

Description

The P9242-G is a highly integrated, magnetic induction, wireless power transmitter that supports up to 15W in compliance with the WPC-1.2.4 specification or proprietary applications. It is compatible with all popular wireless charging protocols including the WPC Baseline Power Profile (BPP), Extended Power Profile (EPP), up to 7.5W charging for iPhones, and Android proprietary fast charging modes. This system-on-chip solution (SoC) operates with an input voltage range of 5V to 19V.

The P9242-G transmitter IC includes an industry-leading 32-bit ARM® Cortex®-M0 processor, offering a high level of programmability and extremely low standby power consumption.

The P9242-G transmitter generates power through the power coil, detects the presence of a wireless power receiver, decodes the communication packets from the receiver, and adjusts the transmitted power by controlling the voltage based on feedback from the receiver. The P9242-G is specially designed to support fixed-frequency operation as described in the WPC MP-A11 coil configuration with an external input step-down buck regulator. It uses an external oscillator for very accurate 127.7kHz fixed frequency operation.

The P9242-G features two LED outputs with pre-defined user-programmable blinking patterns for end-user indication, supporting a wide range of applications. The transmitter detects if a foreign metal object is placed on the transmitter pad via advanced Q detection. The microcontroller empowers the user to customize foreign object detection (FOD) threshold settings. The I2C serial communication allows the user to read the transmitter's basic information, such as voltage, current, frequency, and fault conditions.

The P9242-G also features a wide range of system protections, such as over-current, over-voltage, under-voltage lockout, and thermal management circuits to safe guard wireless power systems under fault conditions.

The P9242-G is available in a lead-free, space-saving 48-pin VFQFPN package. The product is rated for a -40°C to +85°C operating temperature range.

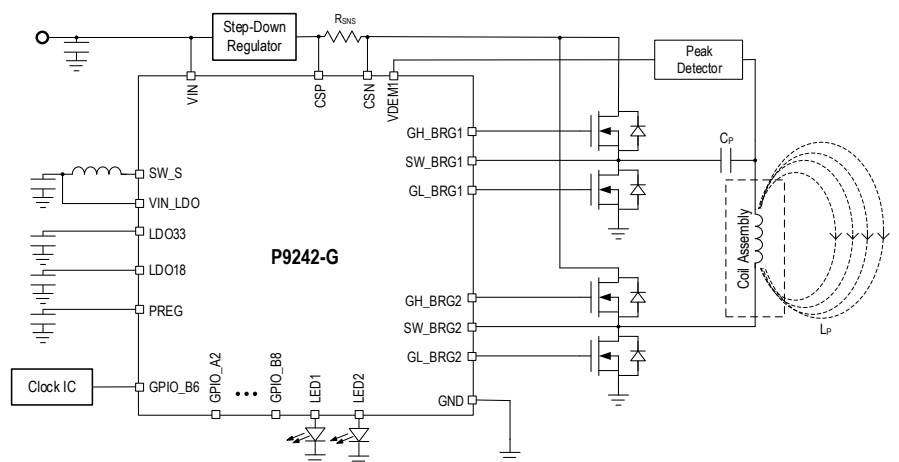
Typical Applications

- BPP and EPP Wireless Charging Pads
- Up to 7.5W charging for iPhones
- Android Fast Charging Pads
- Cradles
- Tablets
- After-Market Automotive Wireless Charging Pads

