Fiber Coupled VCSEL Laser Diode 795nm

SM, PM

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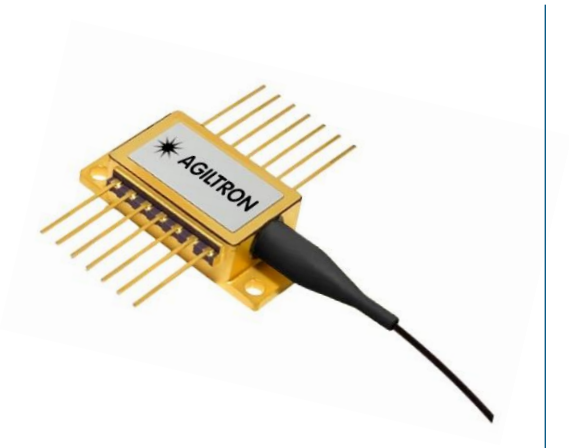

The FCVC is a fiber-coupled, vertically-emitting, single-mode diode laser based on a semiconductor quantum-well configuration. The diode chip is housed in a 14-pin butterfly package, featuring TEC cooling and a power monitoring photodetector. Wavelength tuning can be achieved through laser current and temperature adjustments. Our 795nm single-mode VCSEL is designed for high-speed, high-performance communication applications. All of our laser products are Telcordia GR-468 qualified and comply with RoHS Directives.

Specifications

Parameter	Min	Typical	Max	Unit
Emission Wavelength	794.5	795	795.5	nm
Peak Optical Output Power		0.1	0.2	mW
Bandwidth(-3dB)	100			MHz
Spectral Linewidth		100		MHz
Side-mode Suppression Ratio	25			dB
Polarization Extinction Ratio	18			dB
Relative Intensity Noise		-130	-120	dB/Hz
Thermal resistance (VCSEL chip)	3		5	K/mW
Beam Divergence	10		25	°
Wavelength Temperature Coefficient		0.06		nm/K
Wavelength Current Coefficient		0.6		nm/mA
Threshold Current		1		mA
Slope Efficiency		0.3		W/A
Electro Optic Conversion Rate		12		%
Operating Current		-	3	mA
Differential series resistance		300	500	Ω
Laser Forward Voltage		2		V
NTC Thermistor Resistance	9.5	10	10.5	KΩ
Storage Temperature	-40	25	+125	℃
Chip Temperature	+10		+40	℃
Operating Current	0	2	3	mA
Laser Forward Voltage	0.8	1.2	1.8	V
TEC Current	-150		+300	mA
Soldering Temperature*	100	130	270	℃
Electrical Power Dissipation			5	mW
Pigtail Type		900 loose tube		μm
Pigtail Length		1.0±0.1		m
Connector Type		FC/APC		

Features

- Low Temperature Dependence
- Data rates from OC-3 to OC-48
- Vertical Cavity Surface-Emitting Laser
- Internal TEC and Thermistor
- 2 nm tunability with TEC

Applications

- Access network
- Local area network
- Gigabit Ethernet

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Note: *TEC temperature must be below 150℃

Warning: The device can be damaged by a spike in applying voltage. Do not touch by hand or use a regular power supply. The device mounted on PCB is a cost-effective OEM module for professional system integration only, not intended for laboratory use, which be a protected turn-key boxed package. Information is believed to be accurate and is subject to change without notice. Some specific combinations of options may not be available. The user assumes all risks and liability in connection with the use of a product or its application.

