

Abstract

The Nano-Transmission Line Method (NTLM), a precision test structure, is being developed and optimized in this research . This work's main goal is to develop a trustworthy test structure for determining the specific contact resistivity in electronic devices, with a focus on how it might be used to assess Indium Phosphide Double Hetero Bipolar Transistors (InP-DHBTs) Emitter Contacts. A thorough analysis of the NTLM's design, simulation, and experimental measurements is included in the work. An improved test structure with precise design dimensions, thorough simulations of its behavior under various circumstances, and the execution of measurements using specialized equipment are the outcomes of the study. This work offers important insights that are applicable in a variety of electronic device contexts and advances contact resistance measurement techniques.