

ABSTRACT OF THE DISCLOSURE

TITLE OF THE INVENTION

FIELD EMISSION-TYPE ELECTRON SOURCE AND MANUFACTURING
METHOD THEREOF

A field emission-type electron source 10 includes an insulative substrate 11 in the form of a glass substrate having an electroconductive layer 8 formed thereon. A strong electrical field drift layer 6 in the form of an oxidized porous polycrystalline silicon layer is formed over the electroconductive layer 8. This electroconductive layer 8 includes a lower electroconductive film 8a, made of copper and formed on the insulative substrate 11, and an upper electroconductive film 8b made of aluminum and formed over the electroconductive film 8a. The strong electrical field drift layer 6 is formed by forming a polycrystalline silicon layer on the electroconductive layer 8, rendering the polycrystalline silicon layer to be porous and finally oxidizing it. The upper electroconductive film 8b has a property that reacts easily with silicon and, therefore, formation of an amorphous layer which would occur during formation of the polycrystalline silicon layer can be suppressed.

Fig. 1