1653nm DFB LD TO-CAN(TO56) CH4 Gas Sensor Laser Diode

1653.7nm, 30mW

DATASHEET

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The Agiltron 1653nm DFB Laser Diode is a high-stability, cost-effective light source housed in a TO-56 (TO-CAN) package, specifically engineered for methane (CH_{4}) gas sensing applications. Operating at a typical wavelength of 1653.7 nm, this device delivers a standard optical output of 5.0 mW at 35 mA, though it is capable of reaching up to 30 mW. It features integrated thermal management components, including a 10 kΩ thermistor and a heating resistor, which allow for precise temperature control essential for maintaining wavelength stability. As a Class 1M laser product emitting invisible radiation, it requires strict adherence to ESD handling precautions and eye safety protocols, particularly when using optical instruments.

Due to their high sensitivity to electrostatic discharge, warranty coverage applies only to fully metal covered modules the benchtops, which include proper protection. Other versions of the lasers and photodetectors are not covered by any warranty. Please use them with great caution.

Features

- High-Stability
- 1653nm DFB Laser with Heating Resistor
- Low Cost, High Life

Applications

- Photonic Sensing (gas)

Specifications

Parameter	Min	Typical	Max	Unit
Threshold Current		14	20	mA
Operating Current	35	65	80	mA
Optical Output Power (Iop = 35mA)	3.5	5.0		mW
Spot Size		1.5	3	mm
Slope Efficiency (Iop = 35mA)	0.10	0.143		mW/mA
Forward Voltage		1.4	1.6	V
Emission Wavelength	1652.7		1653.7	nm
Side-Mode Suppression Ratio	35	40		dB
Thermistor Resistance	9.5	10	10.5	kΩ
B Constant of Rth	3800	3930	4000	K
Rth Voltage (60±5°C)		1.30		V
Rth Current (60±5°C)		0.12		A
Reverse Voltage [1]			2	V
Forward Current			100	mA
Case Temperature	-20		+70	°C
Storage Temperature	-40		+85	°C
Lead Solder Temperature/Time			260/10	°C/s

RoHS COMPLIANT



Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link]:

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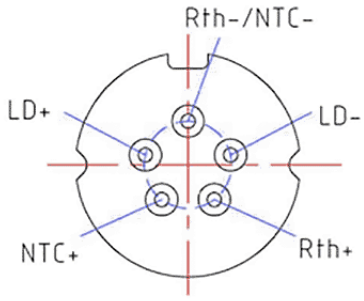
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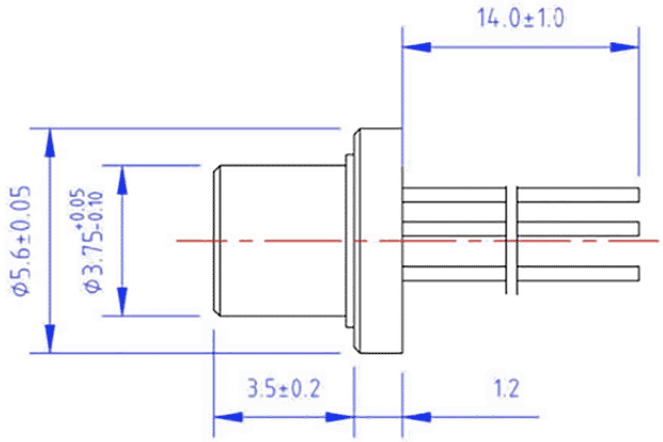
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Mechanical Dimension (mm) and PIN Assignment





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

Ordering Information (Part Number)

	□□□□□	30	2	1	1	1	1
Prefix	**Wavelength**	**Output Power**	**PD**				
DFBF-	1653.7nm = 16537 Special = 0	30mW = 30	None = 1 Yes = 2				

[1]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

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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



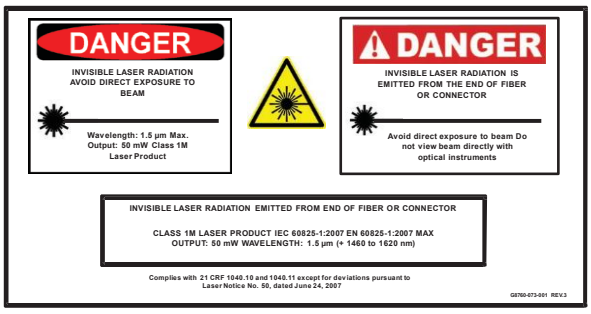


Laser Safety

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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