

760nm Single mode VCSEL in TO46

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 is assembled in a hermetic TO46 package with flat AR coated glass window.

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
- Flat window hermetic TO46 package
- AR coated glass window
- Other wavelength ranges available on request

Applications

- Oxygen sensing
- Other spectroscopic applications

Product Code	Package	Wavelength
APC1101010312	TO46	758.0...766.0nm
APC1101010313	TO46	759.5...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}	$P_{op} = 300\mu W$	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	APC1101010312 ($P_{op} = 300\mu W$)	758.0		766.0	nm
		APC1101010313 ($P_{op} = 300\mu W$) ⁽¹⁾	759.5		766.0	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		°
Line width	$\Delta\nu$	$P_{op} = 300\mu W$		20		MHz

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

Thermal Characteristics

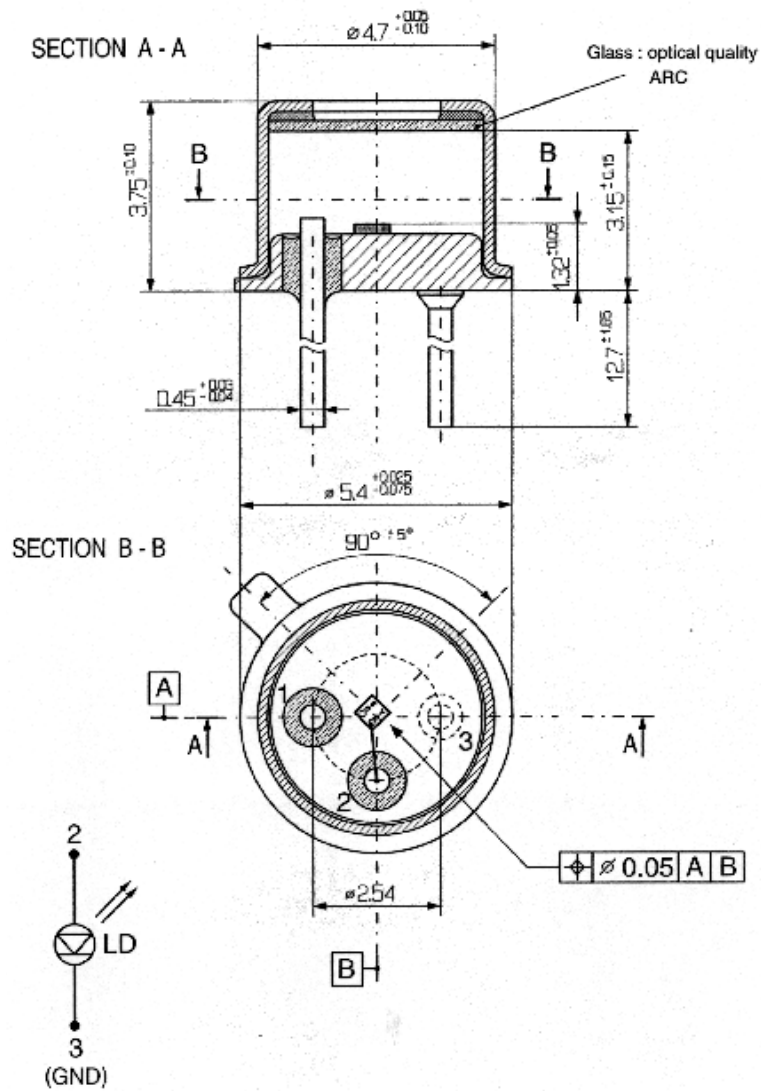
Parameter	Symbol	Ratings			Unit
		Min	Typ	Max	
Temperature tuning co-efficient	$\delta\lambda/\delta T$		0.06		nm/K
Current tuning co-efficient	$\delta\lambda/\delta I$		0.3		nm/mA
Thermal impedance	Z_{th}		1.5		K/mW
Threshold current variation 0°C - 60°C	$\Delta I_{th,T}$		1.3		mA

*T=25°C unless otherwise noted

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

Mechanical Dimensions and Electrical Connection



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

Product Code	Package	Description
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APC1101010313	TO46	759.0...761.5nm or 763.0...766.0nm

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Safety Labels

