

ABSTRACT

IMPEDANCE-MATCHING METHOD, IMPEDANCE-MATCHING DEVICE, AND SEMICONDUCTOR PROCESS APPARATUS

The present disclosure provides an impedance-matching method applied to a semiconductor process apparatus, an impedance-matching device, and the semiconductor process apparatus. The impedance-matching method includes adjusting a parameter value of an adjustable element of an impedance-matching device to a preset initial value at beginning of a process when a radio frequency (RF) power supply is powered on, adjusting the parameter value of the adjustable element according to a pre-stored optimal matching path corresponding to the process, and adjusting the parameter value of the adjustable element using an automatic matching algorithm after reaching end time of the preset matching period until impedance matching is achieved. The optimal matching path includes parameter values of the adjustable element corresponding to different moments in a preset matching period. The impedance-matching method, the impedance-matching device, and the semiconductor process apparatus of the present disclosure can not only improve the repetitiveness and stability of the process but also achieve the precision adjustment of the plasma impedance.

Fig. 1