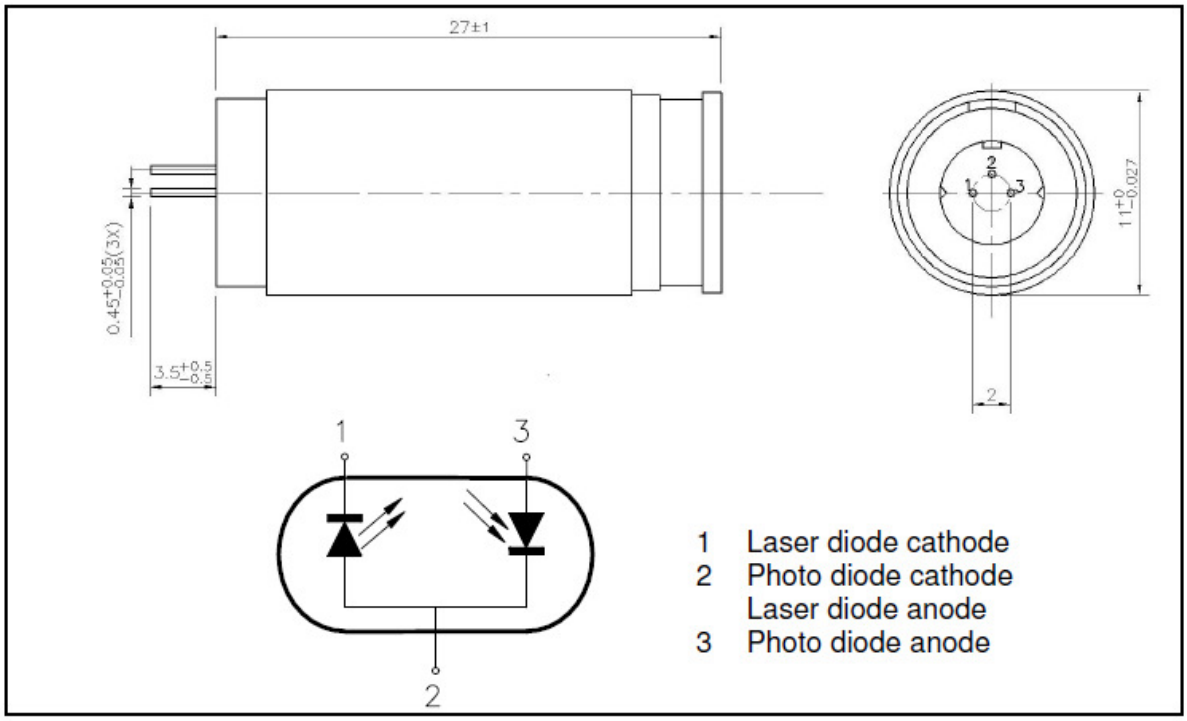
Replication technology is the key asset of Anteryon's know-how and capability

Collimated Laser Module (785nm)

CP-332

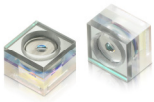
CP-332 **Date: October 25, 2002**

Laser module dimensions



Laser safety Class: 3B
Due to the small size of these devices, the required warning is affixed to the box containing the laser modules.

Properties:
Housing: Stainless Steel
Lens: Glass
Type of laser: N-type



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Characteristics

For all values apply:
Tcase= 23 ± 2 °C P_{out}= 1.2 mW, unless otherwise specified.

Optical characteristics

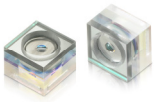
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Wavelength	λ_p		770	785	795	nm
Collimation	$Col_{\perp}$	Inclusive natrural divergence	-	-	0.9	mrad
	$Col_{//}$	Inclusive natrural divergence	-	-	0.3	mrad
Spot size (FWHM) Paralel and perpendicular to the laser stripe @front of lasermodule	$S_{\perp}$	$1/e^2$	4.0	4.5	-	mm
	$S_{//}$	$1/e^2$	1.0	1.5	-	mm
Deviation between mechanical and optical axis	α_{om}		-	6	10	mrad
Clear aperture of the laser pen	C.A.		-	4.5	-	mm

Electrical characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Current	I_{op}		-	35	50	mA
Threshold current	I_{th}		15	25	-	mA
Operating Voltage	V_{op}		-	1.9	2.3	V
Slope efficiency	η		-	-	-	W/A
Monitor Diode						
Monitor current	I_{mon}		0.10	0.14	1.0	mA
Reverse Voltage Monitor diode	$V_{N(M)}$		-	30	-	V

Limiting application values

Parameter	Symbol	Min.	Typ.	Max.	Unit
Optical output power	P_{out}	-	1.2	1.5)[1]	mW
Reverse Voltage Laser diode	$V_{N(L)}$	-	-	2	V
Operating temperature	T_{op}	-10	-	60	°C
Storage temperature	T_{stg}	-40	-	85	°C



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Operational Hazard-Semiconductor Laser diode

This laser pen emits radiation that is visible to the human eye. When in use, do not look directly into the device. Direct viewing of laser diode emission at close range may cause eye damage, especially in conjunction with collimating lenses. Extreme care must be taken to prevent the beam from being viewed directly or through external optics or mirrors.

