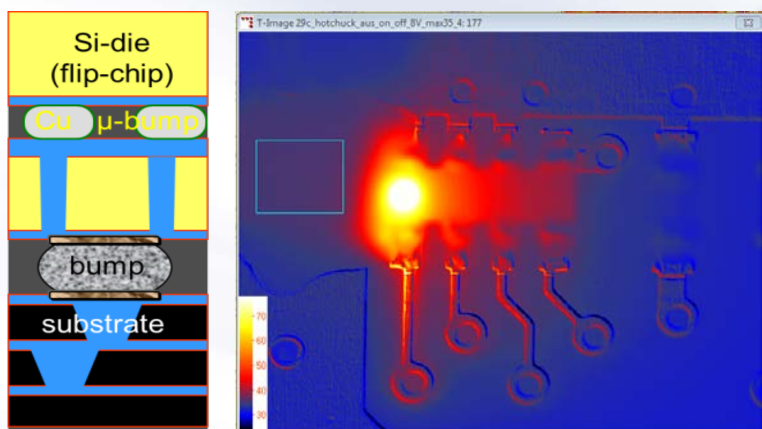
MASER ENGINEERING

Lock-In Thermography F/A service

Lock-in Thermography is a very powerful failure analysis tool for the localisation of current leakage and short circuits. This analysis technique is applicable for both package and chip level localisation. Another ability of the ELITE system is absolute temperature measurements.

DCG SYSTEMS ELITE TDL 640

- Stirling cooled 640x512 pixel camera
- 4-position motorized turret
- Motorized X-Y-Z stage
- Dedicated MWIR optics: WA/1x/5x/10x
- Solid immersion lens for 100μm Si
- 200mm thermal chuck and large area prober for front- & backside analysis
- Lock-In mode for >1μW spot detection
- Temperature fluctuation < 1mK



PACKAGE LEVEL FAULT LOCALISATION

- 2D and 3D packages
- Devices mounted on PCB
- PCB or BGA substrate shorts
- Bond wire-, whiskers- and contamination shorts in packaged samples
- Defect depth information (Z-axis)
- Separate die- from package defects

CHIP LEVEL FAULT LOCALISATION

- Front side & Back side Analysis
- Low-Ohmic and resistive defects, sometimes not found by EMMI/Obirch
- Lock-in mode provides:
  - Amplitude image for best spatial resolution, contains emissivity info
  - Phase image for thermal time delay, no emissivity based distortion
  - Topography image for overlay

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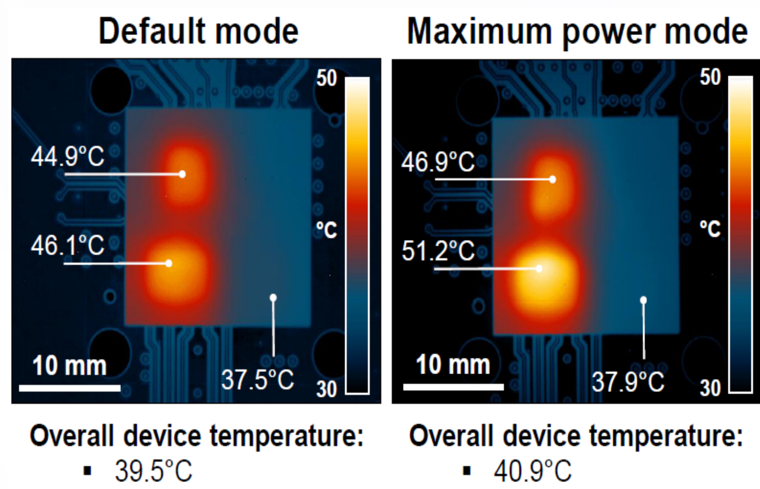
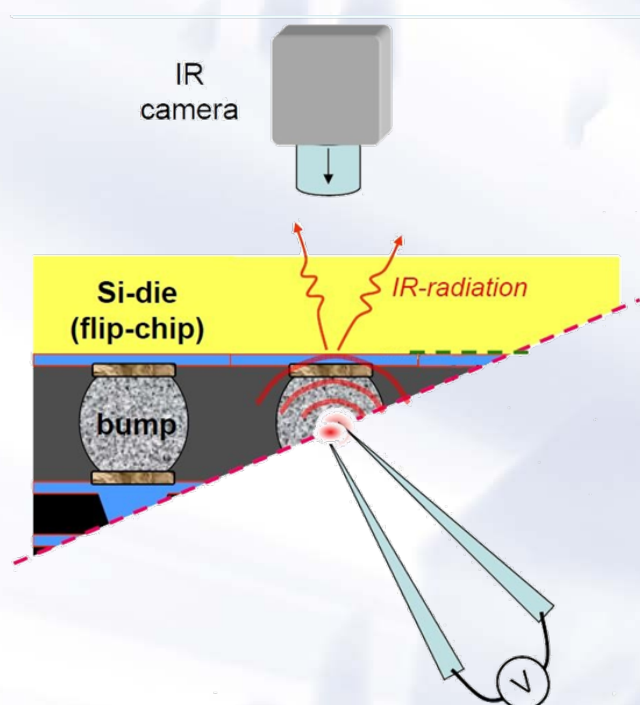


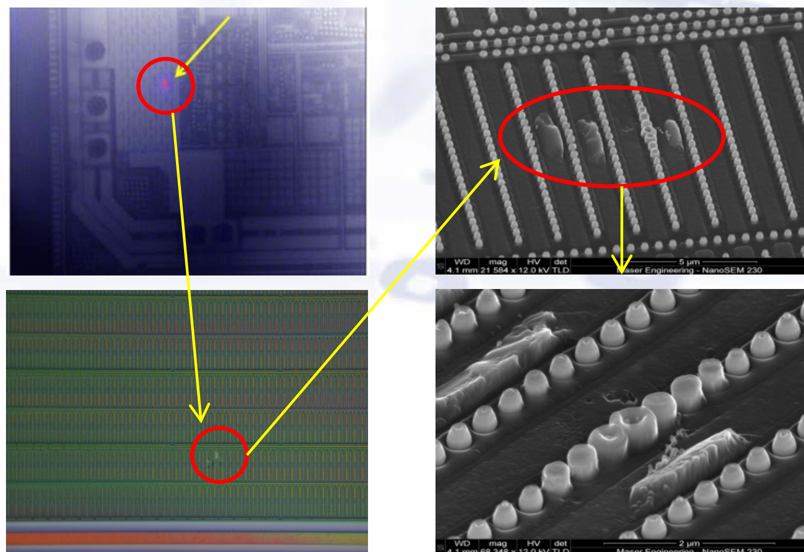
THERMAL MAPPING

- Absolute temperature measurements
- Compensation by emissivity map
- 2-point calibration on device
- Compare software simulations to 'real life'
- Temperature resolution of 1°C
- Thermal mapping available on 1x and WA lens



3D LOCK-IN THERMOGRAPHY

- Depth information about a hotspot in complex packages:
  - Flip-chip BGAs
  - Stacked die packages
  - TSV analysis
- Depth info by phase data analysis
  - By powering diodes on different dies
  - By characterizing the package (1 time)



FOLLOW UP ROOT CAUSE ANALYSIS

- Full range F/A facilities
- 2D/3D X-ray inspection
- Decapsulation
- Planar polishing
- FE-SEM and (S)TEM imaging
- Nano material analysis
- Dual Beam FIB/SEM cross section

For more info please visit www.maser.nl
For inquiries please contact : info@maser.nl or call +31 53 480 26 80

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