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Origins of Reverse Bias Currents in a Typical BPW34 Photodiode

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Abstract: Measurements of the dark reverse current in a typical BPW34 silicon photodiode have been made in the temperature range 100-300 K at various reverse bias voltages ranging from 0 to 60 V. Various transport models have been applied to analyze the temperature dependence of the reverse current-voltage data. We suggest that Bardeen's model for a modified Schottky-like interfacial junction, that takes into account the effect of interfacial localized states, can be satisfactorily applied to describe the reverse current-voltage characteristics at bias voltages below 50 V.

Key Words: BPW34, PIN, Photodiode, reverse bias, current transport.

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