

# ABRIDGED DATA SHEET

## MAX14720/MAX14750

## Power-Management Solution

### General Description

The MAX14720/MAX14750 are compact power-management solutions for space-constrained, battery-powered applications where size and efficiency are critical. Both devices integrate a power switch, a linear regulator, a buck regulator, and a buck-boost regulator.

The MAX14720 is designed to be the primary power-management device and is ideal for either non-rechargeable battery (coin-cell, dual alkaline) applications or for rechargeable solutions where the battery is removable and charged separately. The device includes a button monitor and sequencer.

The MAX14750 works well as a companion to a charger or PMIC in rechargeable applications. It provides direct pin control of each function and allows greater flexibility for controlling sequencing.

The devices include two programmable micro-I<sub>Q</sub>, high-efficiency switching converters: a buck-boost regulator and a synchronous buck regulator. These regulators feature a burst mode for increased efficiency during light-load operation.

The low-dropout linear regulator has a programmable output. It can also operate as a power switch that can disconnect the quiescent load of system peripherals.

The devices also include a power switch with battery-monitoring capability. The switch can isolate the battery from all system loads to maximize battery life when not operating. It is also used to isolate the battery-impedance measurements. This switch can operate as a general-purpose load switch as well.

The MAX14720 includes a programmable power controller that allows the device to be configured either for use in applications that require a true off state or for always-on applications. This controller provides a delayed reset signal, voltage sequencing, and customized button timing for on/off control and recovery hard reset.

Both devices also include a multiplexer for monitoring the power inputs and outputs of each function.

These devices are available in a 25-bump, 0.4mm pitch, 2.26mm x 2.14mm wafer-level package (WLP) and operate over the -40°C to +85°C extended temperature range.

### Benefits and Features

- Extended System Battery Use Time
  - Micro-I<sub>Q</sub> 250mW Buck-Boost Regulator
    - Input Voltage from 1.8V to 5.5V
    - Output Voltage Programmable from 2.5V to 5V
    - 1.1µA Quiescent Current
    - Programmable Current Limit
  - Micro-I<sub>Q</sub> 200mA Buck Regulator
    - Input Voltage from 1.8V to 5.5V
    - Output Voltage Programmable from 1.0V to 2.0V
    - 0.9µA Quiescent Current
  - Micro-I<sub>Q</sub> 100mA LDO
    - Input Voltage From 1.71V to 5.5V
    - Output Programmable From 0.9V to 4.0V
    - 0.9µA Quiescent Current
    - Configurable as Load Switch
- Extend Product Shelf-Life
  - Battery Seal Mode (MAX14720)
    - 120nA Battery Current
  - Power Switch On-Resistance
    - 250mΩ (max) at 2.7V
    - 500mΩ (max) at 1.8V
  - Battery Impedance Detector
- Easy-to-Implement System Control
  - Configurable Power Mode and Reset Behavior (MAX14720)
    - Push-Button Monitoring to Enable Ultra-Low Power Shipping Mode
    - Disconnects All Loads From Battery and Reduces Leakage to Less than 1µA
    - Power-On Reset (POR) Delay and Voltage Sequencing
  - Individual Enable Pins (MAX14750)
  - Voltage Monitor Multiplexer
  - I<sup>2</sup>C Control Interface

### Applications

- Wearable Medical Devices
- Wearable Fitness Devices
- Portable Medical Devices

**Ordering Information** appears at end of data sheet.

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## Typical Application Circuits

