

Claims

1. A ceramic composition comprising a compound having a perovskite structure represented by the formula



where A is at least one element selected from the group consisting of 2A, 3A and 3B subgroup elements of the international periodic table of IUPAC,

~~where M is at least one element selected from the group consisting of 4A, 5A, 6A, 7A and 8 subgroup elements of the international periodic table of IUPAC, and~~

wherein said perovskite compound is made up of p-type and n-type components and the elements are present essentially within solubility limits in the perovskite structure.

- ~~2. The ceramic composition as defined in claim 1, characterized in that~~ M is a combination of at least any one of a first group consisting of Fe and Ti and at least any one of a second group consisting of Cr, Mn, Co and Ni_x

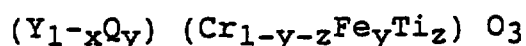
- ~~2~~¹. The ceramic composition as defined in claim ~~2~~¹, characterized in that the first group is Fe and Ti and the second group is Cr and at least one of Mn, Co and Ni.

- ~~3~~². The ceramic composition as defined in any one of claims ~~1-3~~^{1,2}, characterized in that said M is represented by $(Cr, Mn, Co, Ni)_{1-y-z}Fe_yTi_z$ where $y/(1-y-z)$ is 0.05 to 0.4 and z is 0.025 to 0.35.

- 4~~8~~. The ceramic composition as defined in claim 1 or ³~~4~~, characterized in that said M is Cr and at least one of the group consisting of Mn, Co and Ni.
- 5~~8~~. The ceramic composition as defined in claim 1 or ³~~4~~, characterized in that said M is Cr.
- 6~~7~~. The ceramic composition as defined in any one of claims 1 to ⁵~~8~~, characterized in that said A is at least one selected from the group consisting of Y, lanthanoid series elements and Ga.
- 7~~8~~. The ceramic composition as defined in claim ⁶~~7~~, characterized in that said lanthanoid series elements are those other than La.
- 8~~8~~. The ceramic composition as defined in claim ⁶~~7~~ or ⁷~~8~~, characterized in that A is Y, Sm or a mixture thereof.
- 9~~10~~. The ceramic composition as defined in any one of claims 1 to ⁸~~8~~, characterized in that a phase resulting from a sintering aid is present in the composition.
- 10~~11~~. The ceramic composition as defined in claim ⁹~~10~~, characterized in that the phase resulting from the sintering aid is present in an amount of 0.5 to 10 % by weight, preferably, 0.8% to 5% by weight, of the entire composition.
- 11~~12~~. The ceramic composition as defined in claim ⁹~~10~~ or ¹⁰~~11~~, characterized in that said sintering aid is selected from the group consisting of silica, mullite, calcium silicate and strontium silicate.

~~12~~ ¹³ 13. The ceramic composition as defined in any one of claims ~~10~~ ⁹ to ~~12~~ ¹¹, characterized in that said sintering aid is silica.

~~13~~ ¹⁴ 14. The ceramic composition as defined in one of claims 1 or ~~10~~ ⁹ to ~~12~~ ¹¹ comprising a compound represented by a chemical formula



where Q is at least one selected from the group consisting of 2A, 3A and 3B subgroup elements of the international periodic table of IUPAC,

where x, y and z are

$$0.351 \geq x \geq 0.01,$$

$$0.4 \geq y/(1-y-z) \geq 0.05 \text{ and}$$

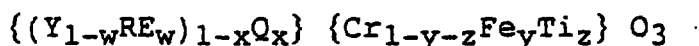
$$0.35 \geq z \geq 0.025.$$

~~14~~ ¹⁵ 15. The ceramic composition as defined claim ~~14~~ ¹³, characterized in that Q is Sr.

~~15~~ ¹⁶ 16. The ceramic composition as defined claim ~~14~~ ¹³, characterized in that Q is at least one element, present within a solubility limit, selected from the group consisting of lanthanoid series elements other than La.

~~16~~ ¹⁷ 17. The ceramic composition as defined in any one of claims 1 to ~~16~~ ¹⁵, characterized in that said ceramic composition consists essentially of n-type and p-type components.

~~17~~ ¹⁸ 18. The ceramic composition as defined in any one of claims ~~14~~ ¹³ to ~~17~~ ¹⁶ characterized by a compound represented by a formula



where Q is at least one selected from the group consisting of 2A subgroup elements and RE is at least one selected from the group consisting of 3A subgroup elements, and

where w, x, y and z are

$$1.0 \geq w > 0,$$

$$0.351 \geq x \geq 0.01,$$

$$0.4 \geq y/(1-y-z) \geq 0.05, \text{ and}$$

$$0.35 \geq z \geq 0.025.$$

18. The ceramic composition as defined in claim 17, characterized in that Q is Sr and said RE is Sm.
19. The ceramic composition as defined in claim 18, characterized in that said RE is at least one of the lanthanoid series elements other than La.
20. A thermistor (1) element comprising the ceramic composition as defined by any one of claims 1-20.
21. Use of the ceramic composition of one of claims 1 to 20 as thermistor.
22. An apparatus for measuring temperature which comprises the thermistor element as defined in claim 21.