

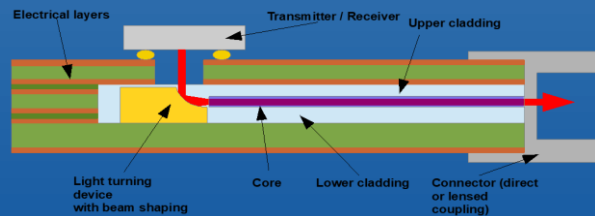
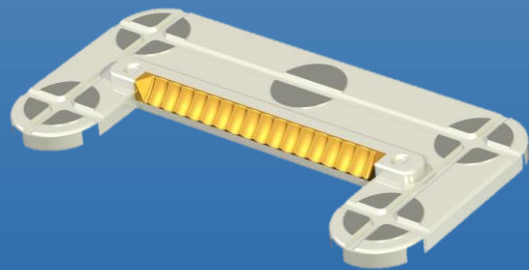
Vertical Coupling

Mirror Element 16-250

Designed to suit the demands for coupling VCSELs and photodiode arrays into embedded multimode waveguides for data communication applications.

Overview

- 16 optimized single mirrors with a high coupling efficiency
- Optimized for 50 μm waveguides and a pitch of 250 μm
- Integrated directly into a o-PCB stack-up using precise alignment features
- pic-and-place capability
- Compatible with reflow soldering processes (up to 280°).



Dimensions

Length	7.5 mm
Width	3.5 mm
Height	0.35 mm

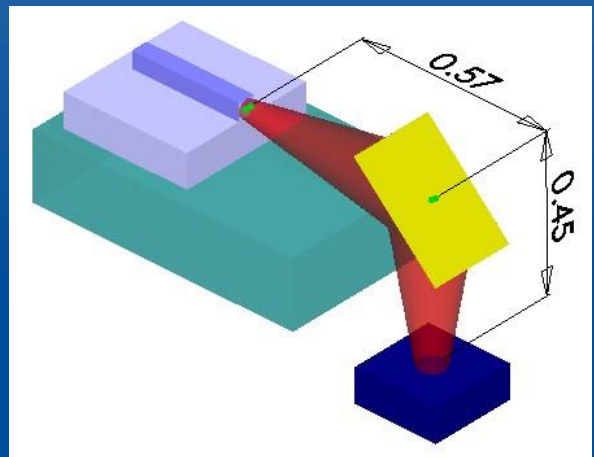
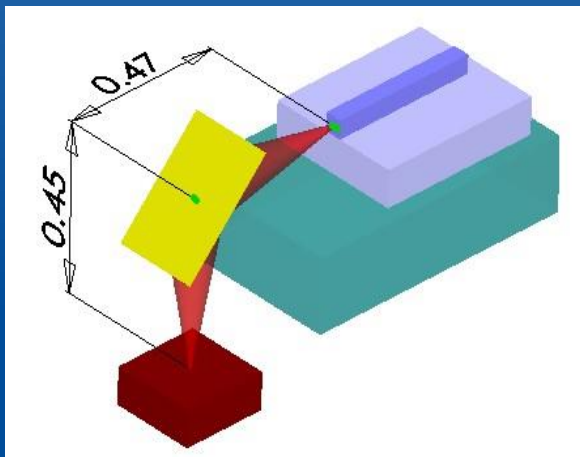
Specifications

Coupling technology	16 single mirrors with 90° beam deflection
Material	Heat resistant base material, gold coated
Dimension of a single mirror (height/width)	250 μm x 250 μm
Pitch	250 μm
Spectral range	650 - 1600 nm
Temperature range	-40° to 280°C
Recommended waveguide dimensions	50 μm x 50 μm , NA 0.2 - 0.3

Optical Coupling			
VCSEL to Waveguide		Waveguide to Photodiode	
VCSEL active area	10 μm	PD active area	80 μm
Max. emission angle (FW @ 1/e ²)	30 °		
Distance mirror - waveguide	470 μm	Distance mirror - waveguide	570 μm
Distance mirror - VCSEL	450 μm	Distance mirror - PD	450 μm
Horizontal displacement tolerance* x	$\pm 10 \mu\text{m}$	Horizontal displacement tolerance* x	$\pm 13 \mu\text{m}$
Horizontal displacement tolerance* y	$\pm 8 \mu\text{m}$	Horizontal displacement tolerance* y	$\pm 13 \mu\text{m}$
Maximum Tilt VCSEL Θ_x^*	5°		
Maximum Tilt VCSEL Θ_y^*	3°		
Refractive index of optical path**	ca. 1.5	Refractive index of optical path**	ca. 1.5
Coupling efficiency	90 %	Coupling efficiency	90 %

* 95% of maximum coupling efficiency

** optical path in air possible, adjustment of coupling distances required



Let's keep up inspiring!

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