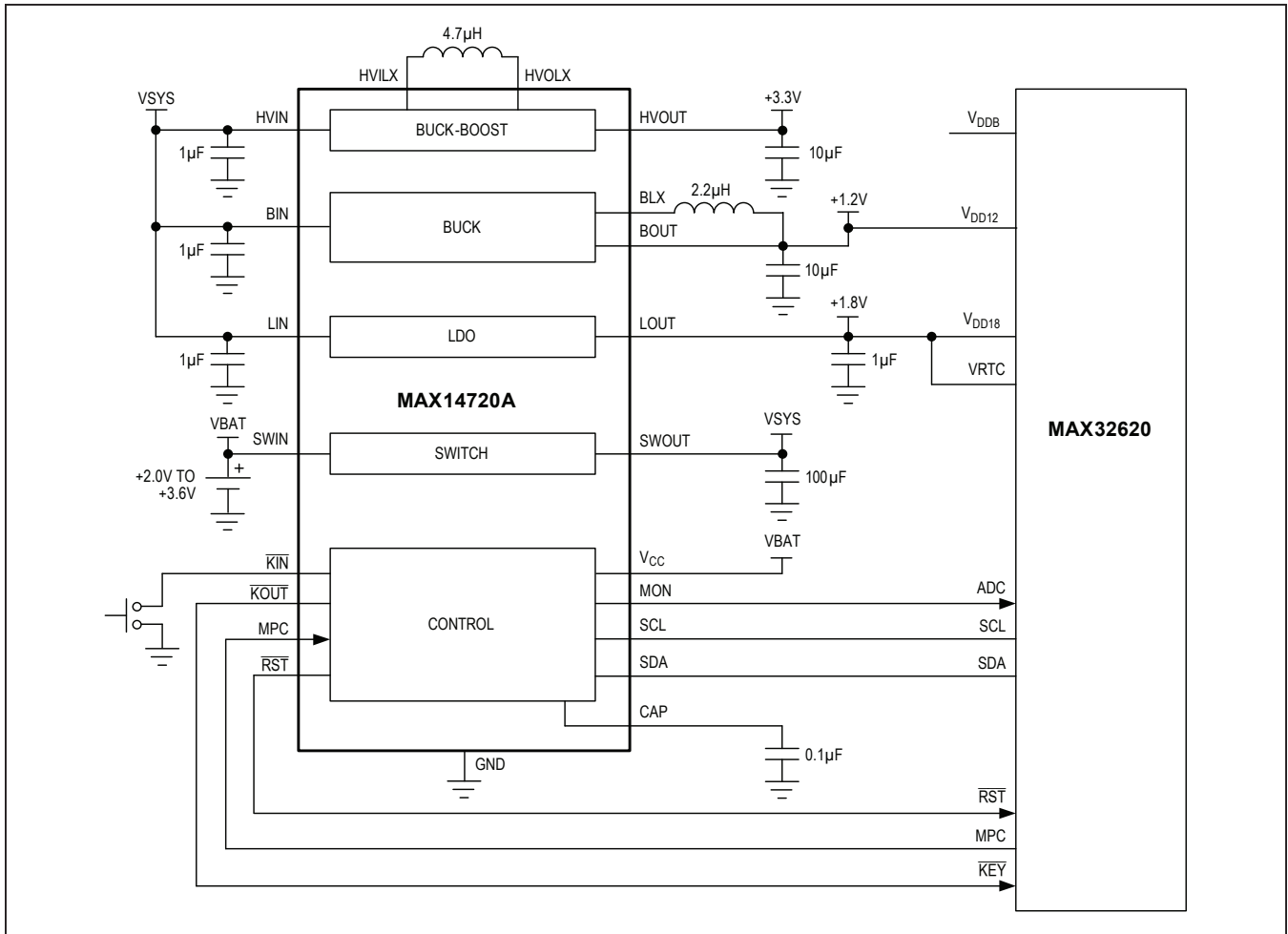


Figure 10. Lithium Coin Cell

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## Typical Application Circuits (continued)

