

PHEMOS-1000

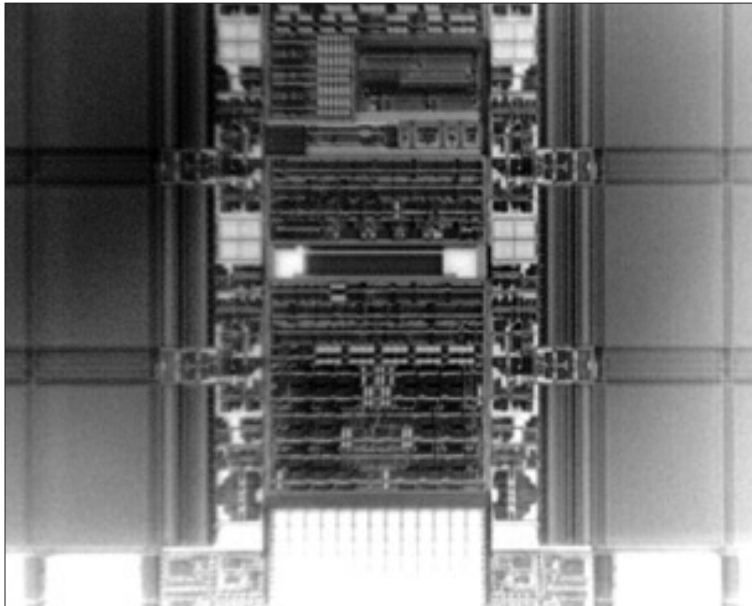
THEMOS-1000

iPHEMOS-MP

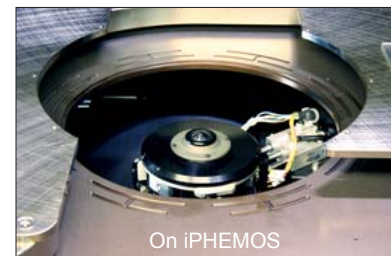
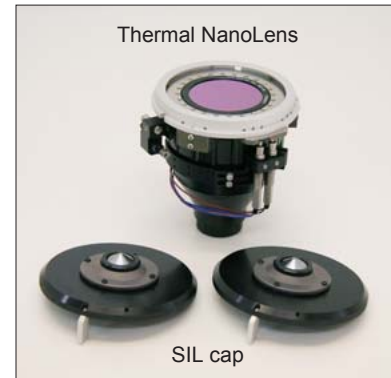
TriPHEMOS

Thermal NanoLens

The Thermal NanoLens brings the advantages of SIL imaging to both downward and upward looking thermal emission microscopes.



▲ Image taken with Thermal NanoLens (See last page for details)



Features

- Numerical aperture (N.A.): 2.6
 - Maximum resolution: approx. 1 μm
 - Sensitivity: > 3 times (compared with conventional type)
- Available for both downward looking system and inverted system
- Swappable SIL Cap architecture
 - Swapping between two types of SIL caps that cover Si thickness from thinned chip to full wafer thickness.
 - SIL cap is keyed for straightforward mounting.
 - Lens is automatically aligned on a device surface to get the best contact between a lens and Si surface to collect light signal most efficiently.

Applications

- Backside observation of advanced devices
 - Thermal photoemission analysis

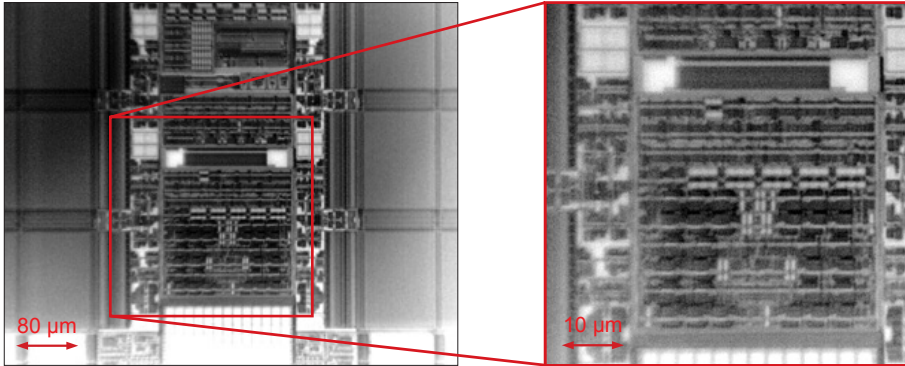
HAMAMATSU
PHOTON IS OUR BUSINESS

Case study

■ **Purpose** Evaluation of a Thermal NanoLens resolution by using an actual device

