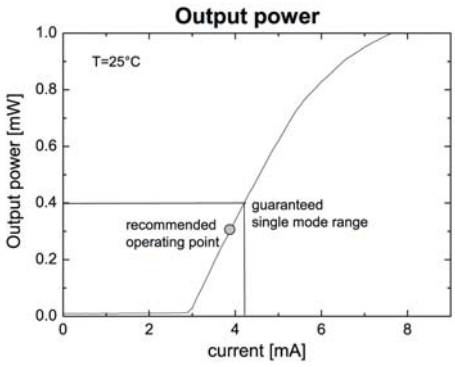
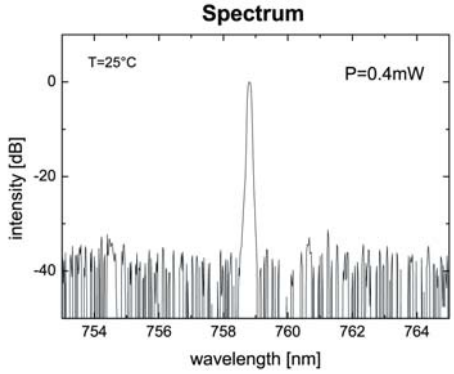
# 760 nm Single-Mode VCSEL T0510

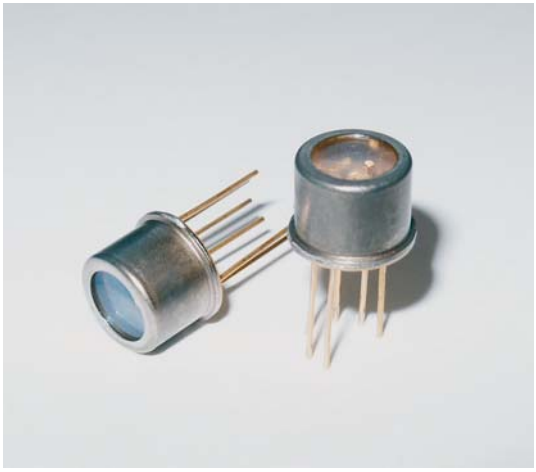
**October 2003**

## Features

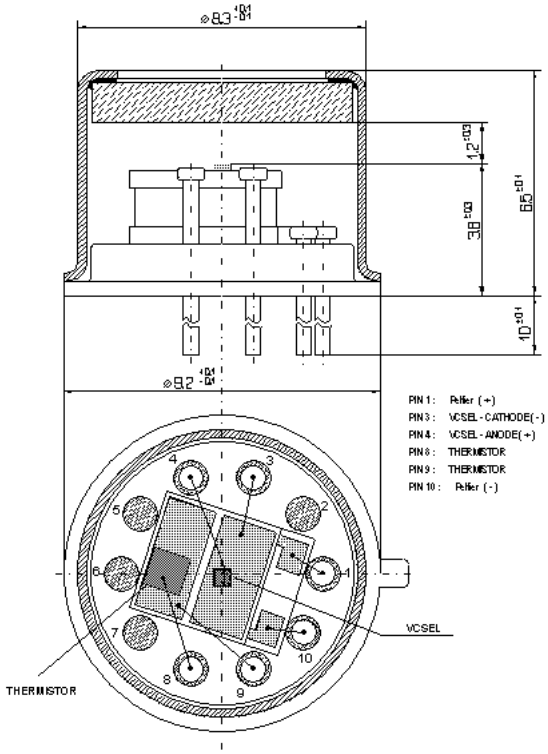
- **Designed for optical sensing**
- **Gaussian emission profil**
- **No mode hopping**
- **Stable polarisation**
- **AR coated window**
- **With integrated thermistor and TE cooler**



**Package dimensions and Pinout**




## Ordering information

| Part Number | Discription |
|---|---|
| AP C11-0101-0800 | With constant polarization direction |
| AP C11-0101-0803 | With defined constant polarization direction |

(Products with other wavelengths at ~790nm, ~850nm available upon request)

# 760 nm Single-Mode VCSEL T0510

## Electro-optical characteristics

| Parameter* | Symbol | Conditions | Ratings Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| **VCSEL** | | | | | | |
| Threshold current | $I_{th}$ | | 1.0 | 3.0 | 4.0 | mA |
| Operating current | $I_{op}$ | P = 300$\mu$W | 2.0 | 4.0 | 5.5 | mA |
| Operating voltage | $V_{op}$ | $I_{op}$ | | 2.4 | 3.5 | V |
| Differential resistance | $R_{op}$ | | 100 | 130 | 250 | Ω |
| Optical output power (max SM) | $P_{sm}$ | SMSR = 20dB | 0.4 | 0.6 | | mW |
| Slope efficiency | $\eta$ | $I_{op}$ | 0.1 | 0.3 | 0.4 | W/A |
| Side mode suppression | SMSR | $I_{op}$ | 20 | | | dB |
| Emission wavelength | $\lambda$ | P = 400$\mu$m | 758.0 | | 765.0 | nm |
| Beam divergence | $\theta$ | FWHM | | 13 | | ° |
| Linewidth | $\Delta\nu$ | $I_{op}$ | | | 30 | MHz |
| Relative intensitiy noise | RIN | $I_{op}$, f = 5kHz | | | -110 | dB/Hz |
| Temperatur tuning coefficient | $\delta\lambda/\delta T$ | $I_{op}$ | | 0.06 | | nm/K |
| Current tuning coefficient | $\delta\lambda/\delta I$ | $I_{op}$ + 0.5mA | | 0.3 | | nm/mA |

SM = single mode; MM = multi mode; SMSR = side mode suppression ratio; FWHM = full-width half-maximum

## Other specifications

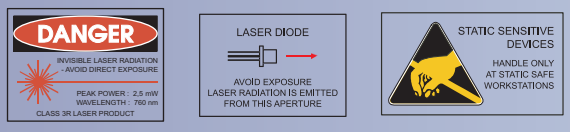
- Leak tightness: 1x10$^{-8}$ atm cm$^3$/s of He according to MIL-STD-833 or comparable
- Window: AR coated (reflectivity <1.0%)
- VCSEL die alignment precision: <± 0.1mm
- Difference between ambient and VCSEL chip temperatures: -30 to -50°C
- Maximum peltier current: ±300 mA

## Absolute maximum ratings

| Parameter* | Rating | Units |
|---|---|---|
| Optical output power | 2 | mW |
| Peak forward current | 8 | mA |
| Operating temperature | 0 to +60 | °C |
| Storage temperature | -40 to +100 | °C |

*(T=25°C unless otherwise noted)

The above specifications are subject to change without notice.

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