

## Description

The P9221-R3 is a high efficiency 15W magnetic induction wireless power receiver with in-band, bi-directional data communication with no additional circuitry. The communication channel can be used for proprietary device authentication and secure system data transfer.

The P9221-R3 integrates a 32-bit ARM® Cortex® -M0 processor\*, low-RDS(ON) synchronous rectifier, and ultra-low dropout regulator making it ideal for high-efficiency, space-constrained receiver applications. The device features a programmable output voltage, current limitation, and foreign-object detection (FOD) settings. An I2C serial interface allows reading information such as voltage, current, and fault conditions. The device also features a patented over-voltage protection scheme eliminating the need for additional capacitors, which can minimize the external component count and cost. Combined with the P9242-R3 transmitter, the P9221-R3 forms a complete wireless power system solution for 15W applications with bi-directional communication.

The P9221-R3 is provided in a 52-WLCSP package (2.64 × 3.94 mm, 0.4mm pitch), and it is rated for a 0 to 85°C ambient operating temperature range.

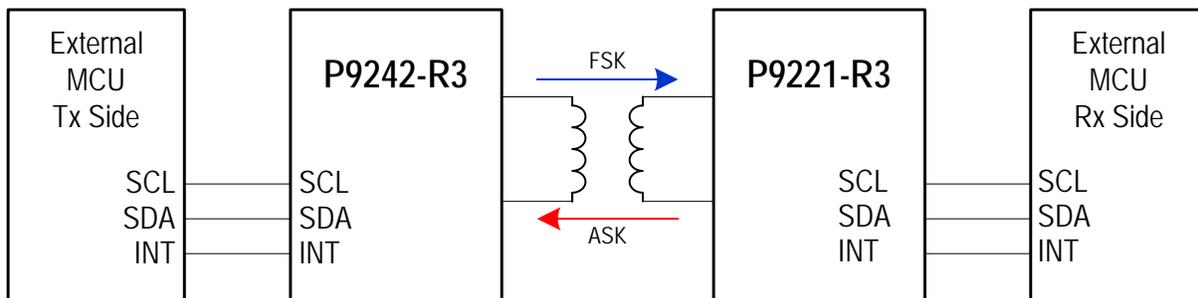
## Features

- Supports bi-directional data communication
- Enables authentication and system data transfer
- Single-chip solution supporting applications with up to 15W
- Patented over-voltage protection clamp eliminating external capacitors
- 87% peak DC-to-DC efficiency when combined with the IDT P9242-R3
- Programmable output voltage and current limit
- Embedded 32-bit ARM® Cortex®-M0 processor
- Dedicated remote temperature sensing
- Standard device compliant with WPC-1.2 specification
- Supports I2C interface
- 0 to +85°C ambient operating temperature range
- WLCSP 2.64 × 3.94 mm, 52-WLCSP package

## Typical Applications

- Industrial equipment
- Consumer electronics
- Medical equipment

## Typical Application Circuit



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### Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,  
Koto-ku, Tokyo 135-0061, Japan  
[www.renesas.com](http://www.renesas.com)

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