



Precision Thermal Imaging for Next-Gen Semiconductors & Photonics

Unmatched Resolution | Ultrafast Response | Non-Destructive Testing



Microsanj Advanced Optical Thermal Material Characterization Solutions

Microsanj, the leading supplier of innovative optical thermal characterization solutions, offers a comprehensive range of technologies for microelectronic and optoelectronic devices and sub-systems.

Our Technology Portfolio

SanjSCOPE™: Submicron, picosecond transient analysis solution utilizing dual-mode thermoreflectance and infrared technologies. It is ideal for designing and enhancing the reliability of active semiconductor devices, including GaN, SiC, and Silicon Photonics.

irSCOPE™: Provides infrared lock-in thermal imaging with integrated excitation source for PC board and open circuit analysis.

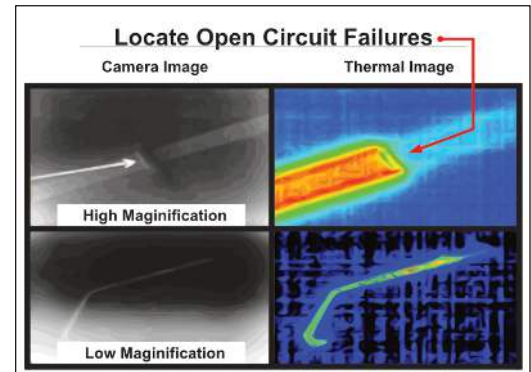
IMAG SANJ™: High-resolution digital optical head supporting automatic or manual MPI probe station integration for wafer-level thermal testing.

TDTR (Time-Domain Thermoreflectance): Proven technique for determining thermal properties of bulk materials, thin films, and interfaces. Essential for designers addressing the thermal challenges in advanced packaging applications, providing critical insights into isotropic and anisotropic thermal behavior.

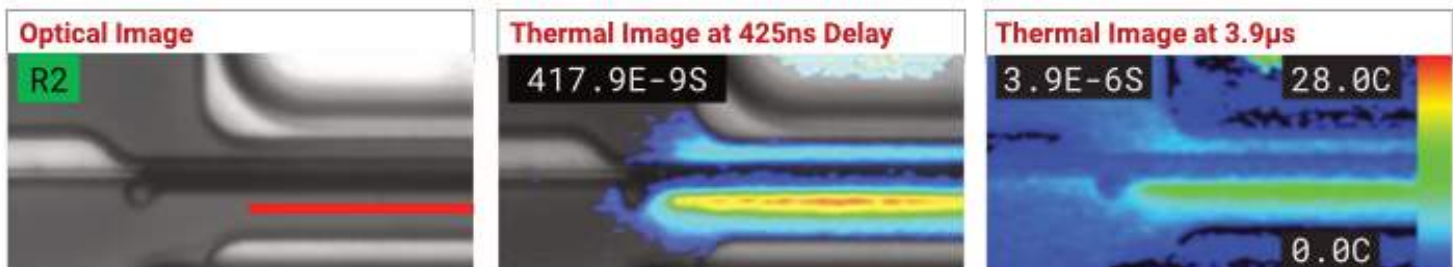
OPP (Optical Pump-Probe): Delivers 2D surface thermal mapping in response to pulsed laser pump heating. Enables spatial temperature distribution analysis of 3DIC samples, with die-level capabilities for GaN, Ga₂O₃, GaAs, Si, delamination detection, TSV crack/void identification, thin oxide/nitride evaluation, and more.

emSCOPE™: Over-the-air imaging for electromagnetic near-field analysis. Features SCO material responsive to electromagnetic energy, enabling ΔT vs. E-M field strength measurement with rapid reflectivity change at spin crossover temperature for enhanced sensitivity. Quickly identifies defective antenna elements in AoC, AiP, AoPCB, and other applications.

Consulting & Testing: Through our partnership with EAG and our in-house technical staff, we provide expert thermoreflectance imaging services to help identify and diagnose thermal behavior at the submicron scale.



Transient Thermal Imaging of 0.25 μ m GaN HEMT



Microsanj Systems



EZ-THERM
Active Device
Desktop R&D/Production



NT220
New Device
R&D and Development



NEW! PT500
Scientific & Research



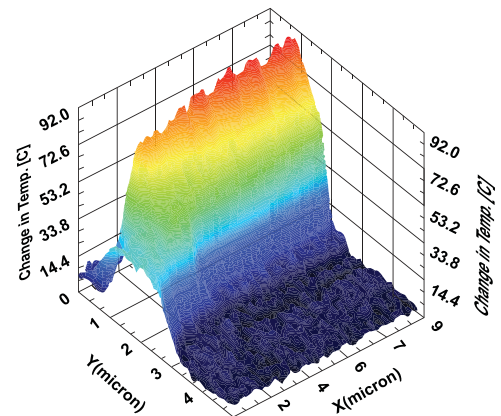
NEW! PS700
Thermal Conductivity
Characterization

Key Advantages

- **250 nm Spatial Resolution** – Detects submicron hot spots in cutting-edge materials
- **500 Picosecond Transient Response** – Captures nanosecond-scale thermal events
- **Seamless Integration** – Works with RF, semiconductor, and photonics testing
- **Non-Destructive Failure Analysis & Thermal Characterization** – Ensures precise thermal insights without altering the device

Applications

- **Semiconductor Device Analysis:** Detect hotspots, measure thermal resistance and enhance reliability.
- **Advanced Packaging:** Map thermal interfaces and identify defects in TSVs and stacked die configurations.
- **Silicon Photonics:** Characterize thermal behavior in waveguides, modulators, and photodetectors.
- **GaN & Wide Bandgap Devices:** Validate thermal designs and improve performance.
- **RF & Microwave Circuits:** Analyze heating patterns in high-frequency components.
- **Antenna & EM Applications:** Identify defective elements and optimize designs.



Low Magnification 3D Plot of GaN MMIC

Why Choose Microsanj?

- **Unparalleled Resolution:** Submicron spatial and picosecond temporal resolution
- **Comprehensive Analysis:** Complete characterization from device to system level
- **Versatile Solutions:** Multiple technologies to address diverse thermal challenges
- **Expert Support:** Technical team with decades of industry experience
- **Proven Results:** Trusted by leading semiconductor manufacturers, research institutions, and defense contractors

Ready to Elevate Your Thermal Analysis Capabilities?

Contact our team today to discover how Microsanj's advanced optical thermal characterization solutions can address your challenges. Our experts will help you select the optimal technology for your application and provide the support you need to enhance your device's performance and reliability.

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Microsanj – Revealing the invisible through advanced thermal imaging

