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(57) **ABSTRACT**

There is provided a high frequency AC inverter comprising a DC-DC circuit, an output power circuit and a load circuit and a controller. The load circuit comprises a load circuit detector configured to detect the electrical parameters of the load circuit. The output power circuit comprises a DC to AC driver having a variable frequency output, a HFAC driver circuit and a transformer coupled to the HFAC driver circuit and the load circuit. The HFAC driver circuit comprises a resonant network resonant network comprising a first resonant tank, a second resonant tank and a third resonant tank, the first resonant tank comprising a series LC circuit and having a first resonant frequency, the second resonant tank comprising a parallel LC circuit and having a second resonant frequency, a third resonant tank comprising first part having a parallel LC circuit with a third resonant frequency and a second part comprising a series inductor, wherein the first resonant frequency, the second resonant frequency and the third resonant frequency are the same.