

Effects of Hydrogen on Tantalum Nitride Resistors

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ABSTRACT

In this paper we report on observations of degradation of thin film Tantalum Nitride chip resistors in a hermetically sealed hybrid. The observations have been attributed to the reaction of residual Palladium with desorbed Hydrogen on the surface of the resistor film.

microelectronics

Hydrogen gas has been observed to desorb from various sources within the sealed hybrid as a result of temperature elevation. The hydrogen gas has been reported to undergo a reaction with elements such as Platinum and Palladium causing device degradation in Gallium Arsenide Field Effect Transistors. The experimental procedures and data relating to this observation along with a discussion of available risk mitigation techniques will be presented.