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ABSTRACT

Disclosed is a method for the electrochemical oxidation of a semiconductor layer. In an electrochemical oxidation treatment for the production process of an electron source 10 (field-emission type electron source) as one of electronic devices, a control section 37 determines a voltage increment due to the resistance of an electrolytic solution B in advance, based on a detected voltage from a resistance detect section 35. Then, the control section 37 controls a current source to supply a constant current so as to initiate an oxidation treatment for a semiconductor layer formed on an object 30. The control section 37 corrects a detected voltage from a voltage detect section 36 by subtracting the voltage increment therefrom. When the corrected voltage reaches a given upper voltage value, the control section 37 is operable to discontinue the output of the current source 32 and terminate the oxidation treatment. The present invention allows electronic devices to be produced with reduced variation in the characteristics thereof.