

高功率
High Power

半导体激光器和系统制造商
Semiconductor Laser and System Manufacturer

HAN'S TCS
大族天成半导体

北京大族天成半导体技术有限公司

www.tc-semi.com

Version 2022

Brave in innovation

outstanding in technique

Company Profiles

公司简介

Han's TianCheng Semiconductor Co.,Ltd., founded in November 2011 in Beijing , is located in Beijing Economic and Technological Development Zone. Han's TianCheng has advanced research, technological infrastructure and experience in the development and production of diode lasers with self-developed technology, especially in fiber coupled laser modules. Han's TianCheng provides high power semiconductor laser products which are widely used in the fields such as material processing, diode-pumped solid-state pumping, fiber laser pumping, laser display, medical application and scientific research. We have been approved in the certification of ISO9001:2015、Hi-tech enterprise and specialized in special new enterprise.

Han's TianCheng dedicates to the development of high brightness fiber coupled diode laser modules with output power up to thousands of watts, and the wavelength from UV to near infrared. We can also provide special wavelength and multi-wavelength products, and other customized products and OEM services.

北京大族天成半导体技术有限公司是深圳市大族激光科技产业集团股份有限公司控股的子公司，成立于2011年1月，位于北京经济技术开发区。公司主要从事高功率半导体激光器组件及系统的研发、生产和销售。公司拥有从管芯封装到光纤耦合封装完整的设备和生产线，是极具实力的高端半导体激光器产品制造商。公司已通过ISO9001:2015质量管理体系认证、国家级高新企业及北京“**专精特新**”企业认证。

大族天成提供高品质的半导体激光器产品，广泛用于工业加工、激光显示、医疗、科研等多个领域。公司的核心业务是向固体激光器、光纤激光器的生产厂商和科研单位提供高功率半导体激光器泵源模块，为有激光焊接、熔覆、材料表面处理等需求的工业领域用户提供高功率密度的光源模块和系统。

大族天成致力于高亮度光纤耦合半导体激光器模块技术的开发，产品功率从几瓦到千瓦级。波长覆盖紫外波段到近红外波段，并可为客户定制特殊波长或多波长产品。我们可以提供多种可选择的封装形式和附加功能，并提供客户定制产品研发和咨询服务。

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We Chat

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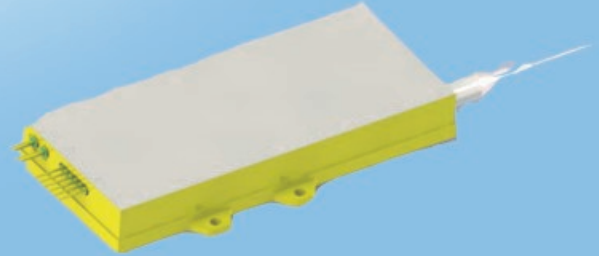


Pumping Source

793nm Diode Laser

Application

Pumping Source for 2 μ m Fiber Laser



	Typical Value						Units
Optical Parameters (25°C)							
Center Wavelength	793						nm
Center Wavelength Tolerance	±3	±3	±3	±3	±3	±3	nm
CW Output Power	5	16	30	40	80	140	W
Spectral Width (90% of Power)	<3.0						nm
Wavelength Shift with Temperature	0.3						nm/°C
Threshold Current	0.7	0.7	0.7	0.7	0.7	0.7	A
Operating Current	6.0	6.0	6.0	6.0	5.0	6.0	A
Operating Voltage	1.9	3.8	7.6	11.3	22.7	34	V
Slope Efficiency	0.9	1.9	3.8	5.7	11.6	17	W/A
Power Conversion Efficiency	44	44	44	44	44	44	%
Fiber Characteristics							
Core Diameter	105						μm
Numerical Aperture	0.22						-
Fiber Length	1-5						m
Fiber Connector ¹	Bare Fiber, SMA905, FC/PC						-
Accessories							
Monitor Photodiode	None	None	None	Optional	Optional	Optional	-
Packaging							
Package Model	R2	T2R	T4R	C5	DK	DK	-
Absolute Ratings							
Operating Temperature	+10~+40						°C
Operating Relative Humidity	<75						%
Storage Temperature	-20~+80						°C
Storage Relative Humidity	<90						%
Lead Soldering Temperature, 10s max	<250						°C

¹. Customized fiber and connector available.



