Characteristics of GST films prepared by cyclic plasma chemical vapor deposition

석경석[1,2], 정하나[1,2], 김도형[2,3,*]
[1]전남대학교 신화학소재공학과;
[2]전남대학교 BK21 기능성 나노 신화학 소재 사업단;
[3]전남대학교 응용화학공학부
(kdhh@chonnam.ac.kr*)

Phase change random access memory (PCRAM) has attracted great interest as a next generation nonvolatile memory medium because of fast read and write speeds, low fabrication costs, low-voltage operation, very high endurance, and intrinsic scalability. GST is being examined as the most promising PCRAM candidate material as the resistivity changes of GST, depending on its phase, are reversible, and also because the difference between the resistivity changes is big enough to use as data input sources, i.e., the crystalline phase corresponding to the value "0" and the amorphous phase corresponding to the value "1."
In this research, GST films were prepared on TiN/Si, Si and SiO2/Si substrates by cyclic plasma chemical vapor deposition. The processing conditions were 175~250℃ substrate temperature, 1.0 torr total pressure, and 50~150W plasma power. Precursors used for GST deposition is tetrakis-ethylmetylamino-Germanium[Ge{N(CH3)C2H5}4], tri-isopropyl -antimony [Sb(C3H7)3], di-isopropyl- tellurium [Te(C3H7)2].