Rev 09/26/24

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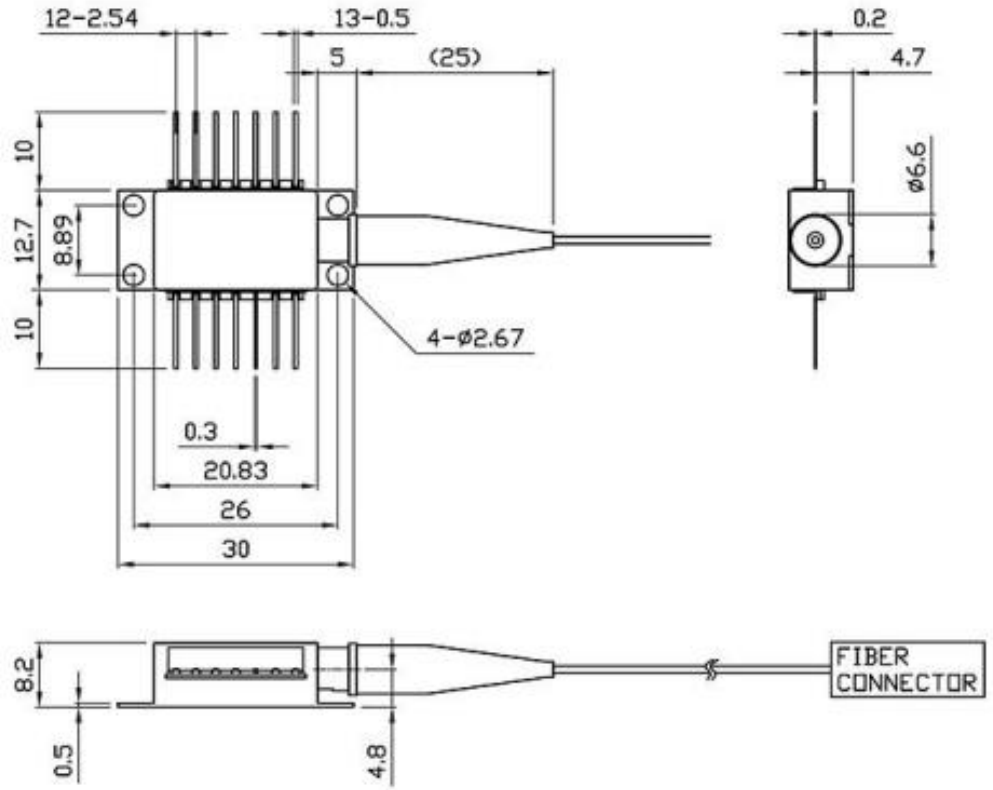
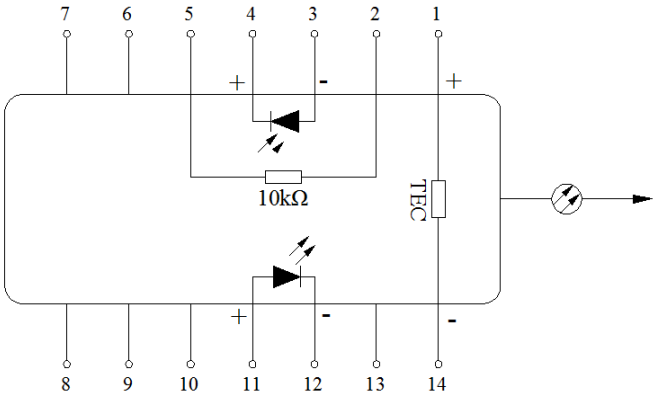
Mechanical Dimensions (mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Electrical Connection



PIN	Description	PIN	Description
1	Thermoelectric Cooler (+)	8	NC
2	Thermistor	9	NC
3	Monitor PD Anode (-)	10	NC
4	Monitor PD Cathode (+)	11	Laser Anode (+)
5	Thermistor	12	Laser Cathode (-)
6	NC	13	NC
7	NC	14	Thermoelectric Cooler (–)

