

## WDM OPTICAL FILTER AND GLASS SUBSTRATE FOR USE IN THE WDM OPTICAL FILTER

### Abstract

A glass substrate is for use in a WDM optical filter which has an optical multilayer coated on the glass substrate and is formed by glass which has a composition related to the optical multilayer so as to assure stable multiplexing/demultiplexing operation in the optical filter. The glass includes  $\text{SiO}_2$  as a glass network-former and has an average linear thermal expansion coefficient between  $100 \times 10^{-7}/\text{K}$  and  $130 \times 10^{-7}/\text{K}$  within a temperature range between  $-30^\circ\text{C}$  and  $+70^\circ\text{C}$ . The glass may include  $\text{TiO}_2$ ,  $\text{Al}_2\text{O}_3$ , and  $\text{R}_2\text{O}$  (R: alkali metal element) in addition to  $\text{SiO}_2$  and may have a hardness suitable for the optical multilayer.

Figure 5