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(54) **PASSIVE ABSOLUTE AGE AND TEMPERATURE HISTORY SENSOR**

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See application file for complete search history.

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(57) **ABSTRACT**

A passive sensor for historic age and temperature sensing, including a first member formed of a first material, the first material being either a metal or a semiconductor material and a second member formed of a second material, the second material being either a metal or a semiconductor material. A surface of the second member is in contact with a surface of the first member such that, over time, the second material of the second member diffuses into the first material of the first member. The rate of diffusion for the second material to diffuse into the first material depends on a temperature of the passive sensor. One of the electrical conductance, the electrical capacitance, the electrical inductance, the optical transmission, the optical reflectance, or the crystalline structure of the passive sensor depends on the amount of the second material that has diffused into the first member.

12 Claims, 3 Drawing Sheets