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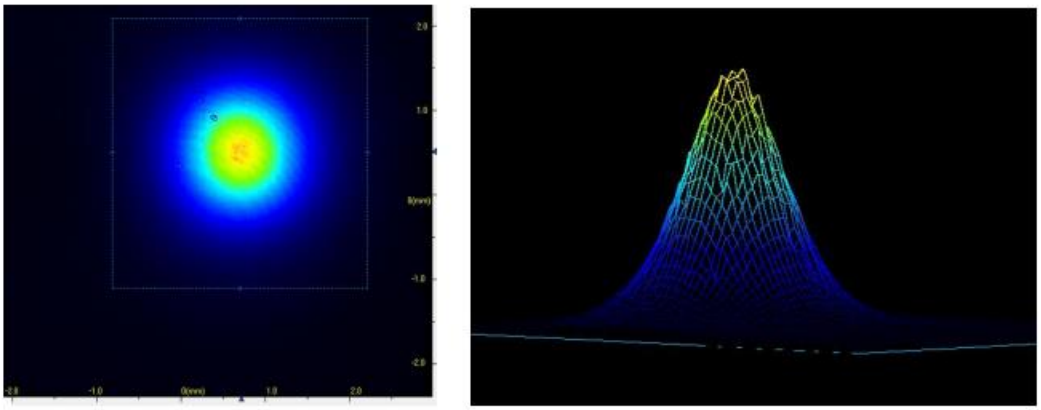
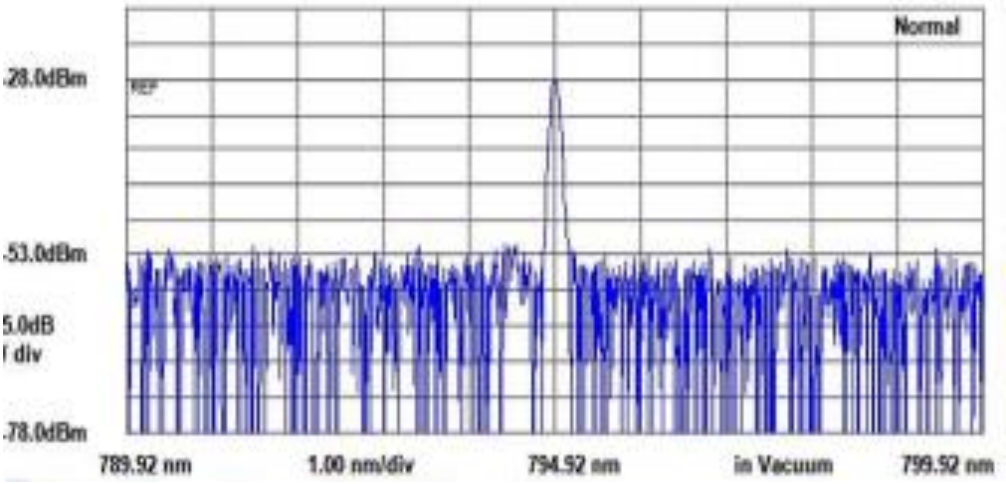
Typical Optical Characters

Beam Profiler (2D/3D)

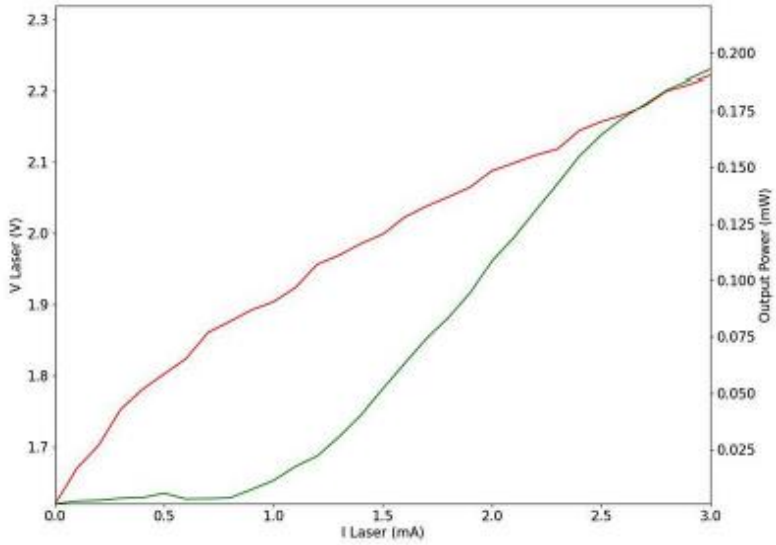


2D 3D

Spectrum



L-I Curve(T@25° C)



