


760nm Single mode VCSEL with Peltier Element and Thermistor in TO510

APC11010108xx



Oclaro'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 hermetically sealed TO510 package features an integrated peltier element and thermistor.

Features:

- Stable single mode operation without mode hops
- Stable polarization
- Highly symmetric Gaussian beam profile
- Wide emission wavelength tuning by temperature and current
- Narrow line width
- High reliability
- Hermetic TO510 package with integrated peltier element and thermistor
- AR coated glass window
- Other wavelength ranges available on request
- RoHS compliant 

Applications

- Oxygen sensing
- FTIR spectroscopy
- Other spectroscopic applications

Data Sheet

Electro-Optical Characteristics

T=25°C unless otherwise noted

Parameter	Symbol	Conditions	Ratings			Unit
			Min	Typ	Max	
Threshold current	I_{th}		1.0	3.0	4.5	mA
Operating current	I_{op}	$P_{op} = 300\mu W$	2.0	4.0	6.0	mA
Operating voltage	U_{op}	$P_{op} = 300\mu W$		2.4	3.5	V
Differential resistance	R_d	$P_{op} = 300\mu W$		130	250	Ω
Emission wavelength	λ	APC1101010801 ($P_{op} = 300\mu W$)	758.0		766.0	nm
		APC1101010802 ($P_{op} = 300\mu W$) ⁽¹⁾	759.0		766.0	nm
		APC1101010809 ($P_{op} = 300\mu W$)	759.0		761.0	nm
		APC1101010810 ($P_{op} = 300\mu W$)	763.0		765.0	nm
Maximum single mode output power	P_{sm}	SMSR \geq 20dB	0.4	0.6		mW
Slope efficiency	η	$P_{op} = 300\mu W$	0.1	0.3	0.4	mW/mA
Beam divergence	Θ	$P_{op} = 300\mu W$, FWHM		13		°
Linewidth	$\Delta\nu$	$P_{op} = 300\mu W$		20		MHz