Connection instructions

The POWER SUPPLY is designed for a negative power supply. In this connection setup (figure 2b) the metal case of the module is connected to ground level (GND). It is also possible to connect the POWER SUPPLY to a positive power supply. The power supply can be damaged when the input polarity is wrong. The positive pole of the supply is marked with a square path or a "+5V" mark.
DO NOT CONNECT THE CONNECTION-POINT IN THE MIDDLE. This can damage the laser-diode.
It is recommended to mount the laser diode to the driver circuit by soldering. If it is needed to connect the laser diode to the driver circuit through a connector, only high reliability connectors should be used. The laser diode can be damaged easily when connected through a faulty or low-quality connector.

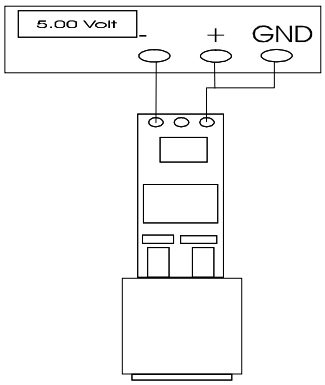
Negative power supply connection

When a negative power supply is used, the 0 V output must be connected to the common ground (GND). The driver circuit can be connected according to figure 2b. The metal case is connected to ground.

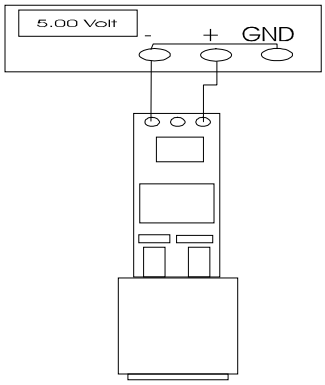
Positive power supply connection

When a positive power supply is used, please pay attention to the following directions:

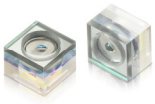
1. Do not use a power supply which has internally or externally a connection between 0V and the common ground (GND).
2. The +5 V output must be connected to the common ground (GND). The driver circuit can be connected according to figure 2a.
3. The metal case is connected to +5 V.



2a



2b



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A5-JO07

Operating and handling instructions

The following precautions should be taken to avoid damage to the device:

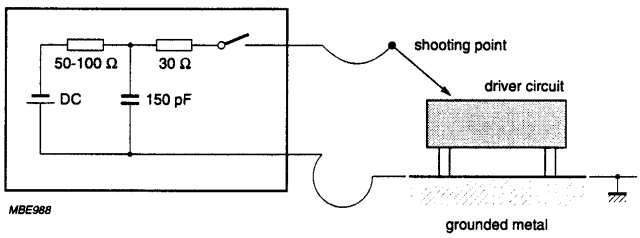
- Power supplies should be well regulated and free of transients.
- Drive circuit connections should be made either by soldering or by high reliability connectors. Clip leads, such as alligator clips, are not recommended.
- Never connect or disconnect any components, to or from the drive circuit while the power is switched on.
- Never connect the drive circuit in reverse to the power supply, the drive circuit is not protected for this kind of operation.

Temperature behavior

Because of the feedback loop, which is built into the drive circuit, the drive circuit has a low sensitivity for temperature variations. The driver circuit is tested according to "IEC 68-2-14" for temperature cycling, to "IEC 68-2-1" for low temperature storage, to "IEC 68-2-2" for high temperature storage and to "IEC 68-2-28" for damp-heat steady

Electrostatic discharge (ESD) protection

The power supply driver circuit is tested for ESD according to the "IEC 1004/2" testing standards. The tests in this standard go up to 10 kV for ESD voltage. The test ESD schematic is given in figure 3. During this test the shooting point is fired to the ground (0V) of the driver circuit and grounded to the metal plate.
No damage or degeneration of the laser diode is detected during the test.



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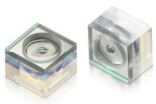

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