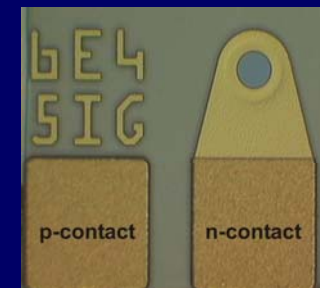
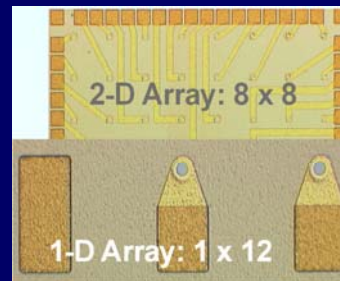




First Demonstration of 2.3 μm InP BTJ-VCSEL





VCSEL diodes for near-IR Gas Analysis

- Wide tunability and precision for ppm or ppb sensitivity
- Low power dissipation enables cost effective handheld applications

- Applications for Industrial and Safety, Medical, Environmental and Agriculture, Automotive
- H₂O, H₂S, HCl, CO, CO₂, NH₃, CH₄, Hydrocarbons and many more

More information: www.vertilas.com

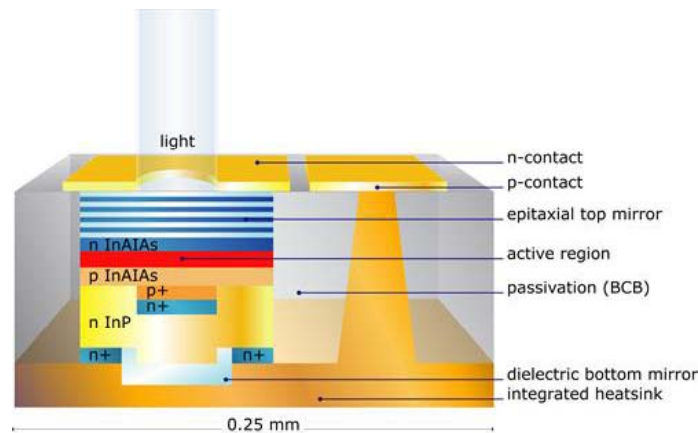


VERTILAS' Unique Technology Offers Major Advantages

VERTILAS' Advantages – VCSELS from 1.3 μ m to > 2 μ m

Cost effective

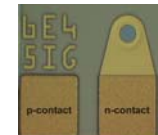
**Very low
power dissipation**



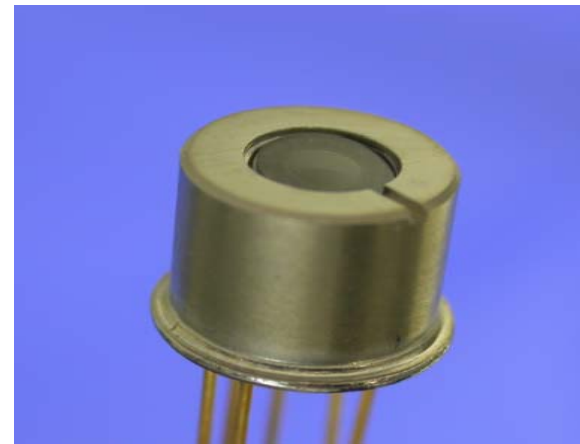
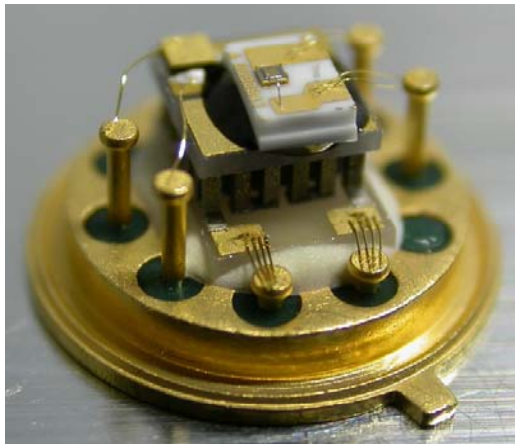
**Very high
performance**