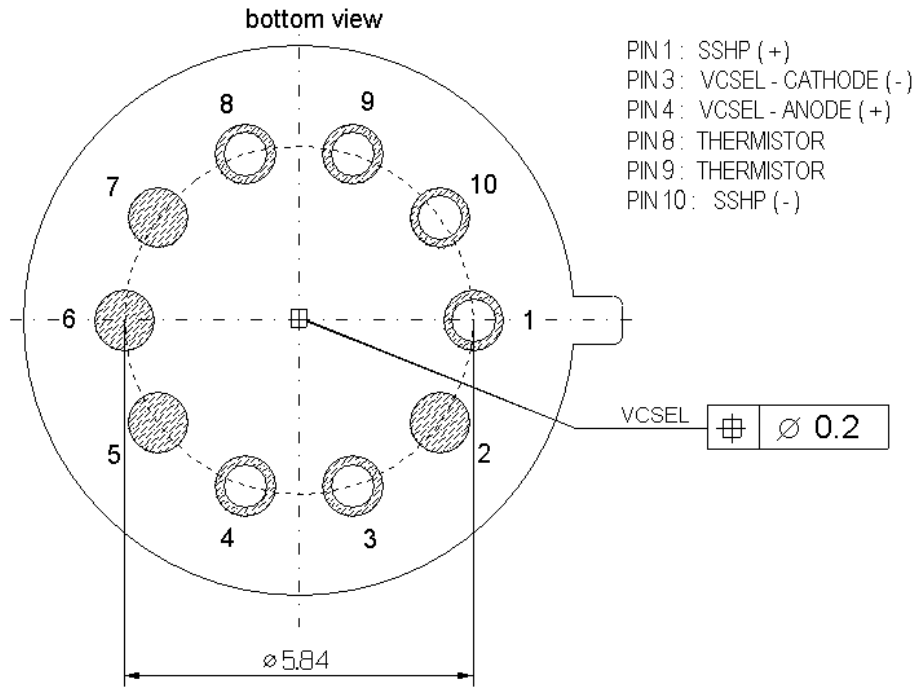
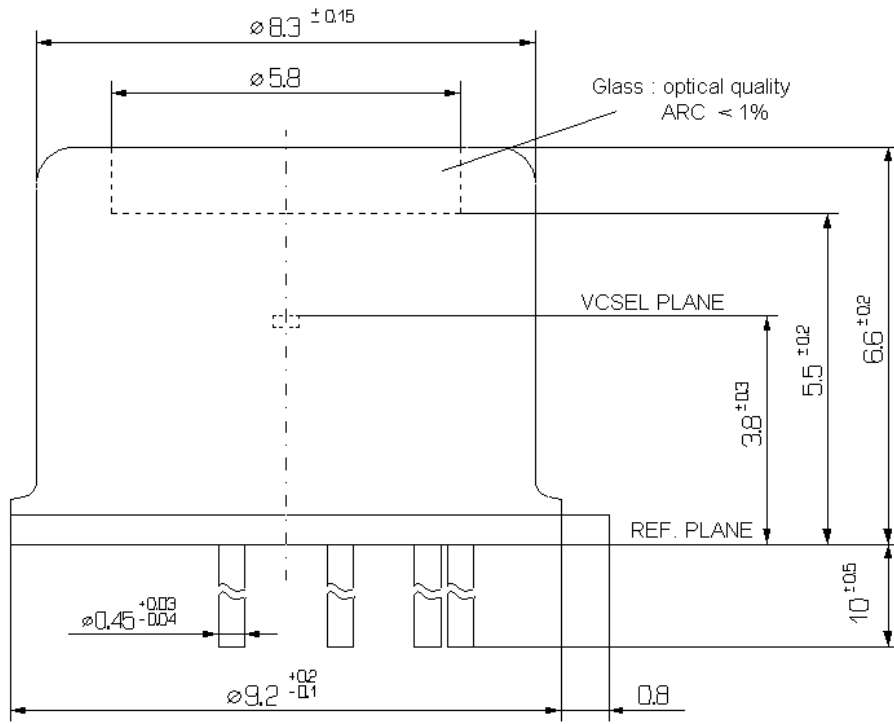
- (1) Excluding wavelengths from 761.5... 763 nm (no O₂ absorption line)
 SMSR = side mode suppression ratio; FWHM = full width half maximum

Parameter	Symbol	Ratings			Unit
		Min	Typ	Max	
Temperature tuning coefficient	$\delta\lambda/\delta T$		0.055		nm/K
Current tuning coefficient	$\delta\lambda/\delta I$		0.3		nm/mA
Thermal impedance	Z_{th}		1.5		K/mW
Threshold current variation 0°C - 60°C	$\Delta I_{th,T}$		1.3		mA
Wavelength change over ambient temperature (T=0°C - 60°C, NTC temp. stabilized within 10mK)	$\delta\lambda/\delta T_{amb}$		0.3		pm/K

Absolute Maximum Ratings

Parameter	Rating	Unit
Optical output power	3	mW
Peak forward current	10	mA
Operating temperature	0 to +60	°C
Storage temperature	-40 to +100	°C
Lead solder temperature (for 10sec)	260	°C
Maximum TEC current	0.6	A
Maximum TEC voltage	0.5	V
Maximum temperature difference across TEC	72	K
Maximum TEC heat load	0.15	W

Data Sheet
Mechanical Dimensions and Electrical Connection



RoHS Compliance



Oclaro 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

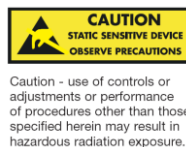
Product Code	Data Rate	Description
APC1101010801	T0510	758.0...766.0nm
APC1101010802	T0510	759.0...761.5nm or 763.0...766.0nm
APC1101010809	T0510	759.0...761.0nm
APC1101010810	T0510	763.0...765.0nm

Contact Information

www.oclaro.com

Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by Oclaro before they become applicable to any particular order or contract. In accordance with the Oclaro policy of continuous improvement specifications may change without notice. Further details are available from any Oclaro sales representative.



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