CLAIMS

1. A transparent glass-ceramic, comprising a petalite crystalline phase and a lithium disilicate crystalline phase, wherein the petalite crystalline phase and the lithium disilicate crystalline phase have a higher weight percentage than other crystalline phases present in the transparent glass-ceramic;

based on molar percentage of oxides, a composition of the transparent glass-ceramic comprises:

SiO_2: 60.90 mol% to 72.65 mol%, Al_2O_3: 1.50 mol% to 5.00 mol%, P_2O_5: 0.85 mol% to 1.50 mol%, ZrO_2: 2.00 mol% to 4.00 mol%, Na_2O: 0.00 mol% to 1.00 mol%, K_2O: 0.00 mol% to 0.50 mol%, Li_2O: 20.00 mol% to 30.00 mol%, CaO: 0.00 mol% to 1.60 mol%, and B_2O_3: 0.00 mol% to 1.00 mol%;

based on a content expressed as the molar percentage of each oxide in the composition of the transparent glass-ceramic, the composition of the transparent glass-ceramic satisfies:

$18.200 \leq Li_2O / P_2O_5 \leq 25.500$;

$4.100 \leq (Li_2O + Na_2O + K_2O + B_2O_3) / (P_2O_5 + ZrO_2 + CaO) \leq 6.000$; and

$14.000 \leq 2 \times Li_2O / (0.5 \times ZrO_2 + CaO) \leq 23.000$.

2. The transparent glass-ceramic according to claim 1, wherein, based on the content expressed as the molar percentage of each oxide in the composition of the transparent glass-ceramic, the composition of the transparent glass-ceramic satisfies:

$0.100 \leq P_2O_5 \times (CaO + ZrO_2 + Li_2O + Al_2O_3) / (Na_2O + K_2O + B_2O_3) \leq 0.900$.

3. The transparent glass-ceramic according to claim 2, wherein, $0.190 \leq P_2O_5 \times (CaO + ZrO_2 + Li_2O + Al_2O_3) / (Na_2O + K_2O + B_2O_3) \leq 0.900$.

4. The transparent glass-ceramic according to claim 1, wherein, based on the molar percentage of oxides, the composition of the transparent glass-ceramic comprises:

SiO_2: 67.50 mol% to 71.00 mol%, Al_2O_3: 3.50 mol% to 5.00 mol%, P_2O_5: 0.85 mol% to 1.50 mol%, ZrO_2: 2.50 mol% to 3.50 mol%, Na_2O: 0.00 mol% to 1.00 mol%, K_2O: greater than 0.00 mol% and not greater than 0.50 mol%, Li_2O: 20.00 mol% to 25.00 mol%, CaO: greater than 0.50 mol% and not greater than 1.60 mol%, and B_2O_3: 0.00 mol% to 1.00 mol%.

5. The transparent glass-ceramic according to any one of claims 1 to 4, wherein the transparent glass-ceramic does not comprise a quartz crystalline phase.

6. The transparent glass-ceramic according to any one of claims 1 to 4, wherein a crystallinity of the transparent glass-ceramic is ≥ 70.00 wt%; and in the transparent glass-ceramic, an average crystal size is less than or equal to 100 nm.

7. The transparent glass-ceramic according to any one of claims 1 to 4, wherein, in the transparent glass-ceramic, the petalite crystalline phase accounts for 35.00 wt% to 50.00 wt% of a mass of the transparent glass-ceramic, and the lithium disilicate crystalline phase accounts for 35.00 wt% to 50.00 wt% of the mass of the transparent glass-ceramic.

8. A base glass capable of being subjected to heat treatment to prepare the transparent glass-ceramic according to claim 1, wherein, based on molar percentage of oxides, a composition of the base glass comprises:

SiO_2: 60.90 mol% to 72.65 mol%, Al_2O_3: 1.50 mol% to 5.00 mol%, P_2O_5: 0.85 mol% to 1.50 mol%, ZrO_2: 2.00 mol% to 4.00 mol%, Na_2O: 0.00 mol% to 1.00 mol%, K_2O: 0.00 mol% to 0.50 mol%, Li_2O: 20.00 mol% to 30.00 mol%, CaO: 0.00 mol% to 1.60 mol%, and B_2O_3: 0.00 mol% to 1.00 mol%;

based on a content expressed as molar percentage of each oxide in the composition of the base glass, the composition of the base glass satisfies:

$18.200 \leq Li_2O / P_2O_5 \leq 25.500$;

$4.100 \leq (Li_2O + Na_2O + K_2O + B_2O_3) / (P_2O_5 + ZrO_2 + CaO) \leq 6.000$; and

$14.000 \leq 2 \times Li_2O / (0.5 \times ZrO_2 + CaO) \leq 23.000$.

9. The base glass according to claim 8, wherein, based on the content expressed

as the molar percentage of each oxide in the composition of the base glass, the composition of the base glass satisfies:

$$0.100 \leq P_2O_5 \times (CaO + ZrO_2 + Li_2O + Al_2O_3) / (Na_2O + K_2O + B_2O_3) \leq 0.900.$$

10. The base glass according to claim 9, wherein, $0.190 \leq P_2O_5 \times (CaO + ZrO_2 + Li_2O + Al_2O_3) / (Na_2O + K_2O + B_2O_3) \leq 0.900$.

11. A chemically strengthened glass-ceramic, wherein a composition at a center of the chemically strengthened glass-ceramic is the same as the composition of the transparent glass-ceramic according to claim 1, and the chemically strengthened glass-ceramic comprises a compressive stress layer region extending from a surface of the transparent glass-ceramic to a compression depth, and has tensile stress inside the chemically strengthened glass-ceramic.

12. The chemically strengthened glass-ceramic according to claim 11, wherein a surface Na_2O concentration of the chemically strengthened glass-ceramic is 5.0 wt% to 20.0 wt%.

13. The chemically strengthened glass-ceramic according to any one of claims 11 to 12, wherein the chemically strengthened glass-ceramic has a CS_50 of 110 MPa to 200 MPa, and the CS_50 refers to the compressive stress value at a depth of 50 μm from a main surface of the chemically strengthened glass-ceramic; and/or,

the chemically strengthened glass-ceramic has a |CT_AV| of 84 MPa to 140 MPa, and the |CT_AV| refers to an absolute value of an average tensile stress.

14. The chemically strengthened glass-ceramic according to any one of claims 11 to 12, wherein a depth DOL_0 of the compressive stress layer of the chemically strengthened glass-ceramic is 0.18t to 0.25t, and t is a thickness of the chemically strengthened glass-ceramic.

15. An electronic device, comprising the transparent glass-ceramic according to any one of claims 1 to 7 or comprising the chemically strengthened glass-ceramic according to any one of claims 11 to 14.