**Very high
integration**

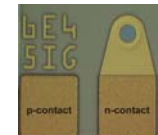
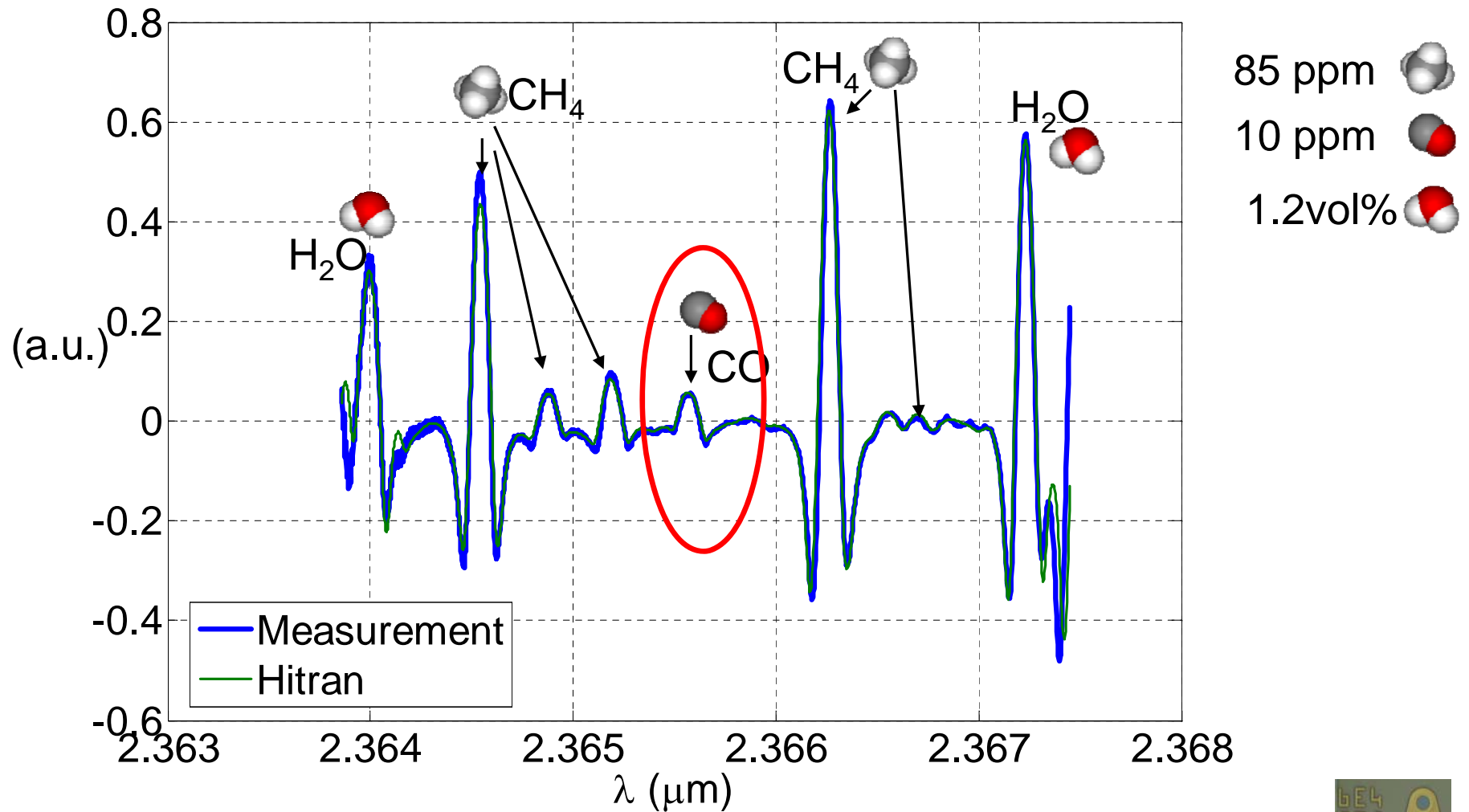
BTJ – Buried Tunnel Junction – made by VERTILAS

