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(54) WIRELESS CHARGING RECEIVER CIRCUIT AND CHIP, AND WIRELESS CHARGING RECEIVER

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(56)References Cited

U.S. PATENT DOCUMENTS

2013/0229062	A1*	9/2013	Bae H04B 5/0037
			307/104
2013/0300204	Al*	11/2013	Partovi H02J 50/50 307/104
2018/0131239	Al*	5/2018	Stephenson
2018/0219405	A1*	8/2018	Qiu H02J 7/00045

^{*} cited by examiner

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ABSTRACT

A wireless charging receiver circuit includes a first bridge arm unit connected to the first node and a common ground node, a second bridge arm unit connected to the second node and the common ground node, a first voltage converter unit connected to the second node and the common ground node. a second voltage converter unit connected to the first node and a common ground node, a filter circuit, a bias power supply circuit, and a control unit configure to control the switch transistors, such that the voltage output terminals of the first voltage converter unit and the second voltage converter unit output a voltage signal.

24 Claims, 15 Drawing Sheets

