US 20220385261A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2022/0385261 A1**

Hickle (43) **Pub. Date: Dec. 1, 2022**

(54) **BROADBAND MICROWAVE AND MILLIMETER-WAVE BALANCED-TO-UNBALANCED TRANSFORMER**

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(21) Appl. No.: **17/333,163**

(22) Filed: **May 28, 2021**

Publication Classification

(51) **Int. Cl.**
H03H 7/42 (2006.01)
H01P 5/16 (2006.01)

(52) **U.S. Cl.**
CPC ***H03H 7/42*** (2013.01); ***H01P 5/16*** (2013.01)

(57) **ABSTRACT**

Techniques are provided for a broadband microwave/millimeter-wave balanced-to-unbalanced transformer (balun). A balun implementing the techniques according to an embodiment includes a first impedance matching network configured to reduce insertion and return losses of a single-ended signal at a first port of the balun. The balun also includes a first planar bifilar coupled transmission line coupled to the first impedance matching network and configured to transform the single-ended signal into a differential signal. The balun further includes a second planar bifilar coupled transmission line coupled to the first bifilar coupled transmission line and configured to compensate for amplitude and phase imbalance induced on the differential signal by the first bifilar coupled transmission line. The balun further includes a second impedance matching network coupled to both planar bifilar coupled transmission lines and configured to reduce insertion and return losses of the differential signal at second and third ports of the balun.

Balun
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