ABSTRACT

Disclosed in the present application are an on-chip integrated wavelength division multiplexer and a photonic integrated circuit chip. The wavelength division multiplexer comprises a polarization-insensitive flat-top wavelength division multiplexing structure, wherein the flat-top wavelength division multiplexing structure has a first input waveguide group, a second input waveguide group and an output waveguide. In the flat-top wavelength division multiplexing structure, odd-even grouping is performed on central wavelengths configured for the first input waveguide group and the second input waveguide group, optical signals of different groups are respectively input into the wavelength division multiplexer in different polarization states, and on the basis of a single polarization-insensitive flat-top wavelength division multiplexing structure, two groups of multiple optical signals of different wavelengths and in different polarization states are multiplexed into one multi-wavelength and polarization multiplexed light, thereby reducing signal crosstalk between adjacent channels, simplifying the structural complexity of the wavelength division multiplexer, reducing the size of the wavelength division multiplexer, and thus facilitating an improvement in the integration level of the photonic integrated circuit chip.

Fig. 2