BW10-1550-T-TO56-7

BANDWIDTH10, LTD.

Description:

Bandwidth10's BW10-1550-T-TO56-7 is part of a family of lasers based on the innovative High Contrast Grating (HCG) single mode 1550 nm VCSEL.

Applications:

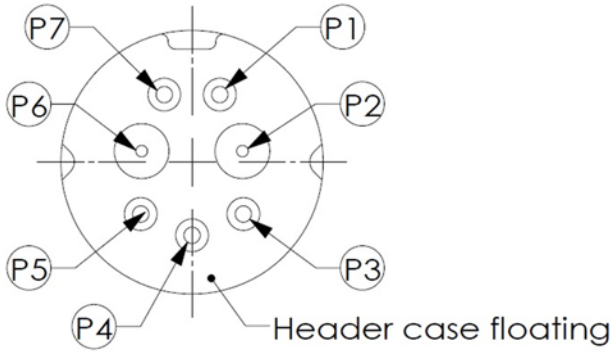
- Optical communications
- Swept source
- Optical gas sensing
- LIDAR

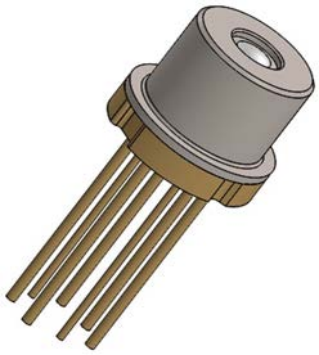
Features:

- TO-56 7Pin Small Form Footprint
- Aspherical lens cap
- Integrated TEC (Temperature Stabilization)

- CW Optical Output Power: Typical 1.6mW (@25°C TEC Temperature)
- Single Mode VCSEL (~ 1550 nm)
- Center wavelength can be within several bands through the C and L band.
- Wide Tuning Range: >10 nm
- High modulation bandwidth (10.3125 Gbps)
- Fast Wavelength Tuning (~200 kHz)
- Power Dissipation: < 40mW (not including TEC)

Pin Assignment and Drawing





Bottom View

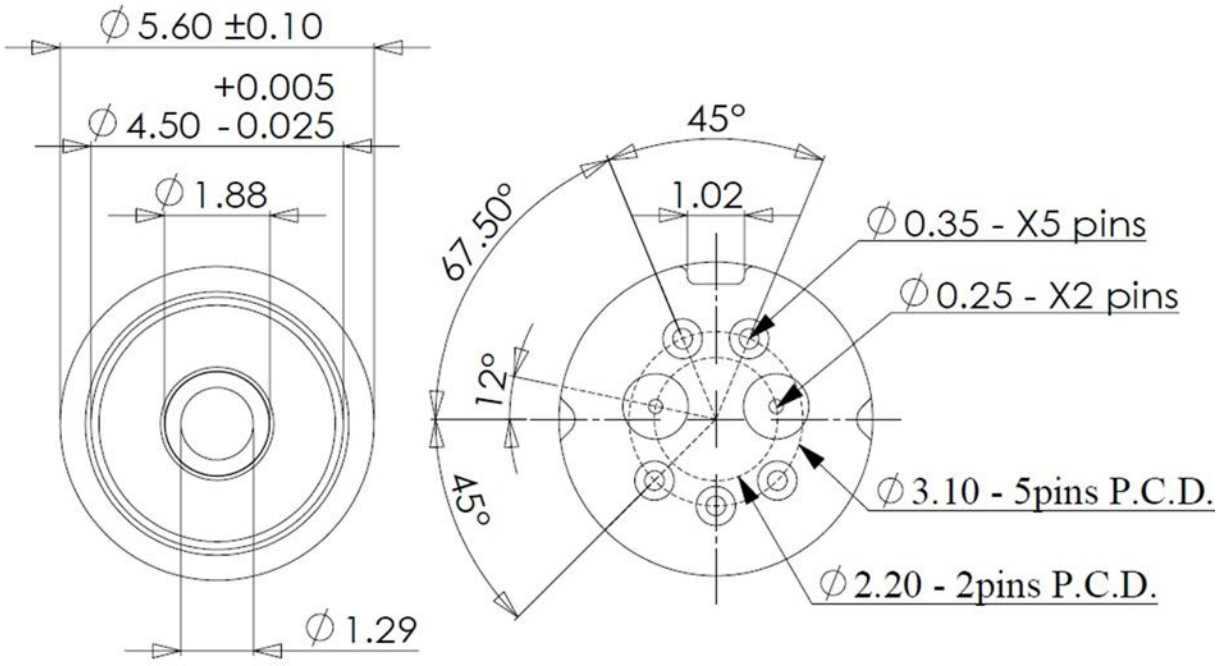
PIN NUMBERS	ASSIGNMENT
P1	TEC (+)
P2	LD (-)
P3	TUNING Vt (-)
P4	THERMISTOR (-)
P5	THERMISTOR (+)
P6	LD (+) & Vt (+)
P7	TEC (-)

