm QCW 300~600W Bars		DG-UMC-LT-980-SP-400-1.5
				DG-UMC-LT-980-SP-600-2.0
	DG-UMC-LT-980-SP-900-3.0			
	DG-UMC-LT-980-SP-1500-5.0			
	915\945\975nm CW 50~200W Bars	DG-UMB-30-19-XXX-TE-50-1.0		
		DG-UMB-50-47-XXX-TE-50-1.0		
		DG-UMB-30-19-XXX-TE-80-1.5		
		DG-UMB-50-47-XXX-TE-100-1.5		
	915\940\975nm QCW 300~600W Bars	DG-UMB-30-19-XXX-TE-100-2.0		
		DG-UMB-50-23-XXX-TE-100-2.0		
		DG-UMB-50-23-XXX-TE-120-2.0		
		DG-UMB-50-47-XXX-TE-120-2.0		
	1064nm CW 50~200W Bars	DG-UMB-50-24-XXX-TE-150-4.0		
		DG-UMB-75-62-XXX-TE-300-1.5		
		DG-UMB-75-37-XXX-TE-300-1.5		
		DG-UMB-75-37-XXX-TE-500-2.0		
	1064nm QCW 300~600W Bars	DG-UMB-75-37-XXX-TE-500-2.0		
		DG-UMB-84-42-XXX-TE-500-2.0		
DG-UMB-84-42-XXX-TE-600-2.5				
DG-UMB-84-44-940-TE-500-2.5				

Product	Description	Part Number	Appearance
Single-mode Pumps	Single-mode pumps Harvest HS01 Series	DG-HS01-7xxx-(300~600)-S1	
	Single-mode pumps Harvest HS02 Series	DG-HS02-7xxx-(600~1000)-S1	
	Single-mode pumps Harvest HM01 Series	DG-HM01-7xxx-(300~500)-S1	
VCSEL Chips and Modules	High power VCSEL array chip 940nm 1W	DG-SA-940-1W	
	High power VCSEL array chip 940nm 3W	DG-SA-940-3W	
	VCSEL array chip 940nm 210mW	DG-SA-940-210mW	
	High power VCSEL array chip 940nm 2W	DG-SA-940-2W	
	High power VCSEL array chip 850nm 2W	DG-SA-850-2W	
	VCSEL single hole chip 850nm 5mW	DG-SA-850-5mW	
	High power VCSEL array chip 808nm 4W	DG-SA-808-4W	
	High power VCSEL array chip 808nm 2W	DG-SA-808-2W	
	VCSEL array chip 680nm 100mW	DG-SA-680-100mW	
	VCSEL array chip 680nm 15mW	DG-SA-680-15mW	
	VCSEL single hole chip 680nm 5mW	DG-SA-680-5mW	
	850nm 5mW VCSEL line module	DG-MA-850-5mW	
	940nm 2W VCSEL TOF module	DG-MA-940-2W	
	940nm 3W VCSEL TOF module	DG-MA-940-3W	
Bar Stacks	808nm 120W QCW VCSEL Micro-channel stack module	DG-MA-808-120W	
	808nm 240W QCW VCSEL Micro-channel stack module	DG-MA-808-240W	
	760-1100nm Macro-channel cooled stack HL series 300/500/700/1000/1200/1500/2000/2400/3000W	DG-HL06-300-808	
		DG-HL10-500-808	
		DG-HL06-600-808	
		DG-HL07-700-808	
	760-1100nm Macro-channel cooled stack HH series 300/500/800/1200/1600/2400W	DG-HL10-1000-808	
		DG-HL12-1200-808-G	
		DG-HL15-1500-808-G	
		DG-HL20-2000-808-G	
	760-1100nm Macro-channel cooled stack HS series 600/800/1000/1200/1600/2400W	DG-HH03-300-808	
		DG-HH05-500-808	
		DG-HH06-600-808	
		DG-HH08-800-808	
760-1100nm Micro-channel cooled stack 500/700/1000/2500/5000/12000/15000W	DG-HH10-1000-780-808-1064		
	DG-HH16-1600-780-808-1064		
	DG-HS06-600-808-G		
	DG-HS08-800-808-G		
COS Devices	808nm Conduction cooled stack CS Series 100W	DG-CS01-60-808	
	808nm Conduction cooled stack HP Series 100/2400/4000/5000W	DG-GS30-2400-808	
	808nm Conduction cooled stack with beam shaping 800/1200/1800/4000/4800/8400W	DG-GS20-4000-808-C	
	808nm Conduction cooled stack	DG-GS24-4800-794-806-C	
	808nm Conduction cooled stack	DG-GS4X4-2000-808	
