

Wayback Machine x +

web.archive.org/web/20120131194013/http://www.ti.com:80/lit/ds/symlink/bq51013.pdf

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9 captures

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Integrated Wireless Power Supply Receiver, Qi (WPC) Compliant. (Rev. B)

TEXAS INSTRUMENTS

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SLVSAT9B – APRIL 2011 – REVISED AUGUST 2011

bq51010
bq51011
bq51013

INTEGRATED WIRELESS POWER SUPPLY RECEIVER, Qi (WIRELESS POWER CONSORTIUM) COMPLIANT

Check for Samples: bq51010, bq51011, bq51013

FEATURES

- Integrated Wireless Power Receiver Solution with a 5V Regulated Supply
 - 93% Overall Peak AC-DC Efficiency
 - Full Synchronous Rectifier
 - WPC v1.0 Compliant Communication Control
 - Output Voltage Conditioning
 - Only IC Required Between RX coil and 5V DC Output Voltage
- Dynamic Rectifier Control for Improved Load Transient Response
- Supports 20-V Maximum Input
- Low-power Dissipative Rectifier Overvoltage Clamp ($V_{OVP} = 15V$)
- Thermal Shutdown
- Single NTC/Control Pin for Optimal Safety and I/O Between Host
- Stand-alone Digital Controller
- 1.9 x 3mm DSBG or 4.5 x 3.5mm QFN Package

APPLICATIONS

- WPC Compliant Receivers
- Cell Phones, Smart Phones
- Headsets

DIGITAL CAMERAS

- Portable Media Players
- Hand-held Devices

DESCRIPTION

The bq5101x is an advanced, integrated, receiver IC for wireless power transfer in portable applications. The device provides the AC/DC power conversion while integrating the digital control required to comply with the Qi v1.0 communication protocol. Together with the bq500210 transmitter controller, the bq5101x enables a complete contact-less power transfer system for a wireless power supply solution. By utilizing near-field inductive power transfer, the receiver coil embedded in the portable device receives the power transmitted by the transmitter coil via mutually coupled inductors. The AC signal from the receiver coil is then rectified and regulated to be used as a power supply for down-system electronics. Global feedback is established from the secondary to the transmitter in order to stabilize the power transfer process via back-scatter modulation. This feedback is established by using the Qi v1.0 communication protocol supporting up to 5W applications.

The device integrates a low-impedance full synchronous rectifier, low-dropout regulator, digital control, and accurate voltage and current loops. The entire power stage (rectifier and LDO) utilize low resistive NMOS FET's to ensure high efficiency and low power dissipation.

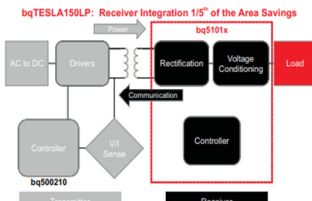


Figure 1. Wireless Power Consortium (WPC or Qi) Inductive Power System

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