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ABSTRACT

SURFACE PROCESSING METHOD AND APPARATUS

An improved surface processing method and apparatus for processing the surface of a workpiece which avoids plasma damage and allows a large degree of freedom in the location of the workpiece relative to the processing gas producing apparatus. To improve wettability of the soldering area of a workpiece, a raw-material gas containing a halogen compound preferably including CF_4 is introduced into a plasma generator section in a surface processing unit. Optionally, a carrier gas (other than helium gas) is used to aid in the forwarding of the raw-material gas. In the plasma generator section, the raw-material gas is excited and decomposed by electrodes to which preferably a low frequency AC voltage of 0 to 50 kHz, or a DC voltage is applied, in order to preferably produce a highly reactive fluorine gas F_2 . By bringing the processing gas containing fluorine gas F_2 into contact with the workpiece, the surface of the workpiece is processed. Since fluorine radicals, which have a short life span, are not used, a great deal of freedom is allowed in the workpiece. When air is used as a carrier gas, it is mixed with the raw-material gas after decomposition, to retard the generation of ozone. If halogen compounds are decomposed in an atmosphere containing moisture, hydrogen halide is efficiently produced.

Figure : None

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