Alternative Design of Optical Package

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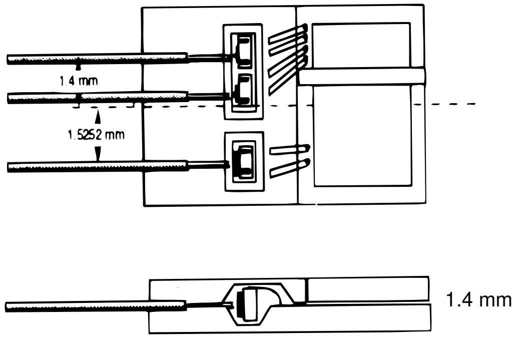
ATLAS Pixel Review

Outline of Talk

- SCT Design
- Alternative Design
- Plans

SCT Working Design

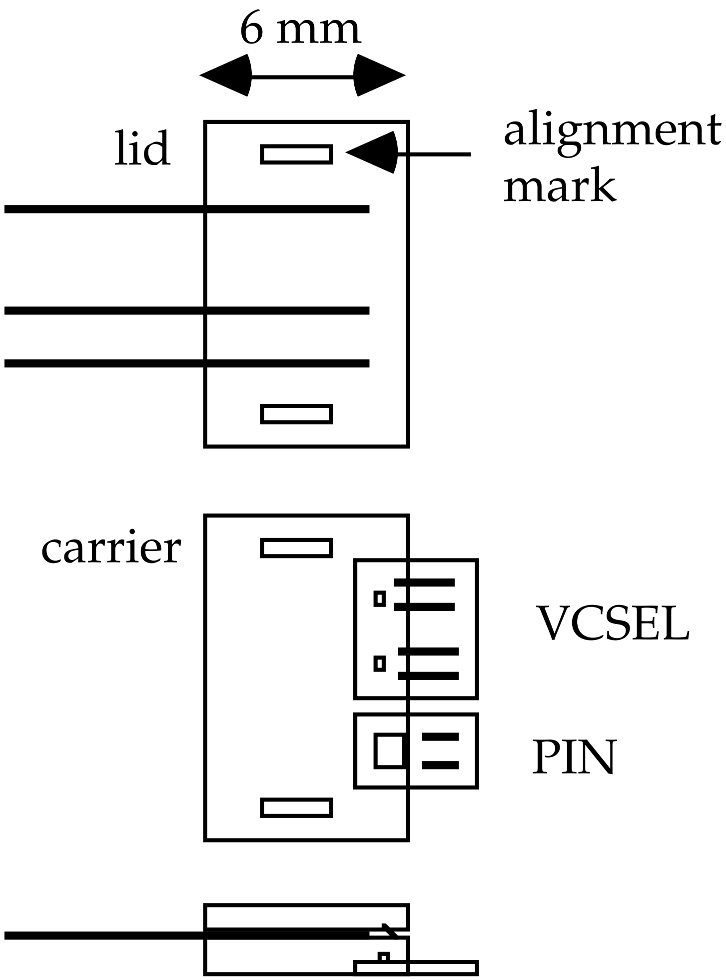
compact LED/PIN link termination unit
with fibre tails



Present style:
2 x LED's plus 1 x PIN
Package 5.5mm wide by 10.0mm long by 1.4mm high

- **Silicon lid and base**
- **Active alignment**
- **Cost: $200**

SCT New Design



- **Silicon lid**
  - v-groove for fibre alignment
  - 45^0 cut for light reflection
  - passive alignment features
- **Silicon carrier**
  - cut outs for silicon tiles
  - passive alignment features
- **Silicon tiles**
  - alignment marks for VCSEL and PIN
- **Cost: $200**

