This allows to limit mechanical stress in the optical fiber device within the package.
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
AMENDED CLAIMS
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CLAIMS

1) A package for an optical fiber device capable of carrying a high power signal, which comprises:

5 a) a thermally conductive packaging substrate surrounding said optical fiber device and having an entry port through which one end of the optical fiber device enters the package and an exit port through which another end of the optical fiber device exits the package, said packaging substrate having a preselected coefficient of thermal expansion (CTE);

b) a rigid transparent adhesive bond at the entry port and at the exit port anchoring each end of the optical fiber device to the packaging substrate, said adhesive bond being made of a material having a high transparency and having a preselected coefficient of thermal expansion (CTE);

wherein the transparency of the adhesive bond is selected to minimize optical absorption of optical loss emanating from the optical fiber device; and

wherein the CTE of the adhesive bond and the CTE of the packaging substrate are selected so as to produce an effective CTE of the package close to the CTE of silica, thereby compensating for any variation in volume of the adhesive bond at each end of the optical fiber device due to external temperature variation and/or to internal temperature variation due to the absorption by the adhesive bond of the optical loss emanating from the optical fiber device, thereby limiting mechanical stress in the optical fiber device within the package.

2) A package according to claim 1, in which the packaging substrate is configured such as to absorb essentially all the optical loss emanating from the optical fiber device and to minimize the temperature rise of the package when it is in operation.

3) A package according to claims 1 or 2, in which the packaging substrate is made of a metal, an alloy, a composite, a ceramic, a ceramic matrix composite or a combination of two such materials in a bi-material arrangement, or a combination of these materials with a thermally conductive layer.
4) A package according to claim 3, in which the packaging substrate consists of CuW or CuMo.

5) A package according to claim 3, in which the packaging substrate consists of an alloy of aluminium and silicon.

6) A package according to claim 5, in which the packaging substrate consists of AlSi with a composition of 50% Al/50%Si by weight.

7) A package according to claim 3, in which the packaging substrate consists of a ceramic material AlN.

8) A package according to claim 3, in which the packaging substrate comprises a combination of low expansion metal selected from Invar and Kovar with high thermal conductivity inserts selected from Cu, Ag and Al.

9) A package according to claim 3, in which the combination of the materials with the thermally conductive layer has an electroplated layer or a hot dip layer or thin film layer or foil layer.

10) A package according to any one of claims 1 to 9, in which the thermal conductivity of the packaging substrate is at least 100 w/mk (watts/meter-kelvin).

11) A package according to any one of claims 1 to 9, in which the thermal conductivity of the packaging substrate is greater than 130 w/mk.

12) A package according to any one of claims 1 to 11, in which the transparency of the adhesive bond is at least 80% light transmission per 1 mm thickness in operational wavelength range.

13) A package according to any one of claims 1 to 12, in which the adhesive bond has a service temperature limit of over 130°C.

14) A package according to any one of claims 1 to 13, in which the adhesive bond has a glass transition temperature (Tg) of above 85°C.

15) A package according to any one of claims 1 to 14, in which the adhesive bond has
essentially the same specific optical absorption between 800-1600 nra before and after aging of 500 hours in an 85°C/85% relative humidity environment.

16) A package according to any one of claims 1 to 15, in which the adhesive bond is made of a UV curable bisphenol A epoxy acrylate based material and has a CTE > 30ppm/°C.

17) A package according to claim 1 to 16, in which the CTEs are in the arrangement: CTE fiber device < CTE packaging substrate < CTE adhesive bond, in order to produce an effective CTE of the package close to the CTE of silica.

18) A package according to any one of claims 1 to 17, in which the surface finish of inner walls of the packaging substrate is in condition such as to minimize reflections and maximize effective dissipation power of the optical fiber device.

19) A package according to claim 18, in which said condition is achieved by abrasion, oxidation or thin film coating of the inner walls or a combination of these procedures.

20) A package according to any one of claims 1 to 19, which is flat and rectangular to allow efficient thermal contact when mounted on a flat surface.

21) A package according to any one of claims 1 to 20, which is made of two elongated sections fastened to one another and wherein a grooved longitudinal channel is provided in each of said sections in which the optical fiber device is placed.

22) A package according to claim 21, in which stain relief shapes are machined into ends of the channels so as to avoid creating bend discontinuities in the fiber exiting therethrough when pulled laterally.

23) A package according to any one of claims 1 to 22, in which the optical fiber device capable of carrying a high power signal is a coupler that combines or separates a plurality of fibers.

24) A package according to claim 23, in which said coupler is a tapered fused bundle (TFB) coupler.

25) A package according to any one of claims 1 to 22, in which the optical fiber device
capable of carrying a high power signal is a splice between two fibers.

26) A package according to any one of claims 1 to 22, in which the optical fiber device capable of carrying a high power signal is a mode field adaptor.

27) A package according to any one of claims 1 to 22, in which the optical fiber device capable of carrying a high power signal is a cladding mode light stripper.

28) A package according to any one of claims 1 to 22, in which the optical fiber device capable of carrying a high power signal is a Bragg grating.