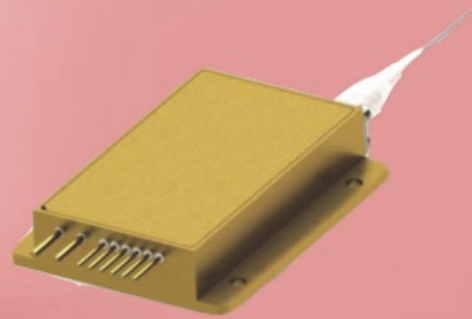
Pumping Source

808nm/878.6nm Diode Laser

Applications

Pumping Source for Solid-state laser

Laser Illumination



	Typical Value									Units	
Optical Parameters (25°C)											
Center Wavelength	808	808	808	808	808	808	878.6	878.6	878.6	nm	
Center Wavelength Tolerance	±3	±3	±3	±3	±3	±3	±0.5	±0.5	±0.5	nm	
CW Output Power	7	20	30	40	50	120	40	70	120	W	
Spectral Width (90% of Power)	<3.0						<0.5			nm	
Wavelength Shift with Temperature	0.3						0.02			nm/°C	
Threshold Current	1.8	1.8	1.8	1.8	1.8	1.8	1.5	1.5	1.5	A	
Operating Current	8.0	10.5	10.5	10.5	9.5	9.5	11.8	11.8	11.8	A	
Operating Voltage	1.8	3.5	5.3	7.0	10.5	26.1	7	12.3	21.1	V	
Slope Efficiency	1.1	2.2	3.2	4.1	6.5	15.8	3.9	6.8	11.8	W/A	
Power Conversion Efficiency	50	50	50	50	50	49	48	48	48	%	
Fiber Characteristics¹											
Core Diameter	105	400					200			µm	
Numerical Aperture	0.22	0.22					0.22			-	
Fiber Length	1.0	1.0					1.0			m	
Fiber Connector	Bare Fiber, SMA905										-
Accessories											
Monitor Photodiode	None						Optional			-	
Packaging											
Package Model	R2	T2	T3	T4R	C5	C2A	T4R	C5	C2A	-	
Absolute Ratings											
Operating Temperature	+10~+40									°C	
Operating Relative Humidity	<75									%	
Storage Temperature	-20~+80									°C	
Storage Relative Humidity	<90									%	
Soldering Temperature, 10s max	<250									°C	

¹ Customized fiber and connector available.

