# **R50 Series Resistivity Mapper**

## **Automated Resistivity Film Mapping**

The Filmetrics R50 series provides contact four-point probe (4PP) and non-contact eddy current (EC) measurements. The R50 maps conductive film resistivity/ conductivity as quickly as 1point/sec. The motorized X-Y stage uses a standard wafer chuck or custom sample holder for up to 300mm sample sizes and up to 200mm measurement area.

## **New! R50 Series**

- Four-point probe and eddy-current probe systems
- Sample mapping in rectangular, linear, polar and custom configurations
- X-Y travel up to 200mm
- Measure a ten-decade range of sheet resistance on conductive and semi-conductive films
- Contact and non-contact measurement

## **Standard Features:**

- Automated X-Y stage with: 100mm x 100mm travel
  200mm x 200mm travel (-200 models)
- 100mm Z-stage travel
- Tip-tilt stage with +/-5° travel
- Unlimited number of measurement locations in sample map





## **R50 Series Software**

#### RsMapper Software: Measurement Automation

#### THE MAP PATTERN GENERATOR

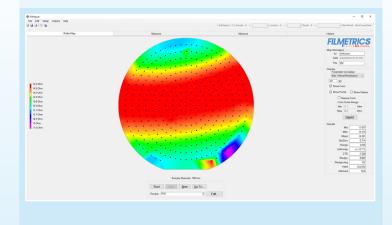
The built-in map pattern generator lets you easily generate the spot patterns needed to measure the relevant area of your samples, thus saving time during data acquisition.

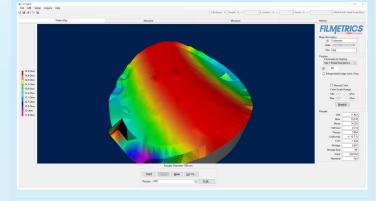
Here are only some of the parameters you can adjust to customize your map's properties:

- Round or square maps
- · Radial or rectangular patterns
- Center or edge exclusion
- Spot density

## MEASUREMENT RESULTS VISUALIZATION IN 2D AND 3D

Whether you are measuring resistivity, sheet resistance, or conductivity, RsMapper lets you display the resulting measurement maps in either 2D or 3D. Switch easily between the maps for the individual measurement parameters and freely rotate 3D profiles to get an optimal view of the results. dit Map Pattern Sample Type Round © Recta natic-Ge Radial Rectangular O Linear (Fraction of Radius al Pattern Details al Spots per O Ring 1: 5 ach additional ring: ar Pattern Details File-Imported Pattern attem Imported Pattern rence Mark (flat o Redraw Save As Diameter 2

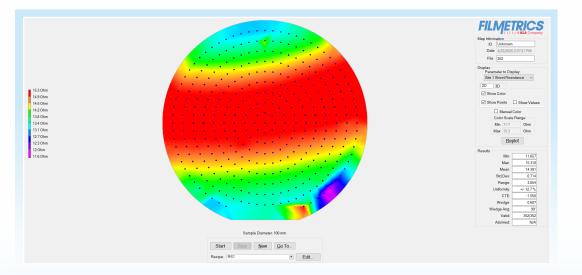






#### TIWN FILM UNIFORMITY

The RsMapper software generates easy-to-visualize maps of the varying film resistivity. The measured sheet resistance map of a TiWN film pictured below illustrates the variation in film thickness across the wafer due to the deposition process. The map reveals the non-radial variation of the process.



#### HIGH SIGNAL-TO-NOISE MEASUREMENTS OF A METAL FILM ON SI

The R50-4PP system gives the user the option to review the measurement map as a graph of points relating the resistivity to the time each measurement was made. The plotted points illustrate the quality of the signal-to-noise of the system with varying resistivity. The history tab is an ideal tool for production use cases and illustrates any point anomalies in a film. These can be traced back to specific wafer locations and investigated further to diagnose process issues.

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## **R50 Specifications**

#### General

Z Range	100mm
Z Stage Type	Automated
X-Y Stage Type	Automated
Sample Max Weight	2.5kg
Tip-Tilt Stage	+/- 5°, Manual

#### **Mechanical Performance**

X-Y Stage Range	100mm × 100mm		
Sample Max Width	265mm		
System Size, W x D x H	305mm × 305mm × 550mm		
System Weight	15kg		
V V Change Damage	200mm × 200mm		
X-Y Stage Range	200mm × 200mm		
Sample Max Width	200mm × 200mm 365mm		
<b>v v</b>			

### **Electrical Performance 4PP**

Site Repeatability	<0.2%		
Accuracy	+/- 1%		
Measurement Range 1	5mOhm/sq - 5MOhm/sq		
Matching <sup>1</sup>	<0.2%		

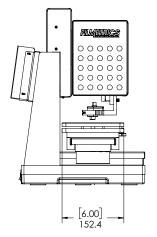
#### **Electrical Performance EC**

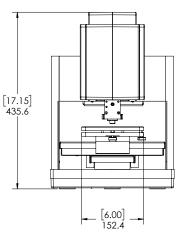
Site Repeatability	<0.2%
Accuracy	+/- 1%
Measurement Range 1	1mOhm/sq - 10Ohm/sq
Matching <sup>1</sup>	<0.2%
ISO 25178 Compliant	Yes

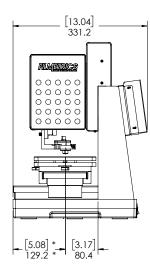
#### 4PP (four-point probe)

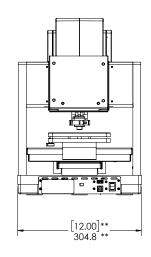
Probes	Туре А	Туре С	Type E	Type F
Probe Spacing	40mil (1mm)	40mil (1mm)	62.5mil (1.625mm)	25mil (0.625mm)
Probe Contact Radius	1.6mil	8mil	1.6mil	1.6mil

<sup>1</sup> Typical value









FILMETRICS

\*179.2mm/7.05" for R50-4PP-200 and R50-EC-200 \*\*404.8mm/15.94" for R50-4PP-200 and R50-EC-200