Claims

1. An ophthalmic device comprising:

a stacked integrated component device with energization, the stacked integrated component device comprising at least a first stacked layer (1102) comprising electrically active devices comprising one or more components, a second stacked layer (1104) comprising electrically active devices comprising one or more components, and a third stacked layer (1106, 1107) comprising one or more energizing devices,

wherein at least a first electrical connection (1103, 1105) allows current to flow between at least one of the one or more components in said first and second stacked layers and at least one component in said third stacked layer,

wherein the first stacked layer comprises a technology type that differs from that of the second stacked layer, and

wherein the technology type of the first stacked layer (1102) is selected from CMOS, BiCMOS, bipolar, MEMS and memory device technology, and the technology type of the second stacked layer (1104) comprises a different one selected from CMOS, BiCMOS, bipolar, MEMS and memory device technology.

2. The ophthalmic device of any of Claim 1, wherein the technology type of the first stacked layer (1102) derives from a CMOS processing flow and the technology type of the second stacked layer (1104) derives from a BiCMOS processing flow.

3. The ophthalmic device of Claim 1, wherein the substrate used to form the first stacked layer (1102) differs from the substrate used to form the second stacked layer (1104).

4. The ophthalmic device of Claims 1 or 3 wherein the first stacked layer (1102) is formed upon a silicon substrate and the second stacked layer (1104) is formed upon one of a silicon-on-insulator substrate, a non-silicon semiconductor substrate, or an organic electronic device substrate.

5. The ophthalmic device of Claims 1 or 3, wherein the energizing devices comprise a thin film solid state battery element.

6. The ophthalmic device of Claims 1 or 3, wherein the energizing devices comprise an alkaline battery element.

7. The ophthalmic device of Claims 1 or 3, wherein the energizing devices comprise a wire formed battery element.

8. The ophthalmic device of Claims 1 or 3, wherein the energizing devices comprise at least a chemical energy storage device.

9. The ophthalmic device of Claims 1 or 3, wherein the energizing devices comprise at least a capacitive energy storage device.

10. The ophthalmic device of Claims 1 or 3, wherein the first stacked layer is approximately rectilinear.

11. The ophthalmic device of Claims 1 or 3, wherein the first stacked layer has regions that are curvilinear.

12. The ophthalmic device of Claims 1 or 3, wherein the first stacked layer has regions in the shape of a polygon.

13. The ophthalmic device of Claim 1, wherein the first stacked layer, the second stacked layer and the third stacked layer are devoid of material in the optical zone of the ophthalmic device.

14. The ophthalmic device of Claim 1, wherein the first stacked layer, the second stacked layer and the third stacked layer stack upon one another such that they partially overlap one another to form a three-dimensional structure configured to match a profile of the ophthalmic device.

Claims

1. An ophthalmic device residing in or on an eye comprising:

a stacked integrated component device with energization, the stacked integrated component device comprising at least a first stacked layer (1102) comprising electrically active devices comprising one or more components, a second stacked layer (1104) comprising electrically active devices comprising one or more components, and a third stacked layer (1106, 1107) comprising one or more energizing devices,

wherein at least a first electrical connection (1103, 1105) allows current to flow between at least one of the one or more components in said first and second stacked layers and at least one component in said third stacked layer,

wherein the first stacked layer comprises a technology type that differs from that of the second stacked layer, and

wherein the technology type of the first stacked layer (1102) is selected from CMOS, BiCMOS, bipolar, MEMS and memory device technology, and the technology type of the second stacked layer (1104) comprises a different one selected from CMOS, BiCMOS, bipolar, MEMS and memory device technology.

2. The ophthalmic device of any of Claim 1, wherein the technology type of the first stacked layer (1102) derives from a CMOS processing flow and the technology type of the second stacked layer (1104) derives from a BiCMOS processing flow.

3. The ophthalmic device of Claim 1, wherein the substrate used to form the first stacked layer (1102) differs from the substrate used to form the second stacked layer (1104).

4. The ophthalmic device of Claims 1 or 3 wherein the first stacked layer (1102) is formed upon a silicon substrate and the second stacked layer (1104) is formed upon one of a silicon-on-insulator substrate, a non-silicon semiconductor substrate, or an organic electronic device substrate.

5. The ophthalmic device of Claims 1 or 3, wherein the energizing devices comprise a thin film solid state battery element.

6. The ophthalmic device of Claims 1 or 3, wherein the energizing devices comprise an alkaline battery element.

7. The ophthalmic device of Claims 1 or 3, wherein the energizing devices comprise a wire formed battery element.

8. The ophthalmic device of Claims 1 or 3, wherein the energizing devices comprise at least a chemical energy storage device.

9. The ophthalmic device of Claims 1 or 3, wherein the energizing devices comprise at least a capacitive energy storage device.

10. The ophthalmic device of Claims 1 or 3, wherein the first stacked layer is approximately rectilinear.

11. The ophthalmic device of Claims 1 or 3, wherein the first stacked layer has regions that are curvilinear.

12. The ophthalmic device of Claims 1 or 3, wherein the first stacked layer has regions in the shape of a polygon.

13. The ophthalmic device of Claim 1, wherein the first stacked layer, the second stacked layer and the third stacked layer are devoid of material in the optical zone of the ophthalmic device.

14. The ophthalmic device of Claim 1, wherein the first stacked layer, the second stacked layer and the third stacked layer stack upon one another such that they partially overlap one another to form a three-dimensional structure configured to match a profile of the ophthalmic device.