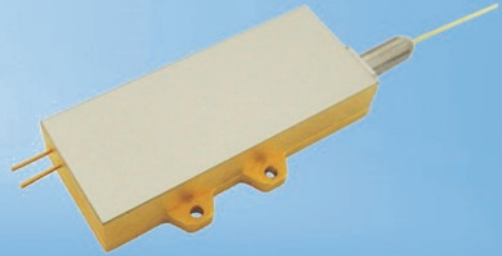


Pumping Source

915nm Diode Laser

Applications

Pumping Source for Fiber Laser and Solid-state Laser



	Typical Value				Units
Optical Parameters (25°C)					
Center Wavelength	915				nm
Center Wavelength Tolerance	±10				nm
CW Output Power	10	20	30	70	W
Spectral Width (90% of Power)	<6.0				nm
Wavelength Shift with Temperature	0.3				nm/°C
Feedback Protection(1030-1100nm)	>40				dB
Threshold Current	0.7	0.7	0.7	0.7	A
Operating Current	11.5	11.5	11.5	11.5	A
Operating Voltage	1.7	3.5	5.4	12.5	V
Slope Efficiency	0.9	1.8	2.7	6.6	W/A
Power Conversion Efficiency	50	50	50	50	%
Fiber Characteristics					
Core Diameter	105				μm
Numerical Aperture	0.22				-
Fiber Length	1.0				m
Fiber Connector ¹	Bare Fiber, SMA905, FC/PC				-
Accessories					
Monitor Photodiode	None				-
Packaging					
Package Model	R2	T2	T3	CH	-
Absolute Ratings					
Operating Temperature	+10~+40				°C
Operating Relative Humidity	<75				%
Storage Temperature	-20~+80				°C
Storage Relative Humidity	<90				%
Soldering Temperature, 10s max	<250				°C

¹ Customized fiber and connector available.

* Other wavelength: 900nm~980nm.

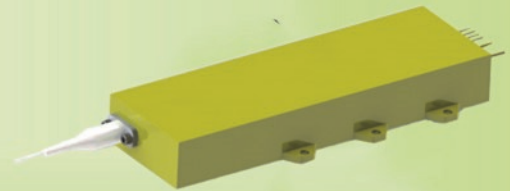


Pumping Source

976nm Diode Laser

Applications

Pumping Source for Fiber Laser and Solid-state Laser
Material Processing



	Typical Value						Units
Optical Parameters (25°C)							
Center Wavelength	976						nm
Center Wavelength Tolerance	±3						nm
CW Output Power	85	180	200	320	540	640	W
Spectral Width (90% of Power)	<6.0						nm
Wavelength Shift with Temperature	0.3						nm/°C
Feedback Protection(1030-1100nm)	>40						dB
Light within 0.16 NA	95%	95%	-	-	-	-	
Threshold Current	0.7	0.7	1.1	1.1	1.1	1.1	A
Operating Current	11.5	11.5	18.0	25.0	25	30	A
Operating Voltage	14.0	31.0	20.5	26.0	42.5	45	V
Slope Efficiency	7.4	16.3	10.2	17.4	22.0	22.0	W/A
Power Conversion Efficiency	50	50	50	50	50	50	%
Fiber Characteristics							
Core Diameter	105	105	135	135	200	200	µm
Numerical Aperture	0.22	0.22	0.22	0.22	0.22	0.22	-
Fiber Length	1.0						m
Fiber Connector ¹	Bare Fiber, SMA905, FC/PC						-
Accessories							
Monitor Photodiode	-	Optional	-	-	-	-	-
Package Model	CK	DK	C6	D3	D5	D5	-
Absolute Ratings							
Operating Temperature	+10~+40						°C
Operating Relative Humidity	<75						%
Storage Temperature	-20~+80						°C
Storage Relative Humidity	<90						%
Soldering Temperature, 10s max	<250						°C

¹ Customized fiber and connector available.

* Other wavelength: 900nm~980nm.



Pumping Source

976nm Wavelength Contact Diode Laser

Applications

Pumping Source for Fiber Laser and Solid-state Laser



	Typical Value						Units
Optical Parameters (25°C)							
Center Wavelength	976						nm
Center Wavelength Tolerance	±0.5						nm
CW Output Power	10	18	27	60	100	140	W
Spectral Width (90% of Power)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nm
Wavelength Shift with Temperature	0.02						nm/°C
Feedback Protection(1030-1100nm)	>40						dB
Threshold Current	1.0	0.6	0.6	0.6	0.6	0.6	A
Operating Current	12.5	10.0	10.0	10.0	10.0	9.8	A
Operating Voltage	1.7	3.4	5.1	13.6	20.4	28.9	V
Slope Efficiency	0.8	1.6	2.4	6.4	9.6	15.2	W/A
Power Conversion Efficiency	50	50	50	50	45	49	%
Fiber Characteristics¹							
Core Diameter	105						μm
Numerical Aperture	0.22						-
Fiber Length	1.0						m
Fiber Connector	Bare Fiber, SMA905, FC/PC						-
Accessories							
Monitor Photodiode	Optional	None	None	None	Optional	Optional	-
Packaging							
Package Model	T1	T4R	T4R	CK	D1	DK	-
Absolute Ratings							
Operating Temperature	+10~+40						°C
Operating Relative Humidity	<75						%
Storage Temperature	-20~+80						°C
Storage Relative Humidity	<90						%
Soldering Temperature, 10s max	<250						°C

¹ Customized fiber and connector available.

