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- (54) **MONOLITHIC TRANSFORMER COMPENSATED CIRCUIT**
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- (51) **Int. Cl.<sup>7</sup>** ..... **G01R 33/00**
- (52) **U.S. Cl.** ..... **324/127; 324/117 H; 363/97**
- (58) **Field of Search** ..... **363/87, 97, 99; 324/117 H, 127, 225; 315/224; 336/132**

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(57) **ABSTRACT**

A monolithic transformer compensated circuit with enhanced quality factor without significantly increasing noise levels is presented in this disclosure. The technique uses a monolithic transformer and a current source driving current into the transformer secondary winding to achieve loss compensation in the transformer primary. An ac current which is proportional to, and in phase with the voltage applied to the primary winding can be used to achieve theoretically perfect loss compensation at a given frequency in the RF (GHz) frequency range. Examples of circuit applications that are particularly suited to the technique include Voltage Controlled Oscillators (VCO's), Low Noise Amplifiers (LNA's) and Filters. The technique has the added advantage of reducing power consumption in some applications.

**22 Claims, 14 Drawing Sheets**