Alternative Design

- **Tolerance from SCT Design**

  50 μm in z

  25 μm in x and y

- **Connector concept design**

  use machinable ceramic, e.g. aluminum silicate, alumina

  use precisely machined plug and base for alignment

  simple two-piece design for mass production and cost reduction

- **Plug**

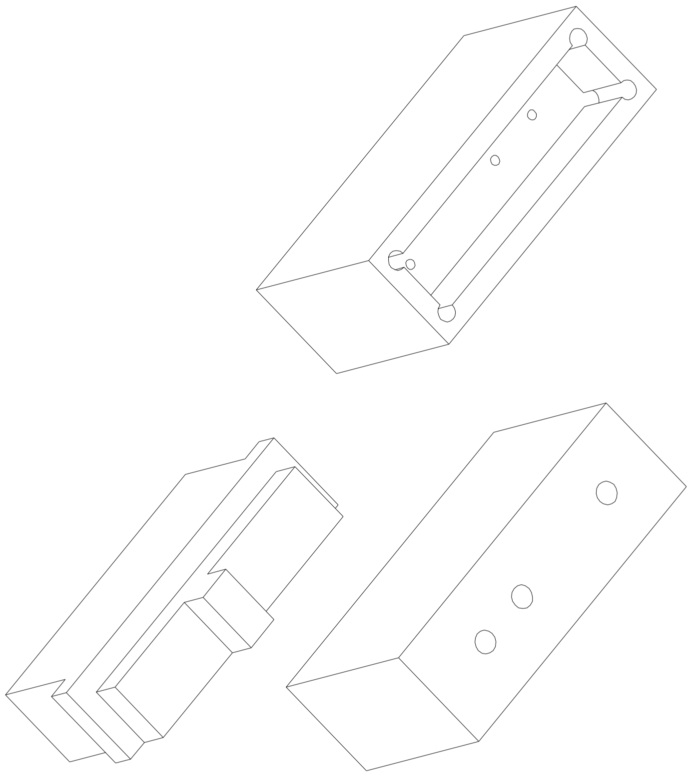
  3 holes for fibres

- **Base**

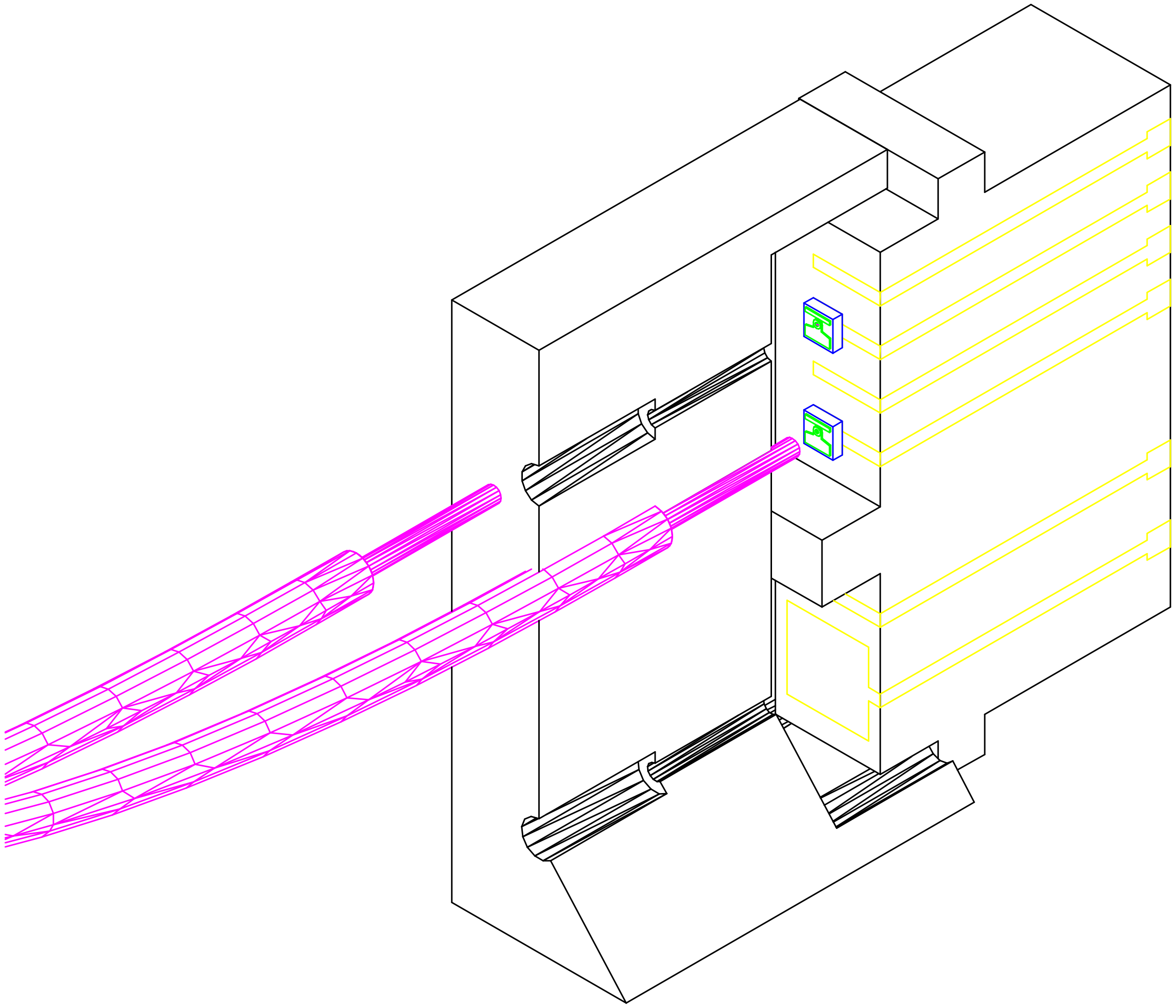
  deposit gold traces for wire bonding

  deposit gold pads for VCSEL and PIN placement

Alternative Design



Alternative Design



Plans

- **produced 4 test packages**

  discussed with Tony Weidberg

  encouragement, modifications

- **produce a few working packages in-house in the next few weeks**

- **investigate**

  different materials

  injection molding

  production by vendors

  placement onto flex using "surface mount"