* Other wavelengths : 808nm、981nm.

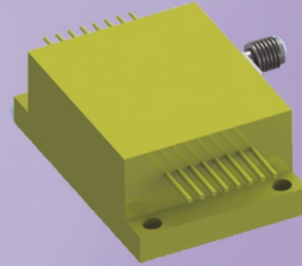


Medical and Cosmetology

808nm/980nm/1064nm/1470nm/1550nm Diode Laser

Applications

- Physiotherapy
- Varicose vein treatment
- Dental treatment



	Typical Value							Units
Optical Parameters (25°C)								
Center Wavelength	808	808	980	980	1064	1470	1550	nm
Center Wavelength Tolerance	±10							nm
CW Output Power	15	30	15	35	30	15	15	W
Spectral Width (90% of Power)	<6.0							nm
Wavelength Shift with Temperature	0.3							nm/°C
Threshold Current	1.8	1.8	0.7	1.2	0.9	0.5	0.7	A
Operating Current	9.0	9.0	9.0	15	12.0	6.8	7.5	A
Operating Voltage	3.6	7.2	3.4	5	4.7	9.7	11.6	V
Slope Efficiency	2.0	4.0	1.8	2.5	2.7	2.5	2.0	W/A
Power Conversion Efficiency	45	45	46	46	53	23	17	%
Fiber Characteristics¹								
Core Diameter	200							µm
Numerical Aperture	0.22							-
Fiber Length	1.0							m
Fiber Connector ²	SMA905							-
Accessories								
Aiming Laser(650nm) ²	Optional							-
TE Cooler	None							-
Monitor Photodiode	Optional	Optional	Optional	Optional	Optional	Optional	Optional	-
Fiber Connector Detector	Optional	Optional	Optional	Optional	Optional	None	None	-
Protection Window	Optional	Optional	Optional	Optional	Optional	None	None	-
Packaging								
Package Model	G3	G5	G3	G3	G3	C5	C5	-
Absolute Ratings								
Operating Temperature	+10~+40							°C
Operating Relative Humidity	<75							%
Storage Temperature	-20~+80							°C
Storage Relative Humidity	<90							%
Soldering Temperature, 10s max	<250							°C

¹ Customized fiber and connector available.

² Optional built-in constant power circuit, 5V power supply needed. Blue or green aiming beam available.

* Other wavelengths: 405nm, 635nm etc.

