

ABSTRACT

A semiconductor inspection apparatus 1A includes an inspection optical system 11 for irradiating a semiconductor device D with probe light and outputting reflected light, a light measurement unit 20 for detecting the reflected light and outputting an electrical signal having a temporal waveform according to a temporal change of an intensity, a signal conversion unit 30 for intensity modulating measurement light based on the electrical signal and outputting as an optical signal corresponding to the electrical signal, a waveform measurement unit 40 for measuring a temporal waveform of the optical signal, and a waveform analysis unit 52 for obtaining the temporal waveform of the electrical signal based on a measurement result of the optical signal. The waveform measurement unit 40 includes a streak tube including a photocathode for inputting the optical signal, a sweep electrode, and a phosphor screen, and an imaging element for capturing a fluorescence image generated on the phosphor screen and outputting a waveform image, and the waveform analysis unit 52 obtains the temporal waveform of the electrical signal based on the waveform image. Thus, a semiconductor inspection apparatus and an inspection method capable of measuring a temporal change of an intensity of reflected light when a semiconductor device is irradiated with probe light at high speed are realized.

Fig.1