Системы измерения толщины пленки AYT-4000, UTS-2000

Технические характеристики

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Film Thickness Measurement

Film thickness measurement can be measured using a number of different techniques depending on the thickness and number of layers. In its simplest form a simple measurement can be made of a single layer with a reflective lower surface using interference fringes. For more complex materials with multiple layers interference measurement is still made, but the mathematical deconvolution becomes increasingly important as does the refractive index of each layer.

AYT-4000 Film Thickness Measurement System

The auto Y-theta stage accessory is installed in the sample compartment of an FT/IR-4000 or FT/IR-6000 for measurement of thickness of thin films deposited on Si wafers using IR reflection or transmission.

A 12-inch wafer stage* with dedicated software for mapping measurement are both included.

*Optional holders for 8-inch, 6-inch, 5-inch and 4-inch wafers are also available.

AYT-4000 Film Thickness Measurement System

Specifications

Instrument	FT/IR-4000 or FT/IR-6000 (not vacuum type)
Measurement Mode	Transmission and Reflection (Center of incident angle: 15°)
Measurement options	Single-point, Lattice Mapping, Radial Mapping
Spot Size	Adjustable by aperture
Moveable Range	Y: 0-168mm, theta: 180-180°
Accuracy	Y: +/- 0.5mm, theta: +/- 0.19°
Purge	Yes
Polarization	Option
Communication	USB 2.0
Dimension and Weight	(H) 408mm, (W) 377mm, (D) 433mm, 14 Kg

UTS-2000 Film Thickness System

The UTS-2000 film thickness measurement system (for epitaxial layers) is a non-destructive, non-contact analysis method using the latest interferometric algorithms to provide highly accurate film thickness measurement. Using a proprietary frequency analysis method, the sample interference spectrum is converted to a 'spatialgram' and the film thickness calculated with a very high degree of accuracy. This integrated system offers film thickness measurements required by the exacting standards of the semiconductor industry including high-speed sample mapping, a wide thickness measurement range and supports the analysis requirements from process testing to R&D. The UTS-2000 can be configured with near-infrared or mid-infrared according to the thickness measurements required.

System Features

Measurement range

Measure substrate with thickness from 0.25 to 750 µm.

Highly Accurate Film Thickness Measurements

Measurement of precision data using a high-accuracy interferometer and high throughput optics.

Robot Multi-Wafer Cassette

Optional automated cassette sampling system for fully automated measurement of multi-wafer cassettes.

Simple Operating System

Various conditions for measurement, mapping, and film thickness calculations are configured as preset methods and managed in a method table. Measurement of film thickness is initiated by simply selecting a required method from the table and clicking the 'Measure' button.

UTS-2000 Film Thickness Measurement System – Specfications

Measurement Method	FTIR interference method for film thickness measurements
Measurement Configuration	Reflection, Transmission (option)
Objectives	Near infrared: Lens objectives (4x) and Cassegrain objectives (15x, 30x) Mid-infrared: Cassegrain objectives (15x, 30x)
Focus Mechanism	11mm stroke
Sampling Area	20 x 20 µm to 1200 x 1200 µm
Sample Positioning	Verification of measurement area using an integrated CCD camera
Film Thickness	0.25 to 750 µm (for Si)
Reproducibility	±0.005 µm or less (for Si with identical measurements)
XY Stage Stage Movement Range	200 x 200 mm Standard (Other options available)
XY Stage Minimum Step Size	2 µm

Operating System	Windows 7 Professional
UPS (Uninterruptible Power Supply)	Maintains PC and display power for 15 minutes after a power failure
System Control	Spectra Manager Suite; Optics and X-Y stage control; Wafer cassette system control (option)
Table	Integrated vibration isolation table
Dimension and weight	1240(W) x 862 (D) x 1763 (H) mm, Approx. 300 kg (excluding protrusions or optional cassette loading system)
Power Requirement	300 VA

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