

# Chipmetrics VHAR1 Silicon Test Chip Data Sheet

## Technical information

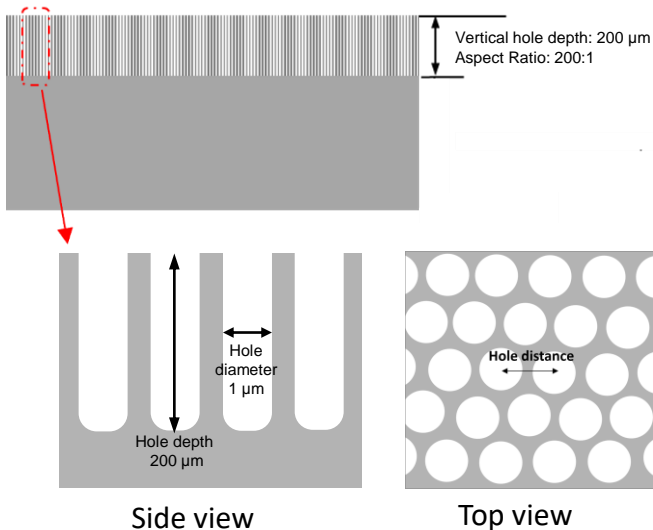
Chipmetrics VHAR1 silicon test chip consists an array of vertical high aspect ratio holes. The holes have a constant hole diameter of 1  $\mu\text{m}$ , and depth of 200  $\mu\text{m}$  over the whole chip area 15  $\times$  15 mm.

The measurement of the deposited film penetration depth profile can be achieved by cross-sectioning as normally done with the vertical high aspect ratio test structures.

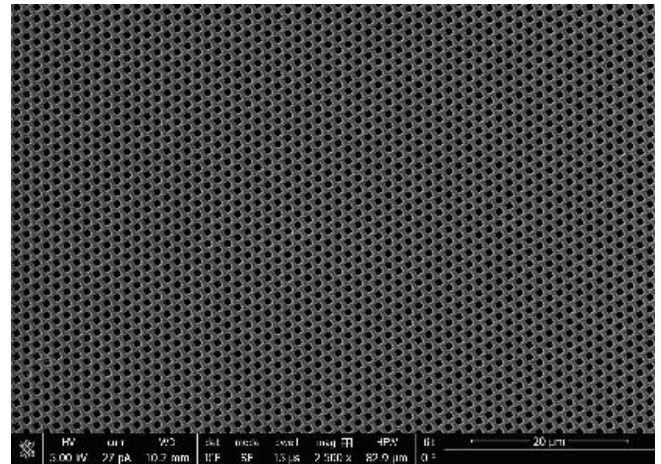
### Technical specifications

<b>Product ID</b>	Chipmetrics VHAR1
<b>Chip size</b>	15 $\times$ 15 mm
<b>Hole diameter</b>	1 $\mu\text{m}$
<b>Hole length</b>	200 $\mu\text{m}$ (+/- 10%)
<b>Hole distance</b>	1.5 $\mu\text{m}$
<b>Material</b>	Silicon n- type

## Schematic view



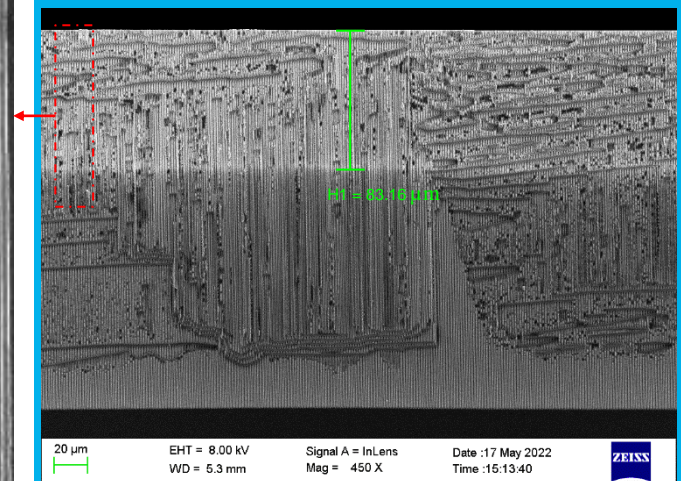
## SEM images of VHAR1 structure



Top view SEM image

← Zoom in side view SEM image (~100  $\mu\text{m}$  depth of the holes)

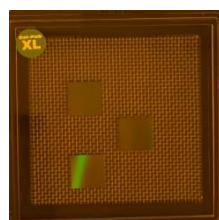
## SEM measurement



The cross-sectional SEM image of VHAR1 chip after deposition of 25 nm ALD  $\text{Al}_2\text{O}_3$ . The film penetration depth is visible through the different contrast colors in the image, although the cleavage is not perfect.

## Delivery

VHAR1 test chips are delivered in vacuum release packages



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