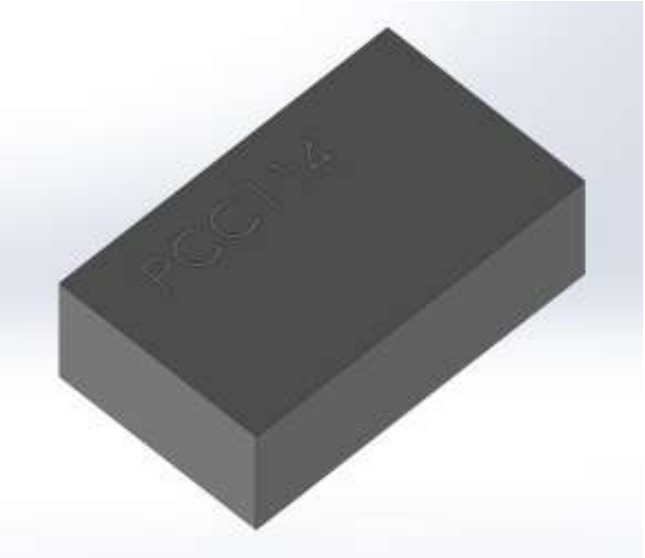
Product Datasheet

PCC114 RF Powerharvester® Receiver Chip

DESCRIPTION

The Powercast PCC114 Powerharvester® receiver is a wireless power RF energy harvesting device that is designed to convert RF energy to direct current (DC). It is designed to maximize the RF to DC conversion efficiency, up to 75%, while supporting a wide range of input power levels, load voltages, and frequency bands.

Housed in an extremely small SMD package, the PCC114 receiver provides RF energy harvesting for battery and capacitor recharging applications. When paired with an appropriate antenna the PCC114 converts incoming RF energy to DC and provides the harvested energy to an attached storage element.



FEATURES (Design Dependent)

- High RF to DC conversion efficiency, >75%
- Wide frequency bandwidth: 10MHz to 6GHz
- Wide operating power range: -17dBm to +20dBm
- Harvests from all modulation types
- 50Ω input impedance
- Operation from 0V to support capacitor charging
- Interoperable with numerous RF sources: Powercaster® TX91501 series transmitter, PowerSpot® TX91503 transmitter, UHF RFID readers, Wi-Fi routers, NFC, etc.
- Industrial temperature range: -40 to +85C
- Converts low-level RF signals enabling long range applications
- Extremely small 1 x 0.6 x 0.3mm profile
- RoHS Compliant

APPLICATIONS

- Smart Card Battery Recharging
- Hearing Aid Battery Recharging
- High-function RFID
  - Sensors/Displays/Microprocessors
- Battery-free wireless sensors
  - Industrial Monitoring
  - Building Automation
  - Oil & Gas
  - Medical
- Low power consumer electronics
  - Spatially constrained battery recharging applications

REFERENCE DESIGNS AVAILABLE

NFC	13.56MHz RF Energy Harvesting
UHF	915MHz (UHF RFID/PowerSpot) RF Energy Harvesting
Wi-Fi/BT	2.45GHz (Wi-Fi / BT) RF Energy Harvesting
4G	1710-1915MHz 4G Cellular uplink RF Energy Harvesting

REFERENCE DESIGN INCLUDES:

- Schematic
- PCB Layout
- Bill of Material
- Performance Data

ORDERING INFORMATION

Qualified high-volume customers can obtain the Powercast Reference Design best suited for their application by contacting Powercast and completing a questionnaire and a reference design confidentiality agreement:

http://www.powercastco.com/contact/

www.powercastco.com / contact@powercastco.com +1 412-455-5800

ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise noted.

Parameter	Rating	Unit
RF Input Power	23	dBm
RF_{IN} to GND	0	V
V_{OUT} to GND	4.3	V
I_{OUT} Current	100	mA
Operating Temperature Range	-40 to 85	°C
Storage Temperature Range	-40 to 85	°C

Exceeding the absolute maximum ratings may cause permanent damage to the device.

ESD CAUTION

This is an ESD (electrostatic discharge) sensitive device. Proper ESD precautions should be taken to avoid degradation or damage to the component.

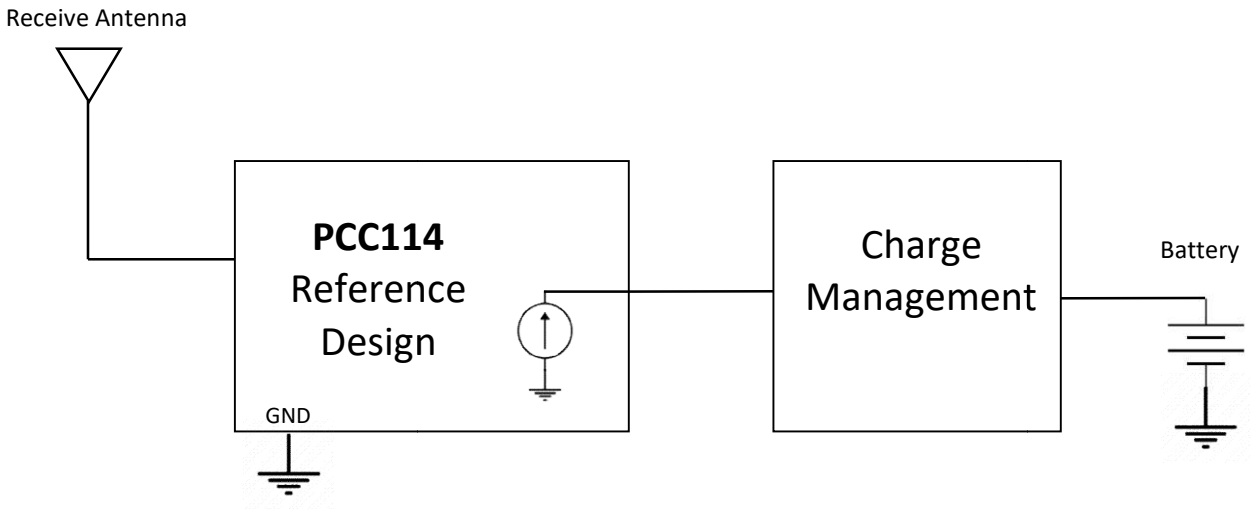
SPECIFICATIONS

T_A = 25°C, VOUT = 3.0V, unless otherwise noted.

Parameter	Symbol	Condition	Min	Typ	Max	Unit
RF Characteristics						
Input Power	RF_{IN}		-17		20	dBm
Frequency (1)			10		6000	MHz
DC Characteristics						
Output Voltage	V_{OUT}		0		4.2	V
Output Current	I_{OUT}				50	mA
Output Current	I_{OUT}	No RF_{IN}		-1.0		µA

(1) Must be paired with appropriate antenna

TYPICAL APPLICATION CIRCUIT



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