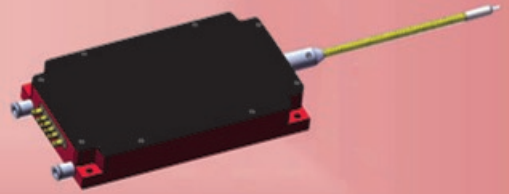


Medical and Cosmetology

High Power Diode Lasers

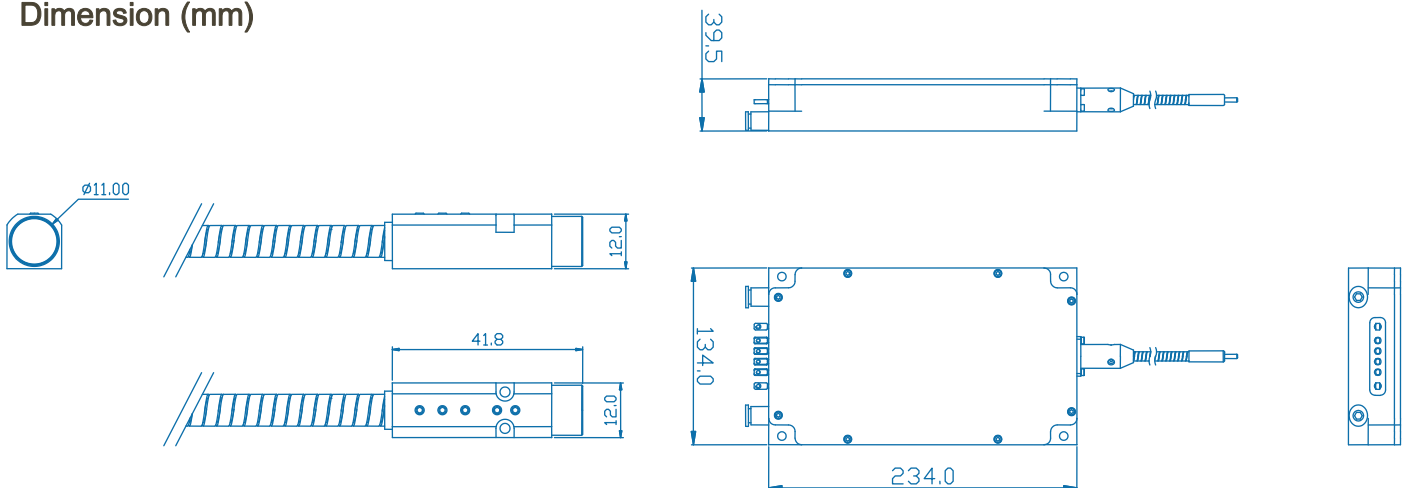
Applications

- Laser Cosmetology
- Hair Removal
- Laser Dispelling Red Blood Filament



	Typical Value				Units
Optical Parameters (25°C)					
Center Wavelength	755	808	808	1064	nm
Center Wavelength Tolerance	±10				nm
Peak Power	400	400	800	400	W
Spectral Width (90% of Power)	<10.0				nm
Fiber Characteristics					
Core Diameter	400				µm
Fiber Length	2.0				m
Fiber Connector	SMA905				-
Accessories					
Thermistor	Optional				-
Protection Window	Optional				-
Packaging					
Package Model	M3	M1	M3	M1	-
Absolute Ratings					
Operating Temperature	+10~+40				°C
Operating Relative Humidity	<75				%
Storage Temperature	-20~+80				°C
Storage Relative Humidity	<90				%
Soldering Temperature, 10s max	<250				°C

Dimension (mm)





Industrial and Material Processing

808nm 9XXnm Diode Laser

Applications

- Laser Plastic Welding
- Laser Soldering



	Typical Value						Units
Optical Parameters (25°C)							
Center Wavelength	808	808	9XX	9XX	9XX	9XX	nm
Center Wavelength Tolerance	±10	±10	±10	±10	±10	±10	nm
CW Output Power	30	50	50	100	200	300	W
Spectral Width (90% of Power)	<6.0						nm
Wavelength Shift with Temperature	0.3						nm/°C
Threshold Current	1.8	1.8	0.7	1.2	1.2	1.2	A
Operating Current	9.0	9.5	12.0	15.0	18.0	25.0	A
Operating Voltage	7.2	10.5	9.0	14.6	24.5	26.0	V
Slope Efficiency	4.0	6.5	4.4	7.2	12.5	12.5	W/A
Power Conversion Efficiency	45	50	45	45	45	45	%
Fiber Characteristics							
Core Diameter	200						µm
Numerical Aperture	0.22						-
Fiber Length	1.0						m
Fiber Connector	SMA905, FC/PC					D80	-
Accessories							
Aiming Laser(650nm) ¹	Optional						-
Monitor Photodiode	Optional						-
Packaging							
Package Model	C5	C5	C5	C5	C2A	D3	-
Absolute Ratings							
Operating Temperature	+10~+40						°C
Operating Relative Humidity	<75						%
Storage Temperature	-20~+80						°C
Storage Relative Humidity	<90						%
Soldering Temperature, 10s max	<250						°C

¹ Optional built-in constant power circuit, 5V power supply needed. Blue or green aiming beam available.



