# Industry's Lowest Power Usage for Efficient Energy Harvesting

### PMIC Harvests Energy from Sources as Low as 1µW to 100mW



## Micropower energy harvesting (1µW to 100mW) from multiple sources

Light, vibration, heat, and RF sources down to 0.8V

### Reduces power and microenergy cell size

- No battery current needed to start boost converter
- 1nA battery current when harvest source not present

### Saves space and cost by integrating multiple power-management features

- Boost converter delivers power from 1µW source
- Shunt-series charger
- Undervoltage protection
- Buffer capacitor manages heavy burst loads
- Micropower selectable regulator





#### A Single Power-Management IC to Charge and Protect Microenergy Cells

The industry's first IC to integrate all power-management functions for energy harvesting, the MAX17710 charges and protects solid-state microenergy cells (MECs), like the THINERGY<sup>®</sup> MEC. Operating at an ultra-low power level, the MAX17710 harvests energy from various poorly regulated low-energy sources with 1µW to 100mW output levels. Examples include light (from photovoltaic cells), vibration (from piezo actuators), heat (thermoelectric generators, or TEGs), and RF (e.g., near-field communications, or NFC).

The MAX17710 integrates a boost regulator and does not need expensive external components to charge an MEC with energy sources as low as 0.8V. It protects the MEC by using a linear shunt-series regulator. An ultra-low-quiescent current, low-dropout linear regulator (LDO) with selectable voltages of 3.3V, 2.3V, or 1.8V allows the MAX17710 to adapt to a variety of loads. Having a height of only 0.5mm, the MAX17710 enables a new class of thin card-like applications; it will also be available in wafer form for devices with even thinner form factors.

#### **Applications**

- · Powered smart cards
- Wireless sensor networks
- Remote applications like irrigation control
- Medical applications

- Energy-management and machine-monitoring systems for buildings
- Asset tracking and biometric security systems
- Portable consumer electronics



Part	Charger I <sub>Q</sub> (nA)	Battery Standby Current (nA)	Battery UVLO Voltage (V)	LDO Voltage (V, selectable)	LDO Current (mA)	Boost Input (V, min)	Temperature Range (°C)	Package (mm x mm x mm)
MAX17710	550	1	3	1.8, 2.3, or 3.3	75	0.8	-40 to +85	12-UTDFN (3 x 3 x 0.5)

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# For product information, samples, and an evaluation kit, go to: www.maxim-ic.com/EH-MAX17710



Maxim Integrated Products, Inc. • 120 San Gabriel Drive Sunnyvale, CA 94086 • 1-408-737-7600

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