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(54) **LOW POWER ACTIVE PHASE SHIFTER FOR PHASE-ARRAY SYSTEMS**

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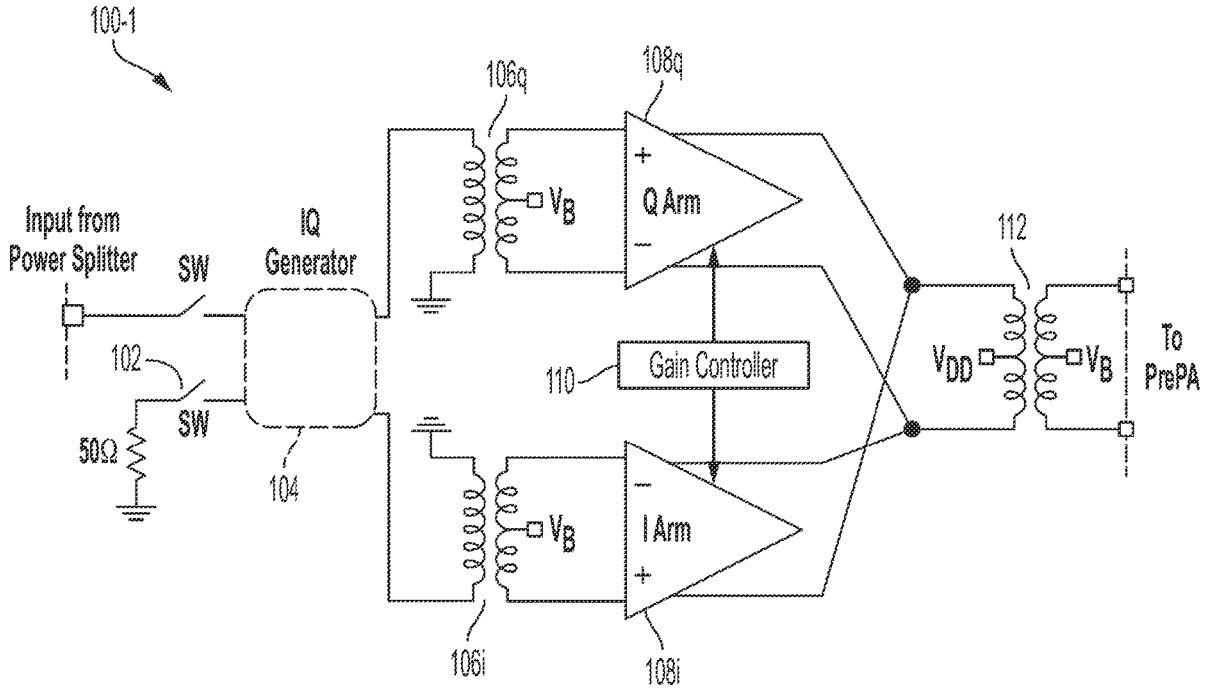
(57) **ABSTRACT**

A variable gain amplifier includes a first transconductor circuit coupled to a first input terminal, a first output terminal, and a second output terminal of the variable gain amplifier, the first transconductor circuit including: a plurality of positive coefficient transistors coupled to the first output terminal and configured to selectively conduct current in response to a first binary code, a plurality of negative coefficient transistors coupled to the second output terminal and configured to selectively conduct current in response to a second binary code, and a plurality of amplifying transistors, each having a gate electrode coupled to the first input terminal, a first electrode coupled to a ground reference, and a second electrode coupled to a pair of coefficient transistors including one of the plurality of positive coefficient transistors and one of the plurality of negative coefficient transistors.