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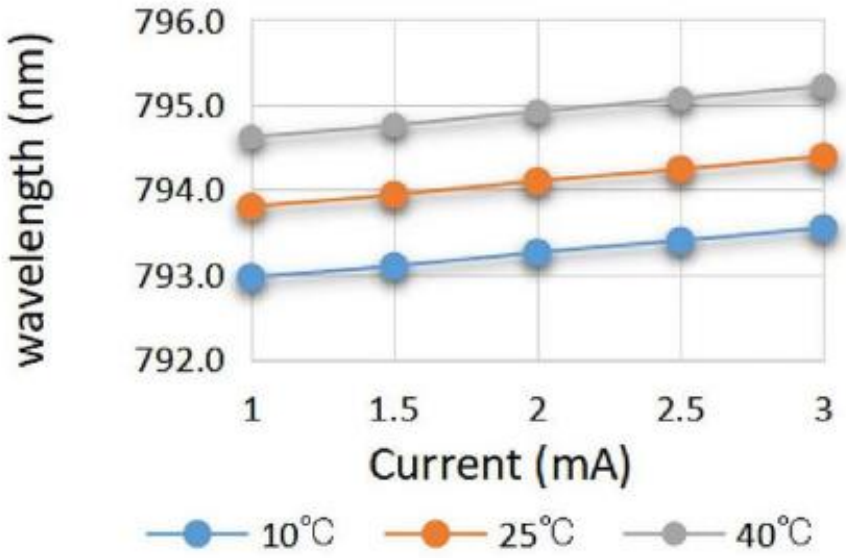
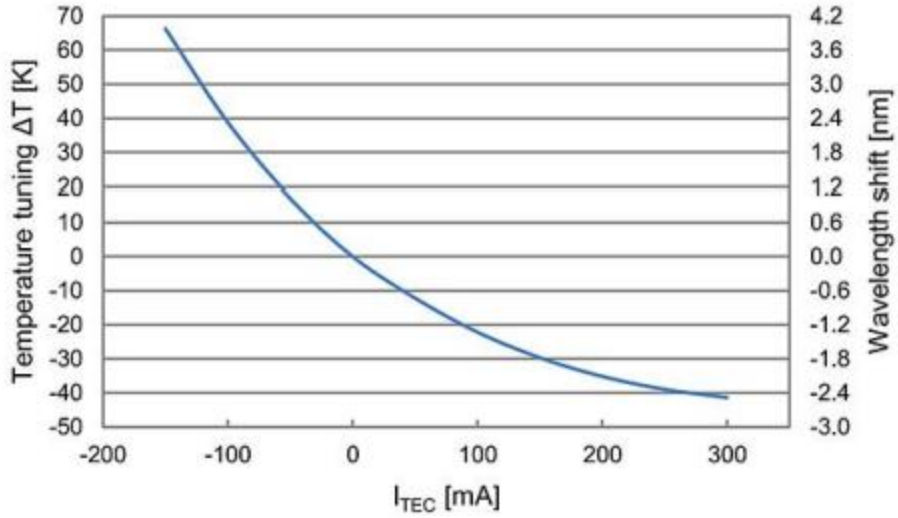
Tuning Characteristics



Temperature / wavelength tuning over TEC current*



* TEC performance is dependent on heat load, ambient temperature and heatsink properties

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Ordering Information

	☐	☐	☐	☐	☐	☐	☐	☐	☐
Prefix	**Wavelength**	**Output Power**	**Linewidth**	**TEC Cooling**	**Package**	**Fiber Type**	**Fiber Buffer**	**Fiber Length**	**Connector**
FCVC-	795nm = 7	0.1mW = A	2nm = 1 Special = 0	Yes = 1	TOCAN = 2 Butterfly = 1	SM780 = S PM780= P	900µm loose tube= 3	1m = 1	FC/APC=3