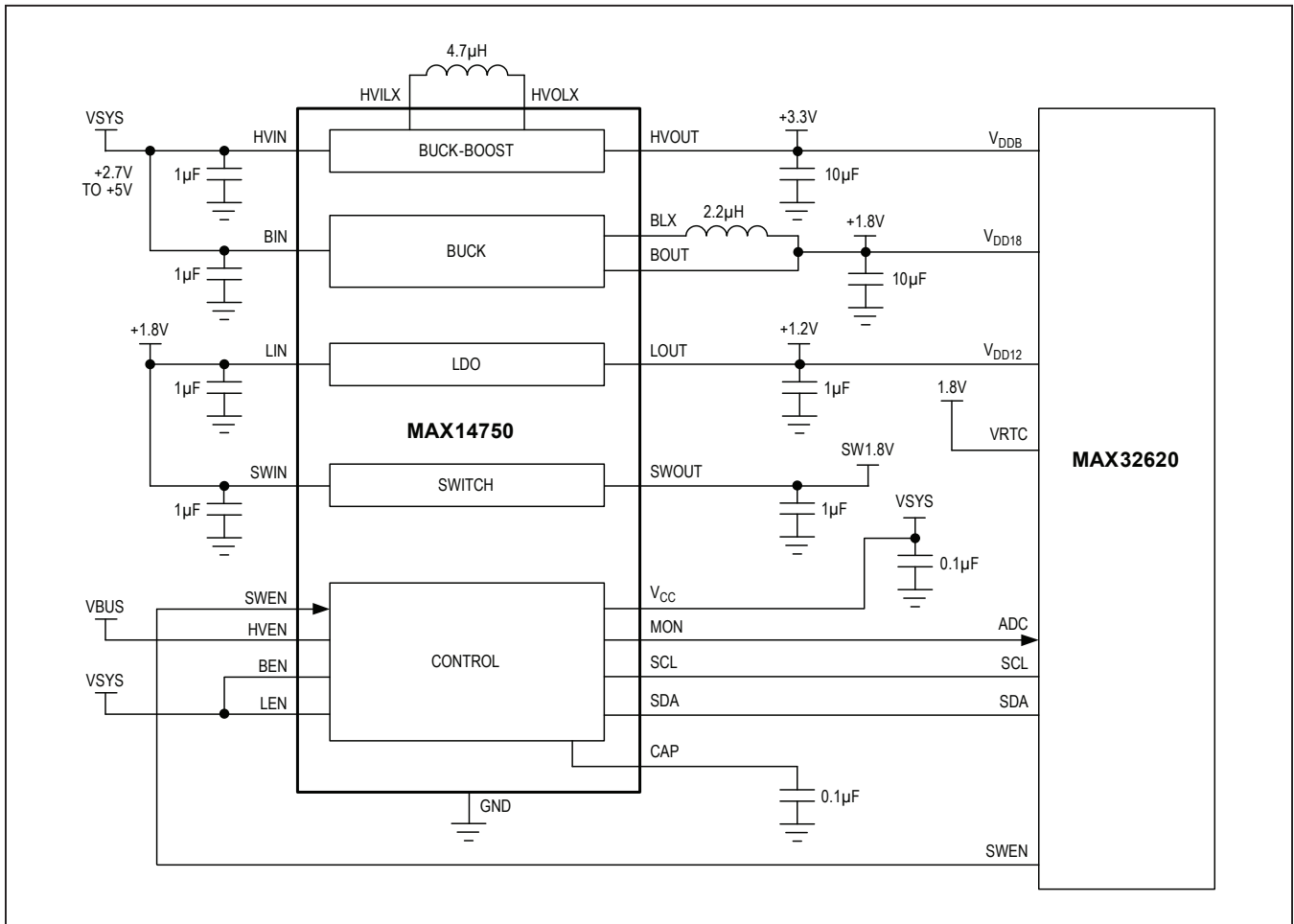


Figure 13. Companion Li+ Rechargeable

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## Ordering Information

PART	TEMP RANGE	PIN-PACKAGE
<b>MAX14720AEWA+</b>	-40°C to +85°C	25 WLP
MAX14720AEWA+T	-40°C to +85°C	25 WLP
MAX14720BEWA+*	-40°C to +85°C	25 WLP
MAX14720BEWA+T*	-40°C to +85°C	25 WLP
<b>MAX14750AEWA+</b>	-40°C to +85°C	25 WLP
MAX14750AEWA+T	-40°C to +85°C	25 WLP
MAX14750BEWA+*	-40°C to +85°C	25 WLP
MAX14750BEWA+T*	-40°C to +85°C	25 WLP

+Denotes a lead(Pb)-free/RoHS-compliant package.

\*Future product—contact factory for availability.

T = Tape and reel.

## Chip Information

PROCESS: BiCMOS

## Package Information

For the latest package outline information and land patterns (footprints), go to [www.maximintegrated.com/packages](http://www.maximintegrated.com/packages). Note that a "+", "#", or "-" in the package code indicates RoHS status only. Package drawings may show a different suffix character, but the drawing pertains to the package regardless of RoHS status.

PACKAGE TYPE	PACKAGE CODE	OUTLINE NO.	LAND PATTERN NO.
25 WLP	W252M2+1	<a href="#">21-0788</a>	Refer to <a href="#">Application Note 1891</a>