

## Specifications TF-LFA L54

|                     | TF-LFA L54                                                                                                                                                                                                                                                                                           |                                                                                                            |                                                                                                                                   |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Sample dimensions   | Any shape with lateral dimensions between 2 mm x 2 mm and 25 mm x 25 mm                                                                                                                                                                                                                              |                                                                                                            |                                                                                                                                   |
| Thin film samples   | Standard version*                                                                                                                                                                                                                                                                                    | With measurement range extension*                                                                          |                                                                                                                                   |
|                     | Low conductive material: From 30 nm to 20 µm                                                                                                                                                                                                                                                         | Low conductive material: From 10 nm to 20 µm                                                               |                                                                                                                                   |
|                     | Moderate conductive material: From 200 nm to 20 µm                                                                                                                                                                                                                                                   | Moderate conductive material: From 10 nm to 20 µm                                                          |                                                                                                                                   |
|                     | High conductive material: From 1 µm to 20 µm                                                                                                                                                                                                                                                         | High conductive material: From 80 µm to 20 µm                                                              |                                                                                                                                   |
| Temperature range   | RT, RT up to 200/500 °C Sample holder for 4" Wafer (only RT)                                                                                                                                                                                                                                         |                                                                                                            |                                                                                                                                   |
| Measured properties | Thermal conductivity: 0.01 W/mK - 2000 W/mK<br>Thermal diffusivity: 0.01 mm²/s - 1200 mm²/s<br>Thermal interface resistance: 0.1 MW/m²K - 100 MW/m²K<br>Volumetric specific heat capacity: 0.1 MJ/m³K - 10 MJ/m³K<br>Thermal effusivity: 1000 Ws <sup>1/2</sup> /m²K - 100000 Ws <sup>1/2</sup> /m²K |                                                                                                            |                                                                                                                                   |
| Options             | Anisotropy                                                                                                                                                                                                                                                                                           | Sample mapping                                                                                             | Camera                                                                                                                            |
|                     | Hardware and Software extension to extend the capabilities of the system to measure the in-plane thermal transport properties. Thus anisotropy investigations can be performed.                                                                                                                      | Scanning multiple positions of the sample pointwise or clusterwise. Mapping area: 10mm²<br>Stepsize: 50 µm | Allows the user to view the present sample surface and the position of the laser beams to record the actual measurement position. |
| Atmosphere          | inert, oxidizing or reducing vacuum up to 10 E-4                                                                                                                                                                                                                                                     |                                                                                                            |                                                                                                                                   |
| Pump laser          | CW Laser (405 nm, 300 mW, modulations frequency up to 200 MHz)                                                                                                                                                                                                                                       |                                                                                                            |                                                                                                                                   |



*pushing boundaries*

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|                      |                                                                                                    |
|----------------------|----------------------------------------------------------------------------------------------------|
| <b>Probe laser</b>   | CW Laser (532 nm, 25 mW)                                                                           |
| <b>Photodetector</b> | Si Avalanche Photodetector, active diameter: 0.2 mm, bandwidth: DC - 400 MHz                       |
| <b>Power supply</b>  | AC 100 V ~ 240 V, 50/60 Hz, 1 kVA                                                                  |
| <b>Software</b>      | Included. Software package using multi-layer analysis for calculation of thermophysical properties |

\*Actual thickness range depends on sample