Benchtop Matching Laser Diode Drivers

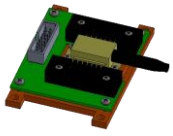
Agiltron cost-effective LDCB series benchtop control kit is designed for easy laser diode mounting and precise control. It incorporates a high-precision, low-noise auto-feedback drive electronics to ensure constant output power or a constant driving current and an integrated temperature control unit maintains optimal operating conditions. The system provides up to 1A driving current and up to 2A TEC cooling current. Each system features a front fiber output connector. The user interface includes an intuitive LCD display for independent control of output power and temperature via two front rotating knobs. The LDCB also includes a universal power supply compatible with 100 to 240 VAC. The LDCB has a built-in isolator option to prevent reflection-induced laser emissions instability. The LDCB is designed as a laser diode and TEC controller kit for customer to install laser diode. It has three types of pluggable laser mounts of butterfly, DIL, and TOCAN. The TOCAN mount contains an external TEC that maintains a constant temperature for wavelength stability.

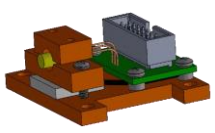
For details please click: https://agiltron.com/product/laser-diode-tec-controllers-benchtop-kit/

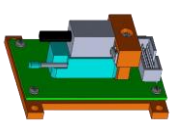
Module Matching Laser Diode Drivers

Agiltron cost-effective LDCD series module control kit is designed for easy laser diode mounting and precise control. It incorporates a high-precision, low-noise auto-feedback drive electronics to ensure constant output power or a constant driving current and an integrated temperature control unit maintains optimal operating conditions. The system provides up to 1A driving current and up to 2A TEC cooling current. It has three types of pluggable laser mounts of butterfly, DIL, and TOCAN. The TOCAN mount contains an external TEC that maintains a constant temperature for wavelength stability. It comes with cables to connect between the mounting module to the driving module, making integration convenient.

For details please click: https://agiltron.com/product/laser-diode-tec-controllers-compact/







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Turn-Key Module Matching The Laser Diode

The Agiltron LDCM series laser source module is designed for OEM applications and features all-in-one high reliability and highly stable laser output. The LDCM contains high-precision, low-noise, auto-feedback laser diode drive electronics to ensure constant output power or driving current and an integrated temperature controller that maintains optimal operating conditions. An optional fiber optical isolator can be integrated to prevent reflection-induced laser emission instability, which is essential for achieving highly stable lasers. Agiltron produces isolators from 370nm to 2600nm. The system provides up to 1A driving current and up to 2A TEC cooling current. Each unit features a single FC/APC connector output and two front rotating knobs for independent setting of laser output power and temperature. A toggle switch allows selection between constant current control mode and feedback constant output power mode.

For details please click: https://agiltron.com/product/laser-diode-tec-controllers-module/

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Caution Electrostatic Sensitivity

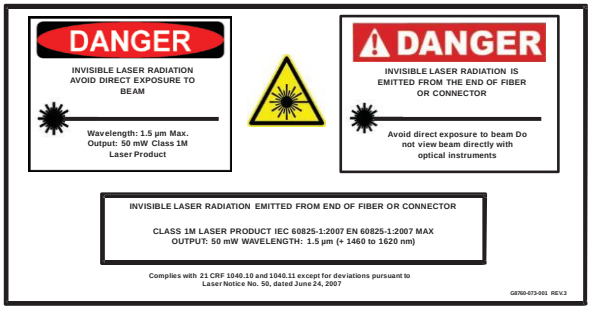
- Never touch laser diode and the module using hands
- Always use protections when handle a laser diode
- Recommend mounting the laser diode using an ionic gun and ESD finger cots

Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 µm.

Maximum power = 30 mW.



*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
*IEC is a registered trademark of the International Electrotechnical Commission.

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