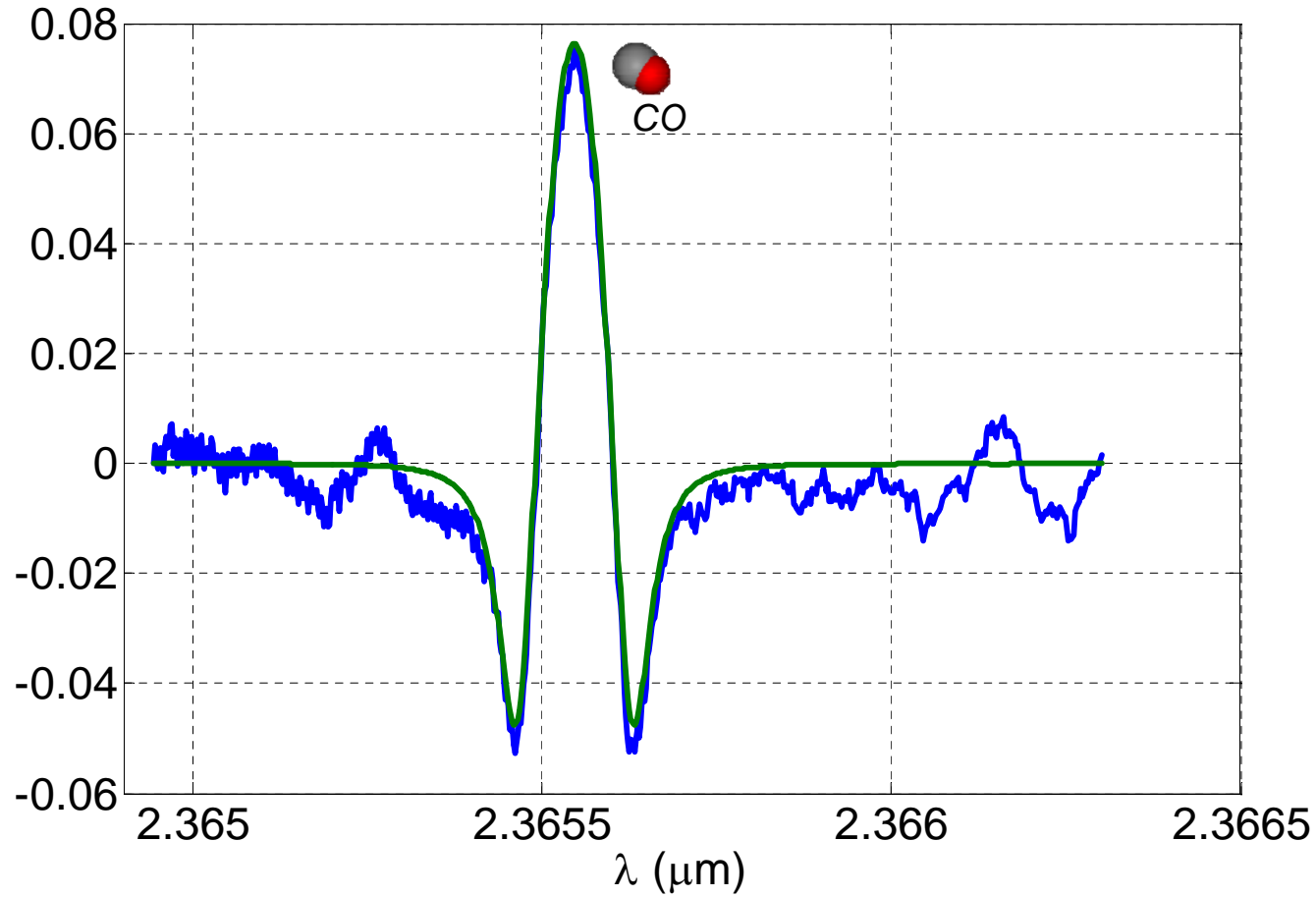



2.3 μm InP VCSEL in TO-5 with integrated TEC and Thermistor



Measurement with 2.3 μm InP laser





12.5 ppm 
($a=1.8 \cdot 10^{-4}$)

