

CLAIMS

1. Biometric sensor module (4) for a chip card, comprising:
 - a dielectric carrier (101) comprising a front face and a back face, both
5 forming main faces of the carrier (101),
 - a biometric sensor (300) for detecting fingerprints attached to the back face and extending beneath the back face over a detection area located opposite a detection region located on the front face of the carrier (101),
the biometric sensor module further comprises:
 - 10 on the front face, over the detection region extending opposite the detection area and over an area corresponding at least to that of the detection area, at least one protective layer (108) comprising a photoimageable coverlay material,
 - a bezel (5) on the front face, where the protective layer (108)
15 covers a region located inside the bezel,
 - electrically conductive connection pads (7) on the back face, where the electrically conductive connection pads are essentially opposite a region of the front face covered with the bezel, and
 - at least one conductive via (104) in the thickness of the carrier,
 - 20 the at least one conductive via electrically connecting the bezel to the electrically conductive connection pads (7).
2. Module according to Claim 1, in which the photoimageable coverlay material is based on epoxy-acrylate resins.
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3. Module according to Claim 1 or 2, in which the protective layer (108) has a thickness of between 5 and 100 micrometres, and more preferably has a thickness close to 25 micrometres.
- 30 4. Module according to one of Claims 1 to 3, in which the protective layer (108) is deposited on a layer of adhesive (103) based on epoxy resin.

5. Module according to Claim 1, in which at least some of the electrically conductive connection pads (7) each comprise at least one blob of solder material (6).
- 5 6. Chip card comprising a card body with an electrical circuit (200) integrated into the card body and the module (4) according to one of the preceding claims, the module (4) and the circuit (200) being electrically connected using a solder material (6).
- 10 7. Method for producing a biometric sensor module (4) for a chip card, comprising steps of:
- providing a dielectric carrier (101) comprising a front face and a back face, both forming main faces of the carrier (101),
 - attaching a biometric sensor (300) for detecting fingerprints to the back face, a detection area covered by the sensor on the back face being placed
15 opposite a detection region located on the front face of the carrier (101),
providing a protective layer (108) of a photoimageable coverlay material on the detection region,
providing a bezel (5) on the front face, where the protective layer covers
20 a region located inside the bezel,
providing electrically conductive connection pads (7) on the back face, where the electrically conductive connection pads are placed essentially opposite a region of the front face covered with the bezel, and
providing at least one conductive via (104) in the thickness of the carrier,
25 the at least one conductive via electrically connecting the bezel to the electrically conductive connection pads (7).
8. Method according to Claim 7, in which the dielectric carrier (101) is a flexible carrier from the polyimide family.
- 30 9. Method according to Claim 7 or 8, in which
- the front face is coated with an electrically conductive layer (105), in

which the bezel (5) is made, the protective layer (108) covering an area located inside the bezel on the front face, and

- the at least one conductive via (104) is made in the thickness of the carrier (101) to electrically connect the bezel (5) to the back face.

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10. Method according to Claim 9, in which

- the carrier (101) is provided with another electrically conductive layer (102) on the back face, and then the front face is coated with an adhesive layer (103),

10 - at least one hole (104), intended to form the via, is made, this hole (104) passing through the another electrically conductive layer (102), the carrier (101) and the adhesive layer (103),

- where the another electrically conductive layer (102) is laminated on the back face, the electrically conductive layer (105) at least partially covering the hole (104) intended to form the via,

15 - the bezel (5) is etched in the electrically conductive layer (105), while leaving the hole (104) intended to form the via at least partially covered with the electrically conductive layer (105),

- the protective layer (108) is deposited, inside the bezel (5), on the adhesive layer (103) exposed in the etching of the bezel (5).

11. Method according to Claim 10, in which the electrically conductive connection pads (7) are etched in the another electrically conductive layer (102) so that at least some of them are positioned essentially opposite a region of the front face covered with the bezel (5).

12. Method according to one of Claims 7 to 11, in which the biometric sensor (300) is attached to the back face of the carrier (101) using an adhesive for attaching chips which crosslinks at temperatures of between 100°C and 150°C.

13. Method according to Claim 12, in which at least one blob of solder

material (6) is deposited on at least some of the electrically conductive connection pads (7).