EPHEMERON LABS INC.

18bitの分解能で鮮明なEBIC像を取得／半導体デバイスの故障解析

EBIC・EBACイメージングシステム

WE MAKE QUANTITATIVE ELECTRON BEAM INDUCED CURRENT (EBIC) IMAGING SYSTEMS



OUR COMPLETE SYSTEM

We can provide you with a custom solution of hardware and software accessories to make EBIC measurements possible on your SEM. With femtoampere sensitivity, we make it easier to probe current signals that are not accessible with other imaging systems. We do this by providing complete solutions from the most sensitive preamplifier, sample interfacing and shielding, and a purpose designed scan controller with highest resolution possible. All this adds up to measuring very small signals with unprecedented accuracy and very low noise.



THE MIGHTY EBIC 2.0

The scan controller and data acquisition interface is greatest factor to making quality quantitative EBIC measurements. Our system is ideal for conducting experiments on devices in situ with applications that go far beyond simply imaging defects and depletion regions.

THE MIGHTY EBIC 2.0 (cont.)

We have specifically designed the Mighty EBIC 2.0 to acquire smallest signal measurements. At the highest gain setting, we can achieve a current resolution of 0.76fA. Using 18 bit analog to digital converters means we have over 64 times the sensitivity of most other scan controllers and a much wider dynamic range of 108 dB at each gain setting of the pre-amplifier.



OUR SOFTWARE

Full suite of analysis tools and imaging capabilities that gives great flexibility and control over you measurements. Dwell times, oversampling, signal averaging, and in-situ transport and biasing are easily configured. Selecting regions of interests for high resolution scans, and extraction of line profiles is straightforward. Export to csv and hdf5. Images can be saved in png,tif, jpeg.

Technical Specifications

Scan Controller	
Max scan size [1]	16,384 × 16,384
X,Y (scalable)	(+,-) 1 V to 10 V
Dwell time	0.5 us to 100ms
Analog input	
Input Channels	8
Resolution	18 bits
Dynamic range	108 dB
Signal voltage range	+,- 10 V
Oversampling(digital filter)	1-64
Sample averaging	1-100
In-situ Biasing	
Outputs	2
Resolution	16 bits
Voltage range	+,- 10V
Voltage step	300 uV
Current Preamplifier	
Variable Gain V/A	10^3 to 10^{11}
Current resolution	
Gain 10^{11}	0.76 fA
Gain 10^8	7.6 pA
Sample Holders	
low profile chip carriers	
zero insertion force	
sample orientation	0- 90 degrees
Coaxial Feedthrough	
coaxial connector	SMA
double sided	
Software	
Image formats	tiff, jpeg, png, pdf
Export formats	csv, hdf5, numpy

[1]Limited by host PC memory

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