	808nm Conduction cooled stack	DG-GS4-5000-808	
	808nm Conduction cooled stack	DG-GS5-1000-808	
	808nm Conduction cooled stack	DG-GS6-1200-808	
	808nm Conduction cooled stack	DG-GS8-1800-808	
	808nm Conduction cooled stack	DG-GS8-1800-807-809-C	
HPL SE Pumps	808nm Conduction cooled stack	DG-GS06-1800-807-809-C	
	808nm Conduction cooled stack	DG-GS20-4000-808-C	
	808nm Conduction cooled stack	DG-GS24-4800-794-806-C	
	808nm Conduction cooled stack	DG-GS4X4-2000-808	
	808nm Conduction cooled stack	DG-GS4-5000-808	
	808nm Conduction cooled stack	DG-GS5-1000-808	
	808nm Conduction cooled stack	DG-GS6-1200-808	
	808nm Conduction cooled stack	DG-GS8-1800-808	
	808nm Conduction cooled stack	DG-GS8-1800-807-809-C	
	808nm Conduction cooled stack	DG-GS20-4000-808-C	
Side pump module	808nm Conduction cooled stack	DG-GS24-4800-794-806-C	
	808nm Conduction cooled stack	DG-GS4X4-2000-808	
	808nm Conduction cooled stack	DG-GS4-5000-808	
	808nm Conduction cooled stack	DG-GS5-1000-808	
	808nm Conduction cooled stack	DG-GS6-1200-808	
	808nm Conduction cooled stack	DG-GS8-1800-808	
	808nm Conduction cooled stack	DG-GS8-1800-807-809-C	
	808nm Conduction cooled stack	DG-GS20-4000-808-C	
	808nm Conduction cooled stack	DG-GS24-4800-794-806-C	
	808nm Conduction cooled stack	DG-GS4X4-2000-808	
High power COS devices	808nm Conduction cooled stack	DG-GS20-4000-808-C	
	808nm Conduction cooled stack	DG-GS24-4800-794-806-C	
	808nm Conduction cooled stack	DG-GS4X4-2000-808	
	808nm Conduction cooled stack	DG-GS4-5000-808	
	808nm Conduction cooled stack	DG-GS5-1000-808	
	808nm Conduction cooled stack	DG-GS6-1200-808	
	808nm Conduction cooled stack	DG-GS8-1800-808	
	808nm Conduction cooled stack	DG-GS8-1800-807-809-C	
	808nm Conduction cooled stack	DG-GS20-4000-808-C	
	808nm Conduction cooled stack	DG-GS24-4800-794-806-C	
High power VCSEL array chip	808nm Conduction cooled stack	DG-GS24-4800-794-806-C	
	808nm Conduction cooled stack	DG-GS4X4-2000-808	
	808nm Conduction cooled stack	DG-GS4-5000-808	
	808nm Conduction cooled stack	DG-GS5-1000-808	
	808nm Conduction cooled stack	DG-GS6-1200-808	
	808nm Conduction cooled stack	DG-GS8-1800-808	
	808nm Conduction cooled stack	DG-GS8-1800-807-809-C	
	808nm Conduction cooled stack	DG-GS20-4000-808-C	
	808nm Conduction cooled stack	DG-GS24-4800-794-806-C	
	808nm Conduction cooled stack	DG-GS4X4-2000-808	
Single-mode pumps	808nm Conduction cooled stack	DG-GS24-4800-794-806-C	
	808nm Conduction cooled stack	DG-GS4X4-2000-808	
	808nm Conduction cooled stack	DG-GS4-5000-808	
	808nm Conduction cooled stack	DG-GS5-1000-808	
	808nm Conduction cooled stack	DG-GS6-1200-808	
	808nm Conduction cooled stack	DG-GS8-1800-808	
	808nm Conduction cooled stack	DG-GS8-1800-807-809-C	
	808nm Conduction cooled stack	DG-GS20-4000-808-C	
	808nm Conduction cooled stack	DG-GS24-4800-794-806-C	
	808nm Conduction cooled stack	DG-GS4X4-2000-808	