High Power Visible Light

400~700nm Diode Lasers (Blue Violet, Blue, Red)

Applications

- 3D Printing
- None-mask Lithography, LDI
- Medical
- Laser Display
- Material Processing

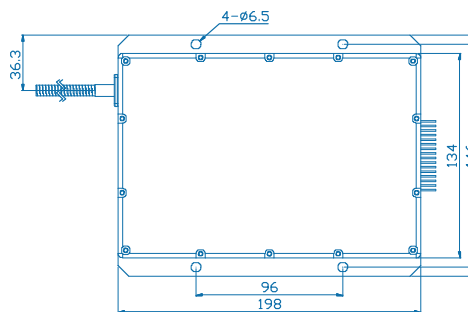
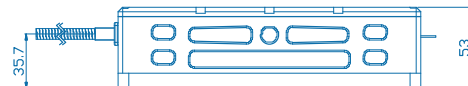
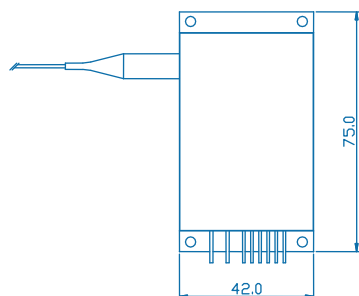
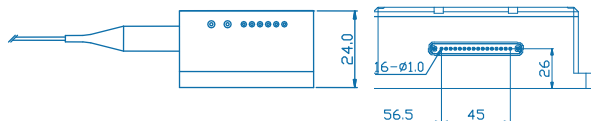


	Typical Value							Units
	Low Power			High Power				
Optical Parameters (25°C)								
Center Wavelength	450	520	632	405	450	520	635~640	nm
CW Output Power	6	4	4	10~30	30~50	35	10~35	W
Fiber Characteristics								
Core Diameter	105			105-600				μm
Fiber Connector	SMA905 / Customized							-
Packaging								
Package Form	C1T			V5				-
Cooling	Water Cooling /Air Cooling							-
Driver	Optional			Optional				-
Absolute Ratings								
Operating Temperature	+10~+40							°C
Operating Relative Humidity	<75							%
Storage Temperature	-20~+80							°C
Storage Relative Humidity	<90							%
Soldering Temperature, 10s max	<250							°C

Dimension (mm)

C1T

V5





High Power Visible Light

High Power Blue Laser System

Applications

- Medical
- Welding of copper gold and other materials
- Laser engraving



	Typical Value				Units
Optical Parameters (25°C)					
Center Wavelength	450				nm
Center Wavelength Tolerance	±10				nm
CW Output Power	50	100	200	500	W
Fiber Characteristics					
Core Diameter	100	100	200	400	µm
Numerical Aperture	0.22	0.22	0.22	-	-
Fiber Length	1-5			5.0	m
Fiber Connector	D80/SMA905			QBH	-
Accessories					
Monitor Photodiode	Optional	Optional	Optional	-	-
Aiming Laser	Optional	Optional	Optional	-	-
Packaging					
Package dimension	V5A	V5A	V5W	System	mm
Cooling	Water Cooling/Air Cooling				
Absolute Ratings					
Operating Temperature	+10~+40				°C
Operating Relative Humidity	<75				%
Storage Temperature	-20~+80				°C
Storage Relative Humidity	<90				%
Soldering Temperature, 10s max	<250				°C

Application

Metal Welding
 Laser Cladding
 Laser Surface Heat Treatment



	Typical Value	Units
Photoelectric Parameters (25°C)		
Center Wavelength	9XX~1070	nm
CW Output Power	1000~3000	W
Fiber Characteristics		
Core Diameter	300~600	μm
Fiber Port	QBH	-
Driver	Optional	-
Cooling	Water Cooling	-
Absolute Ratings		
Operating Temperature	+15~+40	°C
Operating Relative Humidity	<75	%
Storage Temperature	5~50	°C
Storage Relative Humidity	<90	%

