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This article describes a Schottky diode based envelope detector architecture able to demodulate single-ended signals adopting a single balanced configuration without the use of an external balun. The proposed architecture combines the functionality of a balun and, simultaneously, the rectification of the input signal. The dual functionality of the Schottky diodes applied, leads to a compact configuration that, according to the authors' knowledge, has not been shown before. The manufactured prototype is able to demodulate error free a 2.5 Gbps amplitude shift keying signal at 8 GHz carrier frequency, achieving a bitrate to frequency carrier ratio (b) of 31.25%.

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