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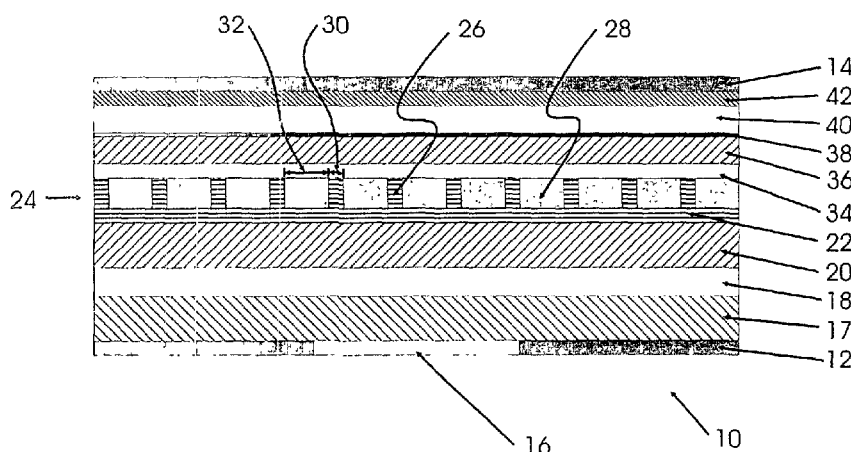
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(54) Title: SURFACE EMITTING DFB LASER STRUCTURES AND ARRAY OF THE SAME FOR BROADBAND COMMUNICATION SYSTEM



(57) Abstract: A surface emitting semiconductor laser (10) is shown having a semiconductor lasing structure having an active layer (22), opposed cladding layers contiguous to said active layer, a substrate (17), and electrodes (12,14) by which current can be injected into the semiconductor lasing structure. Also included is a second or higher order distributed diffraction grating (24) having periodically alternating elements, each of the elements being characterized as being either a high gain element (26) or a low gain element (28). Each of the elements has a length, the length of the high gain element and the length of the low gain element together defining a grating period, where the grating period is in the range required to produce an optical signal in the optical telecommunications signal band. The total length of the high gain elements is no more than the total the lengths of the low gain elements. A single laser structure may be provided or an array of side by side laser structures on a common substrate is also provided. In a further aspect a method of testing laser structures on wafer is provided.



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