Ultra Shallow Arsenic Junctions in Germanium Formed by Millisecond Laser Annealing

Millisecond laser annealing is used to fabricate ultra shallow arsenic junctions in preamorphized and crystalline germanium, with peak temperatures up to 900 degrees C. At this temperature, As indiffusion is observed while yielding an electrically active concentration up to $5.0 \times 10^{19}$ cm$^{-3}$ for a junction depth of 31 nm. Ge preamorphization and the consecutive solid phase epitaxial regrowth are shown to result in less diffusion and increased electrical activation. The recrystallization of the amorphized Ge layer during laser annealing is studied using transmission electron microscopy and spectroscopic ellipsometry.

General information
State: Published
Organisations: Nanointegration Group, NanoSystemsEngineering Section, Department of Micro- and Nanotechnology, Silicon Microtechnology Group, MicroElectroMechanical Systems Section
Pages: H39-H41
Publication date: 2011
Peer-reviewed: Yes

Publication information
Journal: Electrochemical and Solid-State Letters
Volume: 14
Issue number: 1
ISSN (Print): 1099-0062
Ratings:
Scopus rating (2017): SJR 0.688 SNIP 0.819
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.76 SJR 0.631 SNIP 0.78
Web of Science (2016): Impact factor 1.771
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 1.97 SJR 0.767 SNIP 0.685
Web of Science (2015): Impact factor 1.962
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 1.77 SJR 0.643 SNIP 0.771
Web of Science (2014): Impact factor 2.321
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 1.48 SJR 0.639 SNIP 0.696
Web of Science (2013): Impact factor 2.149
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.068 SNIP 1.006
Web of Science (2012): Impact factor 2.01
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.056 SNIP 0.984
Web of Science (2011): Impact factor 1.995
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.183 SNIP 1.01
Web of Science (2010): Impact factor 1.981
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.231 SNIP 1.003
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.323 SNIP 1.107
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 1.432 SNIP 1.132
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 1.474 SNIP 1.227
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 1.48 SNIP 1.227
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 1.962 SNIP 1.565
Scopus rating (2003): SJR 2.36 SNIP 1.499
Scopus rating (2002): SJR 2.454 SNIP 1.47
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 1.669 SNIP 1.324
Scopus rating (2000): SJR 0.355 SNIP 1.434
Scopus rating (1999): SJR 1.145 SNIP 1.258
Original language: English
DOIs:
10.1149/1.3512990
Source: orbit
Source-ID: 273662
Research output: Research - peer-review › Journal article – Annual report year: 2011