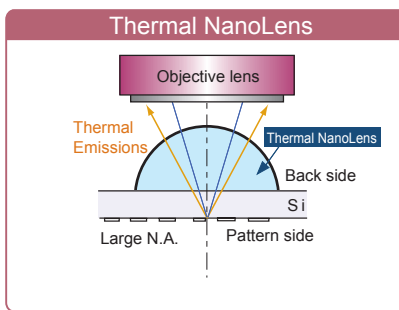
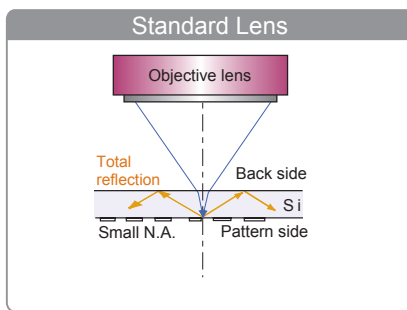
■ **Method** Sample: A commercially available 38 nm DRAM with decapsulation.
Take a pattern image using an InSb camera

■ Results



■ **Conclusion** Acquired image has no distortion. FOV 340 μm × 270 μm
The 100 μm × 90 μm size digital zoomed image shows detailed structure clearly.

Principles



Due to the high reflection index of Si, light passing through the Si layer is not collected efficiently by an objective lens. By putting a Si lens directly on the Si surface, all light that has been reflected at the boundary between Si and the lens can be collected and focused to a high N.A. objective lens. Higher light collection efficiency improves image resolution drastically.

★ PHEMOS is a registered trademark of Hamamatsu Photonics K.K. (France, Germany, Japan, Korea, Taiwan, UK., U.S.A.)

★ THEMOS is a registered trademark of Hamamatsu Photonics K.K. (France, Germany, Japan, U.S.A.)

★ Product and software package names noted in this documentation are trademarks or registered trademarks of their respective manufacturers.

- Subject to local technical requirements and regulations. Availability of products included in this promotional material may vary. Please consult with your local sales representative.

- Information furnished by HAMAMATSU is believed to be reliable. However, no responsibility is assumed for possible inaccuracies or omissions.

- Specifications and external appearance are subject to change without notice.

© 2015 Hamamatsu Photonics K.K.

HAMAMATSU PHOTONICS K.K. www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Systems Division

812 Joko-cho, Higashi-ku, Hamamatsu City, 431-3196, Japan, Telephone: (81)53-431-0124, Fax: (81)53-435-1574, E-mail: export@sys.hpk.co.jp

U.S.A.: Hamamatsu Corporation, 360 Foothill Road, Bridgewater, N.J 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 E-mail: usa@hamamatsu.com

Germany: Hamamatsu Photonics Deutschland GmbH, Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-265-8 E-mail: info@hamamatsu.de

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10 E-mail: infos@hamamatsu.fr

United Kingdom: Hamamatsu Photonics UK Limited, 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, UK, Telephone: (44)1707-294888, Fax: (44)1707-325777 E-mail: info@hamamatsu.co.uk

North Europe: Hamamatsu Photonics Norden AB, Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46)8-509-031-00, Fax: (46)8-509-031-01 E-mail: info@hamamatsu.se

Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6 20020 Arese (Milano), Italy, Telephone: (39)02-93581733, Fax: (39)02-93581741 E-mail: info@hamamatsu.it

China: Hamamatsu Photonics (China) Co., Ltd.: B1201 Jiaming Center, No.27 Dongsanhuan Beilu, Chaoyang District, Beijing 100020, China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn