

ABSTRACT

HIGH-CRYSTALLINITY BARIUM TITANATE FILM STRUCTURE, METHOD OF PREPARATION AND APPLICATION THEREOF

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The present invention provides a high-crystallinity barium titanate film structure, a method of preparation and an application thereof, and relates to the field of materials and devices. The method includes the steps of depositing, on a substrate, a barium titanate layer with a (001) or (111) crystal orientation by atomic layer deposition in a high vacuum
10 environment and at a low temperature of 450°C or below, wherein a Ba/Ti ratio in the barium titanate layer is 0.9-1.5; and performing plasma annealing treatment on the barium titanate layer at a low temperature of 450°C or below without breaking vacuum to form a high-crystallinity barium titanate layer having the (001) or (111) crystal orientation. The present invention solves the problem that an existing method for obtaining a
15 crystalline BTO film is not applicable to back-end of line (BEOL) integration processes.

Fig 1(a) for publication.