231
Accession number:20123315333309
Title:Transmission properties of double-gap asymmetric split ring resonators in terahertz region
Authors:Miyamaru, F. (1); Kubota, S. (1); Nakanishi, T. (2); Kawashima, S. (1); Sato, N. (1); Kitano, M. (2); Takeda, M.W. (1)
Author affiliation:(1) Department of Physics, Faculty of Science, Shinshu University, 3-1-1 Asahi, Matsumoto, Nagano, Japan; (2) Department of Electronic Science and Engineering, Kyoto University, Kyoto 615-8510, Japan
Corresponding author:Miyamaru, F.
Source title:Applied Physics Letters
Abbreviated source title:Appl Phys Lett
Volume:101
Issue:5
Issue date:July 30, 2012
Publication year:2012
Article number:051112
Language:English
ISSN:00036951
CODEN:APPLAB
Document type:Journal article (JA)
Publisher:American Institute of Physics, 2 Huntington Quadrangle, Suite N101, Melville, NY 11747-4502, United States
Abstract:We investigated the electromagnetic properties of the metamaterials that consist of double-gap split ring resonators (SRRs) in the terahertz region. We found that varying the position of one gap with respect to the other causes the resonant frequency of the SRRs to shift over a broad range. This frequency shift is attributed to the change in the combined capacitance that consists of two capacitances of gaps connected in series and an additional capacitance connected in parallel to the others. Our findings are also verified by obtaining good agreement between experiments and simulations. © 2012 American Institute of Physics.
Number of references:14
Main heading:Ring gages
Controlled terms:Capacitance - Metamaterials - Natural frequencies - Optical resonators
Uncontrolled terms:Electromagnetic properties - Frequency shift - Split ring resonator - Terahertz region - Transmission property
Classification code:701.1 Electricity: Basic Concepts and Phenomena - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 943.3 Special Purpose Instruments - 951 Materials Science
DOI:10.1063/1.4739945
Database:Compendex