

SELF-INJECTION OPTICAL TRANSCEIVER MODULE AND WAVELENGTH DIVISION MULTIPLEXING PASSIVE OPTICAL NETWORK SYSTEM

ABSTRACT

5 Embodiments of the present invention provide a self-injection optical transceiver module and a
WDM-PON system based on the optical transceiver module. The self-injection optical transceiver
module includes a gain medium, a photoelectric converter, at least one arrayed waveguide grating
AWG, and a partial reflection mirror. The at least one AWG includes two common ports and
multiple branch ports. One of the two common ports functions as a signal sending port, and the
10 other functions as a signal receiving port, where bandwidth of the signal sending port is less than
that of the signal receiving port. The gain medium and the photoelectric converter are connected to
one of the branch ports of the AWG. The AWG and the partial reflection mirror are configured to
cooperatively perform wavelength self-injection locking on an optical signal provided by the gain
medium, and output the optical signal through the signal sending port. The AWG is further
15 configured to demultiplex an optical signal received by the signal receiving port to a branch port.
Embodiments of the present invention may effectively improve the performance of the self-injection
optical transceiver module and the WDM-PON system.

FIGURE 3