

Receiver Chip Enables Wireless Charging In Smaller Devices

At just 1.7 mm x 1.4 mm and less than 0.5-mm thin, [Energous'](#) DA2223 four-port RF-to-dc wireless power chip is the smallest RF rectifier IC in the company's portfolio. Depending on the device power level, a complete WattUp wireless power receiver can be realized using a single DA2223 IC coupled with a matching circuit made from two standard discrete components and a tiny 2-mm x 3-mm antenna, which itself can be formed using simple printed circuit board tracking. Such a small form factor makes it well suited for use in small electronic devices where a coil-based wireless charging system is not practical (see the figure).

"At just 1.7 mm x 1.4 mm in size, the DA2223 was designed for very small form factor applications like True-Wireless Stereo earbuds, hearing aids and wearables, which we expect to be a large part of our revenue ramp from 2019," said Stephen R. Rizzone, president and CEO of Energous. "Partnered with Dialog Semiconductor, we continue to innovate turnkey solutions that increase our competitive separation from older, first generation coil-based solutions. Energous and Dialog are leading the advancement of next-generation wireless power technology and paving the way for the global build out of the wireless charging 2.0 ecosystem."

The DA2223 features:

- Four RF-to-dc rectifiers, allowing the connection of up to four antennas for optimal freedom-of-placement while charging, or the pairing of rectifier paths for increased power
- Support of dual frequencies (915 MHz or 5.8 GHz)
- A 12-pin wafer-level chip scale package (WLCSP), measuring 1.69 mm x 1.39 mm x 0.485 mm with 0.4-mm pitch (all max. dimensions)

In addition, this receiver chip complements the Energous portfolio of IC solutions, including the fully integrated WattUp power transmitter IC (DA4100) and the wireless power RF-to-DC receiver IC (DA2210). For more information, see the company [website](#).



Figure. A complete WattUp wireless power receiver can be realized using a single 1.7-mm x 1.4-mm x <0.5-mm DA2223 IC coupled with a matching circuit made from two standard discrete components and a tiny 2-mm x 3-mm antenna, which itself can be formed using simple printed circuit board tracking. Such a small form factor makes it well suited for use in small electronic devices where a coil-based wireless charging system is not practical.