

SEMICONDUCTOR DEVICE

ABSTRACT

A semiconductor device, comprising a memory chip (100) and a temperature measurement module (110). The temperature measurement module (110) is used for measuring the temperature of the memory chip (100). The temperature measurement module (110) comprises: a temperature measurement unit (111) used for measuring the temperature of the memory chip (100) and outputting an analog signal corresponding to the temperature; and an A/D conversion module (112) comprising multiple comparison units (Px). Each comparison unit (Px) comprises an input end, a reference end, and an output end; the input ends receive analog signals output by the temperature measurement unit (111); the output ends output digital signals; and reference voltages received by the reference ends of the multiple comparison units (Px) increase non-uniformly. The use of the temperature measurement module (110) for measurement of the temperature of the memory chip (100) prevents the starting and running of the memory chip (100) at a low temperature, thereby shortening the write time and improving the write stability of the memory chip (100); and in addition, the control of the measurement accuracy of different voltage areas ensures the measurement accuracy of areas requiring accurate measurement and improves the measurement efficiency.

<Fig. 2>