


Pigtailed 760nm Single Mode VCSEL with Peltier Element and Thermistor in Butterfly Package

Bookham's 760nm VCSELs are designed to meet the requirements for the optical measurement of oxygen concentration levels as well as other spectroscopic applications. The laser emits a single transverse and longitudinal mode with stable linear polarization, small divergence and a highly symmetrical gaussian beam shape. The VCSEL hermetically sealed 8-pin butterfly package features an integrated peltier element and thermistor.

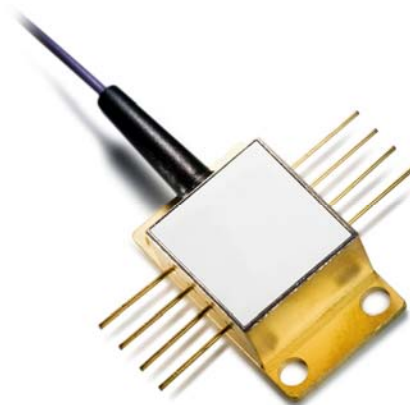
Features

- Stable single mode operation without mode hops
- Stable polarization
- Wide emission wavelength tuning by temperature and current
- Narrow line width
- High reliability
- Hermetically sealed 8-pin package
- Integrated peltier element and thermistor
- 5.3/125 μ m single mode fiber with E2000 APC connector
- Other wavelength ranges available on request
- RoHS compliant 

Applications

- Oxygen sensing
- Other spectroscopic applications

Product Code	Package	Wavelength
APC1101013412	8-pin butterfly	758.0...766.0nm
APC1101013413	8-pin butterfly	758.0...761.5nm or 763.0...766.0nm



Electro – Optical Characteristics*

Parameter	Symbol	Conditions	Ratings			Unit
			Min	Typ	Max	
Threshold current	I_{th}		1.0	3.0	4.0	mA
Operating current	I_{op}	$P_{op} = 200\mu W$	2.0	4.0	6.0	mA
Operating voltage	U_{op}	$P_{op} = 200\mu W$		2.4	3.5	V
Differential resistance	R_d	$P_{op} = 200\mu W$		130	250	Ω
Emission wavelength	λ	APC1101013412 ($P_{op} = 200\mu W$)	758.0		766.0	nm
		APC1101013413 ($P_{op} = 200\mu W$) ⁽¹⁾	758.0		766.0	nm
Maximum fiber coupled single mode power	P_{sm}	SMSR \geq 20dB	0.3	0.5		mW
Linewidth	$\Delta\nu$	$P_{op} = 200\mu W$		20		MHz

(1) Excluding wavelengths from 761.5... 763 nm (no O2 absorption line)
 SMSR = side mode suppression ratio

Thermal Characteristics

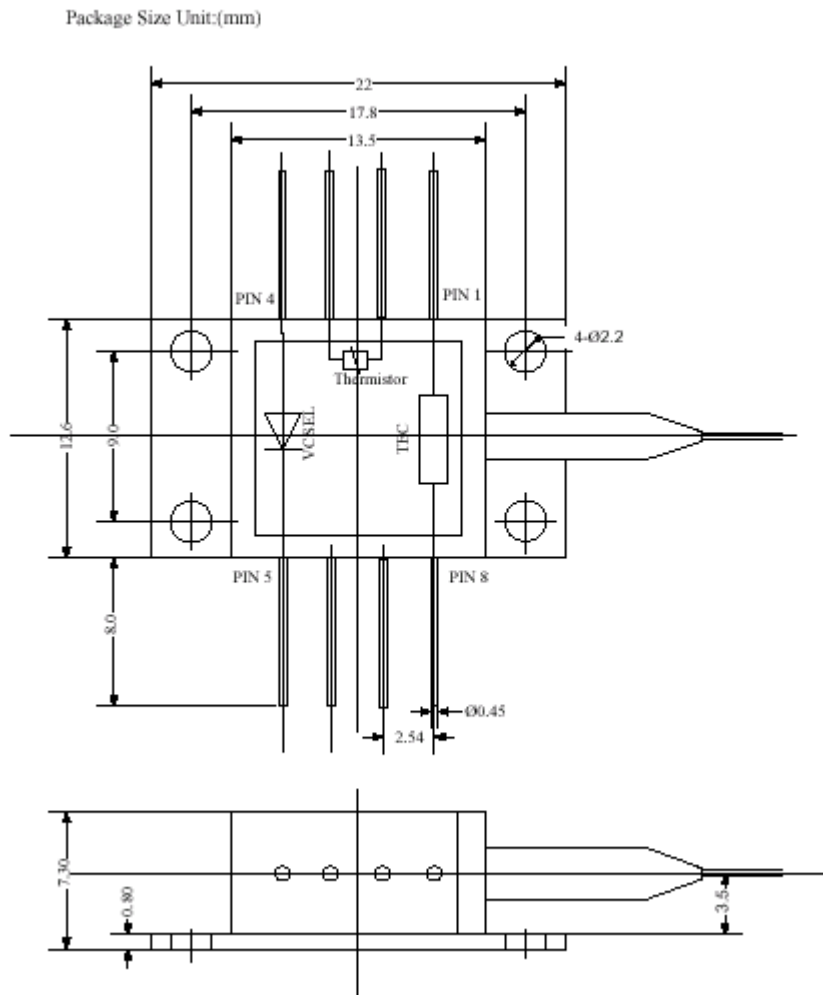
Parameter	Symbol	Ratings			Unit
		Min	Typ	Max	
Temperature tuning co-efficient	$\delta\lambda/\delta T$		0.055		nm/K
Current tuning co-efficient	$\delta\lambda/\delta I$		0.3		nm/mA
Threshold current variation 0°C - 60°C	$\Delta I_{th,T}$		1.3		mA

*T=25°C unless otherwise noted

Absolute Maximum Ratings

Parameter	Rating	Unit
Fiber coupled optical output power	2	mW
Peak forward current	10	mA
Operating temperature	0 to +60	°C
Storage temperature	-20 to +90	°C
Lead solder temperature (for 10sec)	260	°C
Fiber bend radius	>30	mm
Maximum TEC current	1.2	A
Maximum TEC voltage	4.0	V
Maximum temperature difference across TEC	70	K
Maximum TEC heat load	2.6	W

Mechanical Dimensions and Electrical Connection



Pin#	Description
1	TEC (+)
2	Thermsitor
3	Thermistor
4	VCSEL anode (+)
5	VCSEL cathode (-)
6	NC
7	NC
8	TEC (-)

RoHS Compliance

Bookham is fully committed to environment protection and sustainable development and has set in place a comprehensive program for removing polluting and hazardous substances from all of its products. The relevant evidence of RoHS compliance is held as part of our controlled documentation for each of our compliant products. RoHS compliance parts are available to order, please refer to the ordering information section for further details.

Ordering Information

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APC1101013413	8-pin butterfly	759.5...761.5nm or 763.0...766.0nm

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Safety Labels