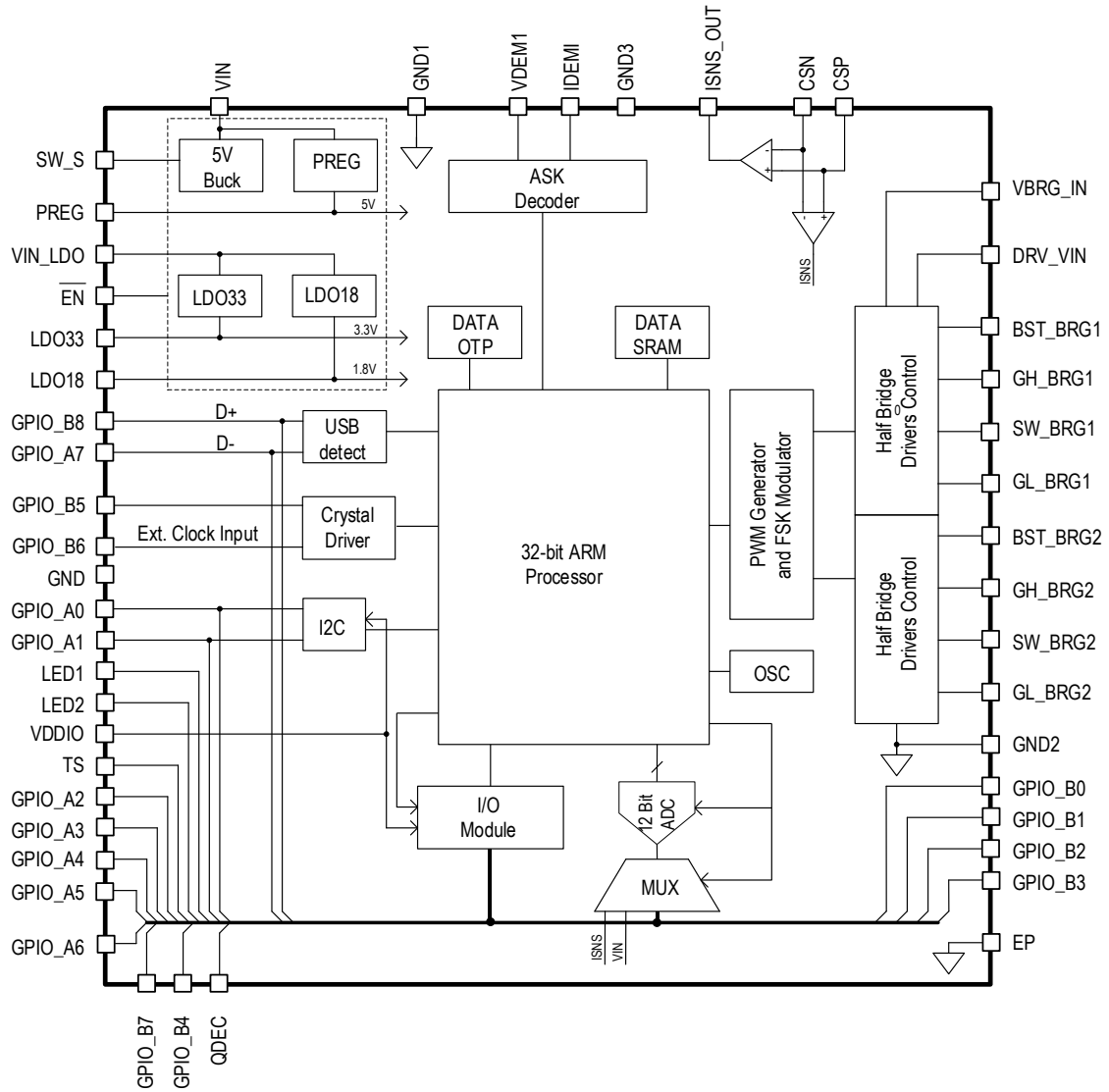
Features

- Power transfer up to 15W at receiver side
- Wide input voltage range: 5V to 19V
- WPC-1.2.4 compatible, MP-A11 coil configuration
- Integrated drivers for external power MOSFETs
- Embedded 32-bit ARM® Cortex®-M0 processor (trademark of ARM, Ltd.)
- Simultaneous voltage and current demodulation scheme for WPC communication
- Integrated current sense amplifier
- Low standby power
- Supports accurate 127.7kHz frequency operation
- Feedback control for external input step-down regulator
- Dedicated remote temperature sensing
- User-programmable power transfer LED indicators
- User programmable foreign objects detection (FOD)
- WPC EPP-based Q-factor detection and advanced proprietary Q-factor detection
- Active-LOW enable pin for electrical on/off
- Over-current and over-temperature protection
- Supports I2C interface
- -40 to +85°C ambient operating temperature range
- 48-VFQFPN (6 × 6 mm) RoHS-compliant package

Typical Application Circuit



Function Block Diagram



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