ATTENTION

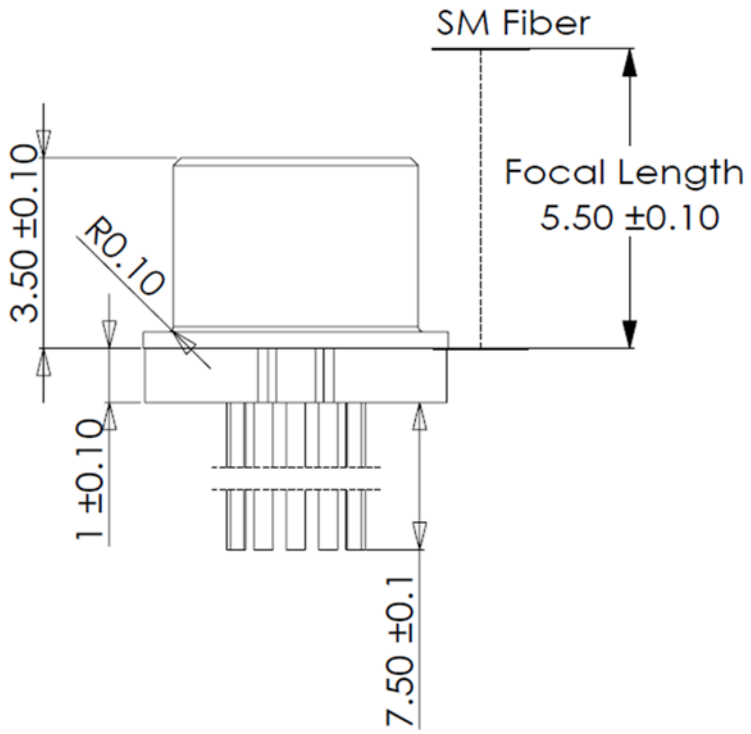
CAUTION: Device is sensitive to electrostatic discharge.

Dimensional Drawing

Outline Dimensions: (mm)



Top View **Bottom View**



Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Storage Temperature	Tstg	-40 to +100	°C
Operating Case Temperature	Tc	-40 to +85	°C
Forward Current of VCSEL	I_{LD}	25	mA
Reverse Voltage of VCSEL	V_{LD}	3	V
Soldering Temperature	Tsld	300 (10 sec. max.)	°C

General Specification and Operating Table

Parameter		Symbol	Values			Unit
			Min	Typical	Max	
Optical Output Peak Power @25º C		P	1.2	1.6		mW
Operating Bias Current		Iop	0	18	25	mA
Operating Temperature range		T_{op}	-40	25	85	°C
Threshold Current		I_{th}		8	12	mA
Slope Efficiency (CW, Tc=25°C)		SE	0.14	0.18		mW/mA
Laser Drive Voltage		Vcc	0	1.5	2.5	V
Resistance		R_s		50		Ω
Tuning Range (P> 250μW)		Δλ	8	10	-	nm
Initial Center Wavelength (at V_{tune} = 0V)	Group-70	λ_0	1565	1570	1575	nm
	Group-60		1555	1560	1565	
	Group-50		1545	1550	1555	
	Group-40		1535	1540	1545	
	Group-30		1525	1530	1535	
Max. Mechanical Tuning Response		f_{max}	100	200	-	kHz
Side-mode suppression ratio		SMSR	30	40		dB
Linewidth (-3 dB FWHM), CW Ibias=Iop		σ			0.08	nm
Relative Intensity Noise		RIN			-128	dB/Hz
Tuning Voltage		V_{tune}	0	Test Sheet	Test Sheet	V
Tuning Current		I_{tune}	0	-	100	μA
TEC Voltage		V_{TEC}		0.9	1.4	V
TEC Current		I_{TEC}		0.4	0.7	A

Electrostatic Discharge (ESD)

LD+/LD- ESD classification: Class 1B, Human Body Model (HBM).
Vt- ESD classification: Class 0, Human Body Model (HBM).
Since this is an ESD sensitive device, proper ESD precautions (limit exposure to below 100V HBM) should be taken during every step of the assembly process.

Standard ESD testing was to MIL-STD-883, Human Body Model, with 3 pulses forward/reverse applied to the signal leads. Failure is defined as a measurable (>30%) change in a key parameter, optical output power for the tunable VCSEL. The LD+/LD- and Vt- of VCSEL TO-can fails at 550 Volts and 150 Volts respectively for damage to the laser chip, with a decrease in optical power output.

CAUTION: Device is sensitive to electrostatic discharge.

Order and Contact Information

Module Number	Contact Information	Unit
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