



Advances in surface acoustic wave technology, systems and applications [

Ruppel, Clemens C. W. (1952-)

Fjeldly, Tor A.

World Scientific,
2000

Electronic books

Monografía

Surface acoustic wave (SAW) devices are recognized for their versatility and efficiency in controlling and processing electrical signals. This has resulted in a multitude of device concepts for a wide range of signal processing functions, such as delay lines, filters, resonators, pulse compressors, convolvers, and many more. As SAW technology has found its way into mass market products such as TV receivers, pagers, keyless entry systems and cellular phones, the production volume has risen to millions of devices produced every day. At the other end of the scale, there are specialized high performance signal processing SAW devices for satellite communication and military applications, such as radar and electronic warfare. This volume, together with Volume 2, presents an overview of recent advances in SAW technology, systems and applications by some of the foremost researchers in this exciting field

<https://rebiunoda.pro.baratznet.cloud:38443/OpacDiscovery/public/catalog/detail/b2FpOmNlbGVicmF0aW9uOmVzLmJhcmF0ei5yZW4vMjgxNDE2MTY>

Título: Advances in surface acoustic wave technology, systems and applications electronic resource]. Vol. 1 editors, Clemens C.W. Ruppel, Tor A. Fjeldly

Editorial: Singapore River Edge, NJ World Scientific 2000

Descripción física: 1 online resource (325 p.)

Mención de serie: Selected topics in electronics and systems v. 19

Nota general: Description based upon print version of record

Bibliografía: Includes bibliographical references

Contenido: CONTENTS; PREFACE; A HISTORY OF SURFACE ACOUSTIC WAVE DEVICES; 1. Introduction; 2. Beginnings; 3. Development to 1985; 3.1 Propagation and materials (1970 - 1985); 3.2 Pulse compression filters; 3.3 Bandpass filters (transversal); 3.4 Gratings, resonators and oscillators; 3.5 Convolvers and spread-spectrum devices; 3.6 Transducer analysis (1965-1985); 3.7 Low-loss filters (to 1985); 4. Recent Devices (1985-present); 4.1 Introduction; 4.2 Transverse waves and new materials (1975 - present); 4.3 Recent innovations

in materials (1990 - present); 4.4 Modern low-loss filters (1985 - present) 4.5 Recent analysis (1980 - present)5. Conclusions; Acknowledgements; References; THIN-FILMS FOR SAW DEVICES; 1. Introduction; 2. Applications of Thin Films; 2.1. Metal films; 2.2. Dielectric films; 2.3. Piezoelectric films; 3. SAW Measurements of Film Properties; 4. Characteristics of Metal Films; 4.1. The interdigital electrode; 4.2. Continuous metal film; 4.3. Patterned metal film; 5. Dielectric Films; 5.1. PECVD dielectric films on gallium arsenide; 5.2. Sputtered glass on 128 Y-X lithium niobate; 6. Piezoelectric Films; 6.1. Zinc oxide on GaAs; 6.2. Aluminum nitride on silicon BULK AND SURFACE ACOUSTIC WAVES IN ANISOTROPIC SOLIDS1. Introduction; 1.1 Fundamentals of acoustoelectricity; 1.2. Definitions and terminology; 1.2.1. Strain and stress: tensor and vector definitions; 1.2.2. Translational equation of motion; 1.2.3. The linear constitutive equations; 1.2.4. The Divergence Theorem of electromagnetism and the electrostatic approximation; 2. Bulk Acoustic Waves; 2.1. Bulk wave solution formalism for anisotropic piezoelectrics; 2.1.1. Coordinate transformations; 2.1.2. The system differential equations and transmission matrix for bulk waves 2.1.3. Multilayer resonator excitation2.2. Three bulk wave modes; 2.2.1. The BAW eigenvalue equation; 2.2.2. Piezoelectric stiffening and electromechanical coupling; 2.2.3. The Poynting vector: power, group velocity and power flow angle; 2.2.4. Examples; 3. Surface Acoustic Waves; 3.1. The types of guiding geometries; 3.2 The matrix method and the ODE; 3.2.1. Choice of variables; 3.2.2 Obtaining the ODEs from the PDEs; 3.2.3. The solution to the ODE and the transmission matrix; 3.2.4. The eight system eigenmodes; 3.3. The electromechanical boundary conditions 3.3.1. Continuity at interfaces for multilayer stacks

Lengua: English

ISBN: 1-281-93405-4 9786611934057 981-279-221-X

Materia: Acoustic surface wave devices Acoustic surface waves

Autores: Ruppel, Clemens C. W. (1952-) Fjeldly, Tor A.

Enlace a formato físico adicional: 981-02-4414-2

Punto acceso adicional serie-Título: Selected topics in electronics and systems v. 19

Baratz Innovación Documental

- Gran Vía, 59 28013 Madrid
- (+34) 91 456 03 60
- informa@baratz.es