216
Accession number:20123115285500
Title:Enhanced terahertz emission from photoconductive antenna with ohmic contact electrodes biased by out-of-phase voltages
Authors:Hou, Lei (1); Shi, Wei (1); Han, Xiaowei (2); Yan, Zhijin (1)
Author affiliation:(1) Department of Applied Physics, Xi'An University of Technology, Xi'an 710048, China; (2) Xiaowei Han (Institute of Physical and Electrical Engineering, Weinan Normal University, Weinan 714000, China
Corresponding author:Hou, L.
Source title:Electronics Letters
Abbreviated source title:Electron. Lett.
Volume:48
Issue:13
Issue date:June 21, 2012
Publication year:2012
Pages:780-781
Language:English
ISSN:00135194
CODEN:ELLEAK
Document type:Journal article (JA)
Publisher:Institution of Engineering and Technology, Six Hills Way, Stevenage, SG1 2AY, United Kingdom
Abstract:Terahertz emission power is one of the main obstacles for photoconductive antenna applications. In conventional photoconductive antennas, the electrical field distributes in a narrow area near to the anode, which limits the emission efficiency. A SI-GaAs antenna with AuGeNi ohmic contact electrodes was prepared by the present authors' improved fabrication technology, and the electrical field distributes more evenly when one electrode was biased by a DC square wave pulse or two electrodes were biased by two DC square wave pulses with opposed phases. Compared with the conventional antennas, the terahertz emission efficiency of the antenna was improved by one order when biased by the out-of-phase voltages and illuminating the whole antenna gap to suppress the carrier screening and radiation screening. © 2012 The Institution of Engineering and Technology.
Number of references:6
Main heading:Antennas
Controlled terms:Electric contactors - Electrodes - Microwave antennas - Ohmic contacts
Uncontrolled terms:Contact electrodes - Electrical field - Emission efficiencies - Fabrication Technologies - Out of phase - Photoconductive antennas - Radiation screening - SI-GaAs - Square waves - Terahertz emissions
Classification code:704 Electric Components and Equipment - 704.1 Electric Components - 715 Electronic Equipment, General Purpose and Industrial - 716 Telecommunication; Radar, Radio and Television
DOI:10.1049/el.2012.1402
Database:Compendex