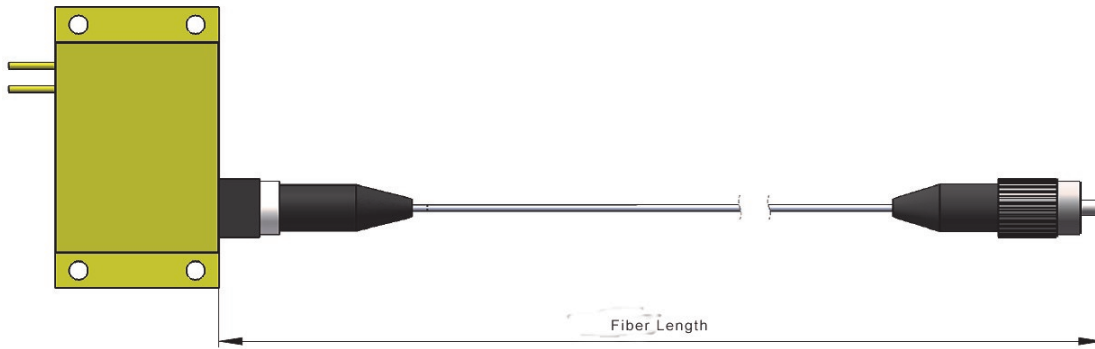
*110V~220V AC power supply

*Operating current set locally or remotely by RS485 port

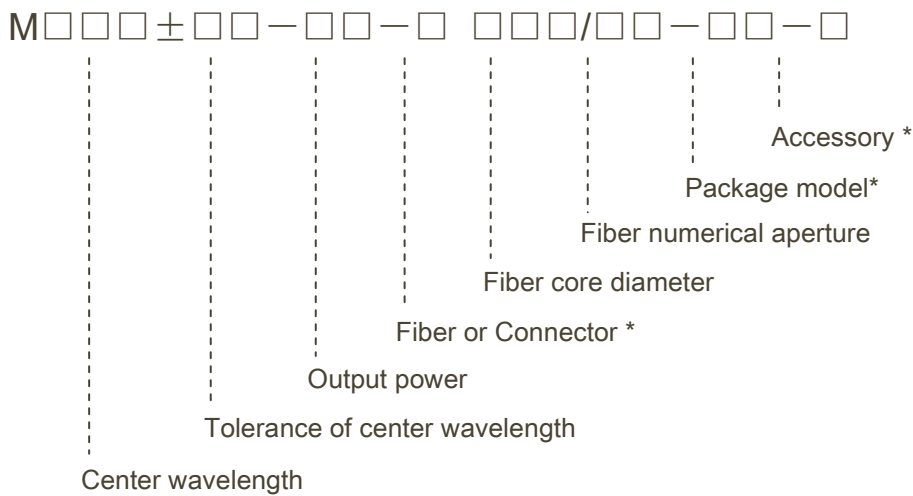
*Over-temperature protection

*Other customized functions

Fiber Length Definition



Type Definition



* Accessory: T - TE cooler, A - Aiming laser, P - Monitor photodiode, K - Fiber connector detector

* Package model: T1, T2, T3, T4, T4S, CH, CK, G4, C1, D1, M1

* Fiber or Connector: F - Fiber output, D - Detachable connector

Example:

M808±3-14-D200-22-G4T-TAPK

M - Module

808 - Center wavelength: 808nm

3 - Tolerance of center wavelength: 3nm

14 - Output power: 14W

D200/22 - Detachable Connector for 200µm/0.22NA fiber

G4T - Package model: G4T

TAPK - TE cooler, aiming laser, monitor photodiode and fiber connector detector integrated



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High Power

Semiconductor Laser and System

Manufacturer

高品质 · 高可靠性 · 高性价比
High quality · High reliability · High performance

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