247
Accession number:20114514500240
Title:High-frequency, 6.2 Å pN heterojunction diodes
Authors:Champlain, James G. (1); Magno, Richard (1); Park, Doewon (1); Newman, Harvey S. (1); Brad Boos, J. (1)
Author affiliation:(1) Electronics Science and Technology Division, Naval Research Laboratory, Washington, DC 20375, United States
Corresponding author:Champlain, J.G.(james.champlain@nrl.navy.mil)
Source title:Solid-State Electronics
Abbreviated source title:Solid-State Electron.
Volume:67
Issue:1
Issue date:January 2012
Publication year:2012
Pages:105-108
Language:English
ISSN:00381101
CODEN:SSELA5
Document type:Journal article (JA)
Publisher:Elsevier Ltd, Langford Lane, Kidlington, Oxford, OX5 1GB, United Kingdom
Abstract:Sb-based pN heterojunction diodes at 6.2 , consisting of narrow bandgap p-type In<inf>0.27</inf>Ga<inf>0.73</inf>Sb and wide bandgap n-type In <inf>0.69</inf>Al<inf>0.41</inf>As<inf>0.41</inf>Sb<inf>0.59</inf>, have been fabricated and measured. These diodes show excellent electrical characteristics with an ideality factor of 1.2 and high current density. S-parameter measurements and subsequent analysis show that these diodes have RC-cutoff frequencies over 1 THz, making these diodes excellent choices for high-frequency applications, such as sub-harmonic mixers for frequency conversion. © 2011 Elsevier Ltd. All rights reserved.
Number of references:18
Main heading:Semiconductor diodes
Controlled terms:Cutoff frequency - Diodes - Energy gap - Heterojunctions - Mixers (machinery) - Scattering parameters - Semiconductor devices
Uncontrolled terms:Electrical characteristic - Frequency conversions - High current densities - High frequency HF - High-frequency applications - Ideality factors - Narrow band gap - P-n heterojunctions - P-type - S-Parameter measurements - Sub-harmonic mixer - Wide band gap
Classification code:703.1 Electric Networks - 714.2 Semiconductor Devices and Integrated Circuits - 816.2 Plants and Machinery for Plastics and Other Polymers - 931.3 Atomic and Molecular Physics
DOI:10.1016/j.sse.2011.07.010
Database:Compendex
Compilation and indexing terms, Copyright 2012 Elsevier Inc.