



Semiconductor Measurements and Instrumentation

By *W. R. Runyan, T. J. Shaffner*

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The definitive reference on semiconductor characterization tools! Here, in one well-organized volume, are detailed explanations of the advanced and "traditional") techniques for evaluating virtually every criterion: crystal defects, impurity concentration, lifetime, film thickness, resistivity, and such critical electrical properties as mobility, Hall effect, and conductivity type. Reliable, high-accuracy methods of measuring hardness, stress, and various kinds of surface contamination are also included. In addition to its value as a practical everyday reference, the text also serves as an excellent user's guide to the latest methods of optical microscopy, scanning electron microscopy (SEM), electron microprobe analysis, transmission electron microscopy (TEM), Auger electron spectroscopy (AES), scanning probe microscopy (SPM), and secondary ion mass spectrometry (SIMS). This is the only guide that offers such "dual coverage" of its topic -- in terms of both measurements and tools.

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Editorial Review

From the Back Cover

The definitive reference on semiconductor characterization tools! Semiconductor Measurements & Instrumentation, Second Edition. This fully updated edition of the classic reference incorporates all the new approaches and tools for semiconductor material characterization that have been developed to accommodate ever-shrinking semiconductor geometries. Here, in one well-organized volume, are detailed explanations of the advanced techniques for evaluating virtually every criterion: crystal defects, impurity concentration, lifetime, film thickness, resistivity, and such critical electrical properties as mobility, Hall effect, and conductivity type. Reliable, high-accuracy methods of measuring hardness, stress, and various kinds of surface contamination are also included. In addition to its value as a practical everyday reference, the text also serves as an excellent user's guide to the latest methods of optical microscopy, scanning electron microscopy (SEM), electron microprobe analysis, transmission electron microscopy (TEM), Auger electron spectroscopy (AES), scanning probe microscopy (SPM), and secondary ion mass spectrometry (SIMS). As the only guide that offers such "dual coverage" of its topic--in terms of both measurements and tools--and this timely and thorough reference is sure to be of considerable ongoing benefit to solid state and semiconductor engineers.

About the Author

W. R. Runyan (Dallas, TX) has nearly 30 years of experience in industrial semiconductor processing. T. J. Shaffner (Dallas, TX) is manager of the Materials Characterization Branch in Corporate R&D for Texas Instruments.

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