New Digital Testing of Analogue Circuits Based on Frequency Band Classification

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Abstract

This paper is proposing a new parametric fault detection technique of analog circuits based on frequency band classification. A sweeping-frequency testing signal is applied covering the analog circuit under test (ACUT) frequency bands. Instead of the overall summed responses (Signature), only a band digital signature is considered at which the component variation effect is dominant. As a result, the signature averaging due to the summation of unwanted (unaffected) signatures is avoided. The results show a significant parametric fault detectability increase over the previous work considering the all-band signature. Multi test point technique is a further enhancement that explores more component-affected bands and consequently, increases the parametric fault detectability.

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