

SEMICAPS THM

THERMAL MICROSCOPY

The SEMICAPS THM Microscope is used in semiconductor analysis laboratories for thermal imaging to detect hot-spots. These hot-spots are often caused by electrical shorts and current leakages that are often due to the breakdown of the oxide layer.



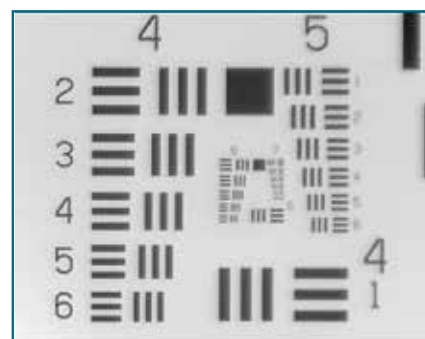
Features

- Analytical or tester-docked, upright or inverted, configurations
- High resolution stirling-cooled MCT detector
- High throughput IR lenses
- 3 position angled objective turret
- Navigation CCD for high resolution background overlay
- Automated detector par centering
- Room temperature imaging
- Incorporate into combine microscope
- Par-focus
- Large format for better FOV
- LN2 option available
- Hi-resolution option available
- Large Format option available
- Lock-in thermography option
- Montage option

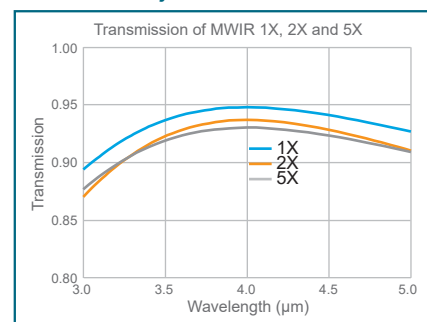
3 position turret



8X zoom objective lens image of USAF target; group 7 element 5 resolved 203 lp/mm



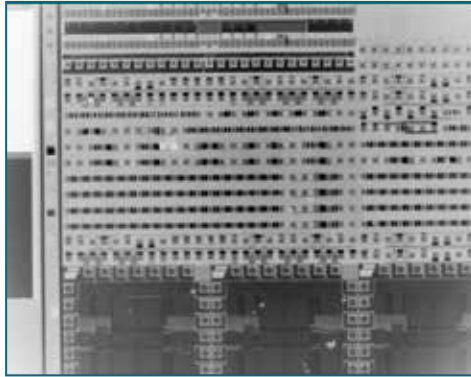
Transmission of the standard MWIR objective lenses



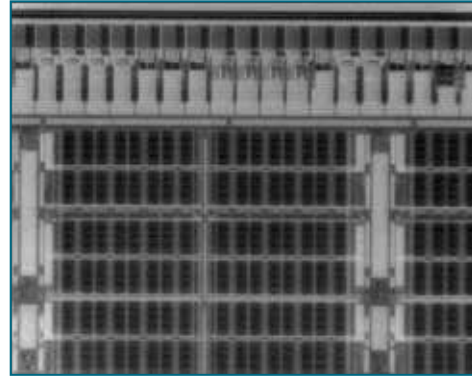
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3X zoom objective lens front side image at room temperature

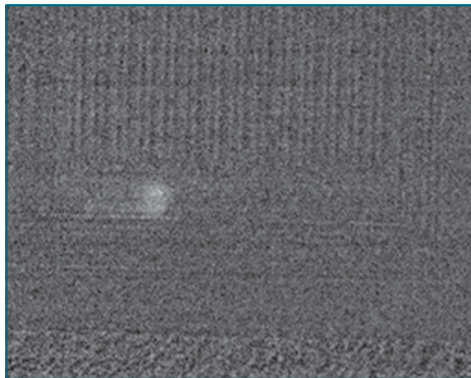


8X zoom objective lens image through 780 um thick silicon at room temperature



The SEMICAPS THM uses an InSb or MCT detector array for MWIR imaging. The par focus lenses make it easy to switch from lens to lens.

Lock-in thermal emission Image of a hot-spot dissipating 2uW of power (biased at 1V, 2uA).



Overlay of thermal emission (in pseudo color and after thresholding) on the thermal background image.



These hot-spot images are conveniently overlaid onto the actual image of the IC to enable quick localization of the defects. In addition, the THM can also be used to perform thermal mapping and profiling so that engineers can determine potential regions in a working IC that may result in reliability issues.

Available Objectives

	Standard			Large Format			Zoom
Magnification	1X	2X	5X	1X	3X	8X	3X to 5X
Objective NA	0.22	0.41	0.63	0.25	0.5	0.62	0.42 to 0.68
Working Distance/mm	16.5	15.7	15.2	26.6	16.7	16.7	15