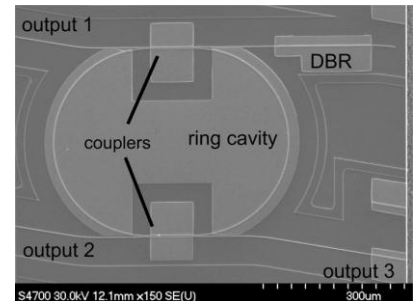


Tunable Ring Laser

Fast and Digitally Wavelength-Tunable
Semiconductor Ring Laser



Key Benefits

- Fast and digital wavelength switching and stabilisation action (450ps between adjacent wavelengths)
- Side mode suppression ratio exceeding 30dB
- Replaces a set of lasers with a single component—reduced component count in DWDM systems
- Potential to integrate with other functional elements such as optical amplifiers
- Minimal thermal disturbance to laser cavity mode frequent

Applications

DWDM transponders for optical communication equipment.

Tunable Ring Laser

Tunable lasers are used in optical telecommunications systems, and in particular in Dense Wave-division Multiplexing (DWDM), a technology widely used to greatly expand the capacity of optical links in the backbone network. Tunable lasers have the capacity for replacing a set of lasers with a single component. For example it can be used to build in network redundancy economically in case other lasers fail, by replacing any failed laser with one tunable backup instead of needing one backup for

every working laser. Tunable lasers also make it easy to add or delete bandwidth by remote control – with no need to detach a service technician – thereby opening the door to a variety of new on-demand services.

The Bristol tunable ring laser consists of grating reflectors connected to a semiconductor ring laser cavity through a bi-directional coupler. This invention has the tuning mechanism placed outside the laser cavity, separate from the lasing frequency-determining mechanisms. Therefore the tuning action does not affect the accurate values of lasing frequency, and the laser is rapidly tunable to very accurate pre-set frequencies without drifting afterwards.

IP Status

Granted US Patent 7376167

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