

Graphene/metal Contact Resistance

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Abstract - Graphene is a bidimensional material that was first isolated in 2004 by Novoselov and Geim. His high electrical conductivity, high electron mobility and CMOS compatibility, make graphene an excellent material for the realization of a new generation of electronic devices [1]. Many works in literature have proven the advantages to use graphene as based materials in Schottky diodes, field effect transistors (GFETs), photo sensors and modulator [2]. Unfortunately, its diffusion in industry has been slowed by the difficulty to form a low resistance contact with the metals. Many works in literature reported the possibility to improve the conductivity by increasing the graphene/metal contact perimeter [3]–[5]. In this work, we investigated how the use of different contact patterns can improve the graphene/metal contact conductivity in proof-of-concept test structures: Transmission Line Measurement (TLM) and Cross-Bridge Kelvin (CBK). We observed that the use of different patterns can help to reduce the contact resistance.

Keywords – Graphene, Resistance, Contact, TLM, CBK

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