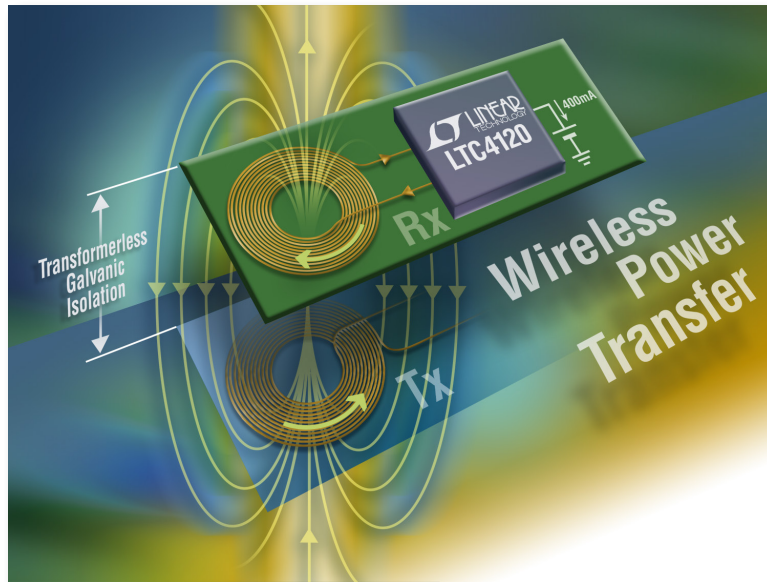


# 400mA Wireless Power Receiver & Buck Battery Charger



## Overview of the LTC4120

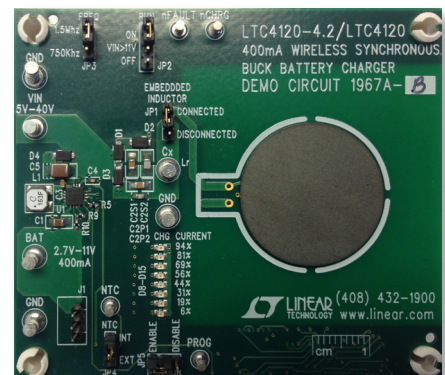
The LTC<sup>®</sup>4120, a high performance wireless receiver and battery charger, serves as the central component of the receiver electronics in a wireless battery charging system. The Linear Technology wireless power system is designed to transmit up to 2W to a battery with a maximum charge current of 400mA. The programmable float voltage of the device accommodates several battery chemistries and configurations. The LTC4120 was developed with technology partner PowerbyProxi, a field-proven technology company focused on providing real world wireless power solutions. The IC utilizes PowerbyProxi's patented dynamic harmonization control (DHC) technique that enables high efficiency contactless charging with maximum  $T_x$  to  $R_x$  coil distance and misalignment without any of the thermal or overvoltage problems typically associated with wireless power systems. Wireless charging with the LTC4120 enables or improves many different applications. Unlike consumer-oriented solutions following the Qi standard, the LTC4120-based solution addresses the needs of high reliability industrial, military & medical applications. For instance, expensive connectors which become failure-prone in harsh environments can be eliminated. Similarly, wireless charging allows for a completely sealed enclosure for applications that require sterilization. Elimination of wires enables rechargeable batteries to be placed in moving or rotating equipment. Some applications are simply too small to use a conventional connector. Wireless charging can also provide transformerless galvanic isolation for high reliability isolated applications. The LTC4120 provides the ability to charge batteries in applications where it is difficult or impossible to use a connector.

## LTC4120 - Key Technical Features

- Dynamic Harmonization Control Reduces Alignment Sensitivity and Extends Power Transmission Range
- Enables Up to 2W Wireless Charging at Up to a 1.2cm Gap
- Adjustable Battery Float Voltage: 3.5V to 11V
- 50mA to 400mA Charge Current, Programmed with a Single Resistor
- No Microprocessor or Firmware Required
- No Transformer Core
- Wide Rectified Input Voltage Range: 4.3V to 40V
- Thermally Enhanced 16-Lead 3mm x 3mm QFN Package

## Target Applications

- Industrial/Military Sensors and Devices
- Portable Medical Devices
- Physically Small Devices
- Electrically Isolated Devices
- Devices for Harsh Environments



## LTC4120 Receiver and Charger Demo Board

The LTC4120 Was Developed with Technology Partner PowerbyProxi. [www.powerbyproxi.com](http://www.powerbyproxi.com)



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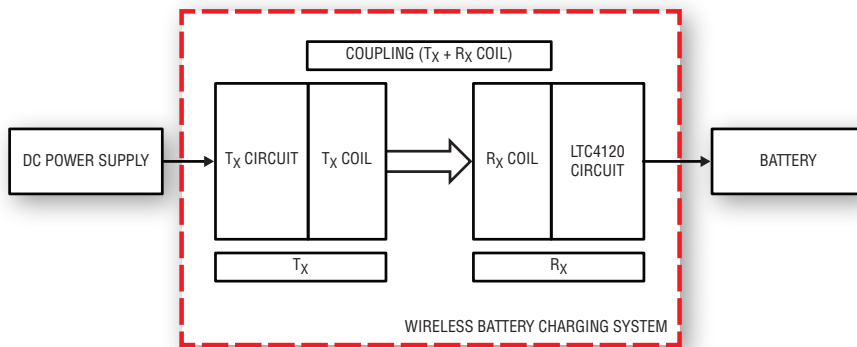
# Receiver & Buck Battery Charger for Wireless Power Transfer

## Wireless Power Transfer (WPT)

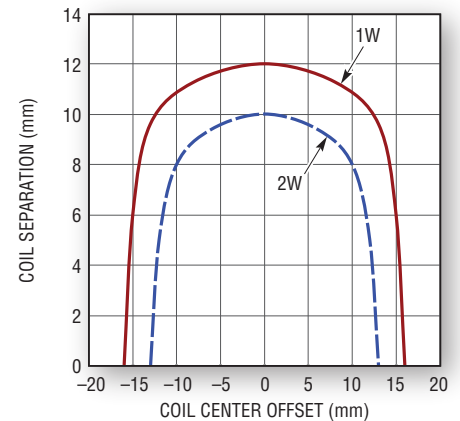
An inductive wireless power system consists of transmitter electronics, transmit coil, receive coil and receiver electronics. The LTC4120-based resonant coupled system uses dynamic harmonization control (DHC) to optimize power transfer and provide overvoltage protection. This eliminates both the need for precise mechanical alignment between the transmit and receive coils as well as the need for a coupling core. The LTC4120 wireless buck charger forms the basis for the receiver electronics. The receive coil can be integrated into the receiver electronics PCB. In collaboration with PowerbyProxi, Linear Technology offers several different transmitter electronics options. A reference design is available to build a basic transmitter, while several more advanced transmitters can be purchased from PowerbyProxi, [www.powerbyproxi.com](http://www.powerbyproxi.com). See the LTC4120 product page for more information.

LTC4120 Product Page: <http://www.linear.com/product/LTC4120>

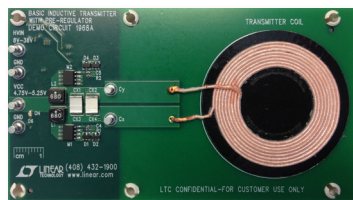
LTC4120 Application Note: <http://www.linear.com/docs/43968>



Wireless Power Transfer System Block Diagram Charging



Battery Charge Power vs  $R_x$ - $T_x$  Coil Location



Proxi-Point



Proxi-2D

Linear Technology Basic and PowerbyProxi Advanced Transmitters