Switching Properties of Tl2GaInSe4 Single Crystal

By: Al Orainy, RH (Al Orainy, R. H.)

JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS
Volume: 9 **Issue:** 5 **Pages:** 654-661 **Special Issue:** SI
DOI: 10.1166/jno.2014.1650
Published: OCT 2014
View Journal Impact

Abstract

Investigation of the switching phenomenon on Tl2GaInSe4 single crystal, revealed that it is typical for a memory switch. The switching process takes place with both polarities on the crystal and have symmetrical shapes. Current-voltage characteristics (CVC) of symmetrical AgfTlGaInSe(4)/Ag structures exhibit two distinct regions, high resistance "off" state and low resistance "on" state having negative differential resistance (NDR). Tl2GaInSe4 is a quaternary semiconductor exhibiting S-type I-V characteristics. The experimental results indicate that the phenomenon in our sample is very sensitive to temperature, light intensity and sample thickness. The switching parameters were checked under the influence of different factors of the ambient conditions. The present study is the first for this phenomenon in Tl2GaInSe4 compound.

Keywords

Author Keywords: Memory; Switching; Effect-Quaternary; Compound-S; Shape-NDR; Region
KeyWords Plus: TRANSPORT-PROPERTIES; THIN-FILMS; GLASSES; MEMORY; SEMICONDUCTOR; TL2GAINSE4; TLGATE2; DEPENDENCE; BEHAVIOR

Author Information

Reprint Address: Al Orainy, RH (reprint author)

+ King Abdulaziz Univ, Sci Fac Girls, Dept Phys, Jeddah 21589, Saudi Arabia.

Addresses:

+ [1] King Abdulaziz Univ, Sci Fac Girls, Dept Phys, Jeddah 21589, Saudi Arabia

Publisher

AMER SCIENTIFIC PUBLISHERS, 26650 THE OLD RD, STE 208, VALENCIA, CA 91381-0751 USA

Categories / Classification

Research Areas: Engineering; Science & Technology - Other Topics; Physics
Web of Science Categories: Engineering, Electrical & Electronic; Nanoscience & Nanotechnology; Physics, Applied

Document Information

Document Type: Article
Language: English
Accession Number: WOS:000352332300015
ISSN: 1555-130X
eISSN: 1555-1318

Journal Information

Table of Contents: Current Contents Connect
Impact Factor: Journal Citation Reports

Other Information

Citation Network

0 Times Cited
24 Cited References
View Related Records
Create Citation Alert
(data from Web of Science Core Collection)

All Times Cited Counts
0 in All Databases
0 in Web of Science Core Collection
0 in BIOSIS Citation Index
0 in Chinese Science Citation Database
0 in Data Citation Index
0 in Russian Science Citation Index
0 in SciELO Citation Index

Usage Count
Last 180 Days: 0
Since 2013: 0
Learn more

This record is from:
Web of Science Core Collection
- Science Citation Index Expanded

Suggest a correction
If you would like to improve the quality of the data in this record, please suggest a correction.

IDS Number: CF1UB

Cited References in Web of Science Core Collection: 24

Times Cited in Web of Science Core Collection: 0

© 2017 CLARIVATE ANALYTICS TERMS OF USE PRIVACY POLICY FEEDBACK