

Description

TOCS[®] is a compact quick-testing benchtop system for characterization of a wide range of various materials to obtain both, the thermal conductivity and diffusivity, within few minutes.



Technical Specification

System

System type	Benchtop material characterization system	
Footprint (w × d)	54 × 40	cm ²
Height	17	cm
Weight	12	kg
Power supply	230 / 50 / 100	VAC / Hz / W

Measurement conditions

		Default chip stage		Unit
		min	max	
Excitation frequency	Single channel	10	40 000	Hz
	Triple channel	10	12 000	Hz
Sample temperature	Chip stage in temperature chamber	-10	80	°C
	Heating by chip		max. 120	°C
Heating rate		20		K/min

Measurement

Methodology	Bi-directional 3ω (three-omega) method	
Output	Thermal conductivity	W/(m·K)
	Thermal diffusivity	m ² /s

Sample properties

	min	max	
Size (round, diameter)	1	8	mm
Thickness	0.1		mm
Thermal conductivity	0.05	50	W/(m·K)
Thermal diffusivity	0.1	100 000	10 ⁻⁹ m ² /s

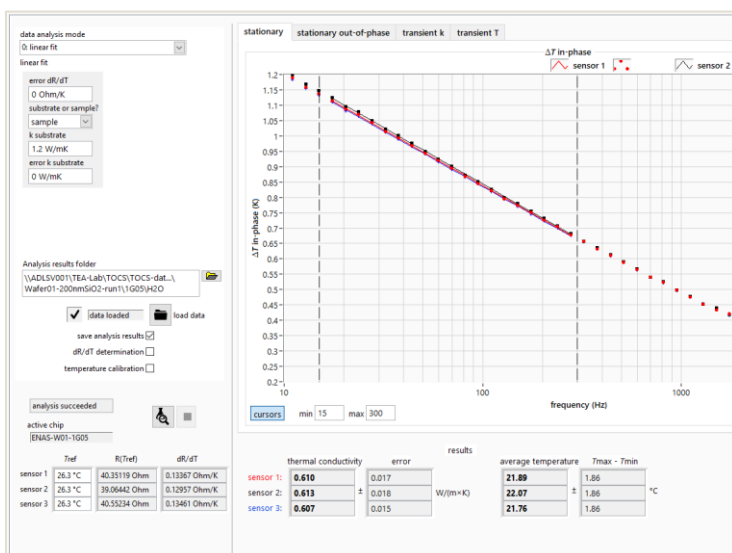
Measurement accuracy

Thermal conductivity	± 5	%
Thermal diffusivity	± 10	%

Measurement precision

Thermal conductivity	± 3	%
Thermal diffusivity	± 5	%

Software screenshot



Key features

- » Quick measurement
- » Compact and all-in-one
- » Re-usable & disposable test chips
- » External & movable chip stage
- » Compatibility with any 3-omega measurement structure

Key output material and compound properties

- » Thermal conductivity
- » Thermal diffusivity

Key testing schemes

- » Quick test series
- » Regular quality screening
- » Temperature dependency
- » Process structure property correlation
- » In-situ curing monitoring
- » In-situ aging investigation

Scope of samples

- » Low to high viscosity material
- » Polymers
- » Thermal interface material
- » Pastes and greases
- » Gap pads and gap filler
- » Adhesive and cured material
- » Mold compound & underfill