

ABSTRACT

**IMPROVEMENTS IN OR RELATING TO A DISTRIBUTED FEEDBACK LASER DEVICE
FOR PHOTONICS INTEGRATED CIRCUIT AND A METHOD OF MANUFACTURE**

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A distributed feedback laser integrated on silicon comprising a combination of a waveguide of a first material and a laser diode a second material, different from the first material, wherein the laser diode comprises a plurality of regularly spaced metalized grating elements which form a single longitudinal mode; wherein the waveguide comprises a plurality of waveguide
10 elements separated by metalized regions; and wherein the metalized grating elements and the metalized regions are adapted to be coupled to one another to form the distributed feedback laser.

[Figure 1]