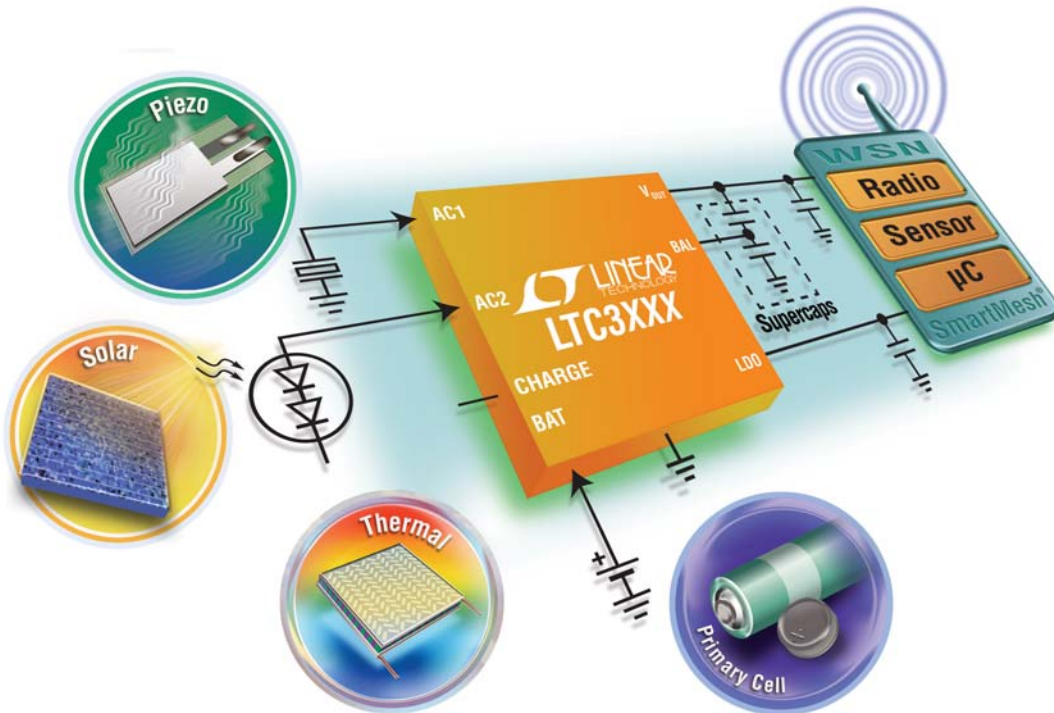


# Practical Ambient Energy Harvesting for WSNs

Part Number	Energy Source	Description
LTC <sup>®</sup> 3105	☀️ 🔥	400mA boost converter with MPP control and 250mV start-up
LTC3106	☀️ 🔥	300mA buck-boost converter and power manager with MPCC
LTC3107	☀️ 🔥	Ultralow voltage converter and primary battery life extender
LTC3108	☀️ 🔥	Ultralow voltage boost converter and system manager
LTC3109	☀️ 🔥	Auto-polarity version of LTC3108
LTC3330/31	☀️ 🔥 ⚡️ 🔁	Energy harvesting DC/DC converter with battery life extender
LTC3588	⚡️ 🔁	Piezoelectric energy harvesting power supply
LT <sup>®</sup> 3652/HV	☀️	Power tracking 2A solar battery charger
LTC4070/71	☀️ 🔥 ⚡️ 🔁	Nanoamp operating current shunt Li-Ion battery charger



## Single Nanopower ICs Manage Multiple Input Sources



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# Energy Harvesting

Linear Technology manufactures a wide range of ultralow power products targeted for Energy Harvesting applications. Power management products that convert energy from Vibration (Piezo), PhotoVoltaic (Solar) and Thermal (TEC, TEG, Thermopiles, Thermocouples) sources provide high efficiency conversion to regulated voltages and charge batteries and/or super capacitor storage elements. These Energy Harvesting ICs automatically manage ambient and battery energy to dramatically extend the run time of a primary battery. Boost converters that operate from as little as 20mV or battery chargers with Maximum Power Point capability expand the possibilities for a wide variety of industrial automation and control, wireless sensor, transportation, automotive and building management applications.

Ultralow quiescent current linear regulators, op amps, comparators, voltage supervisors, analog-to-digital converters, digital-to-analog converters and micropower voltage references provide additional fundamental building blocks required for autonomous systems.

## Energy Harvesting ICs with Battery Life Extenders

Part Number	Description	Output Power Level	Number of Outputs	Energy Source	Packages	Topology	I <sub>q</sub>	V <sub>IN</sub> MIN (V)	V <sub>IN</sub> MAX (V)
LTC3330	Nanopower Buck-Boost DC/DC with Energy Harvesting Battery Life Extender	0.1mW to 50mW	2	Vibration, Solar (AC or DC)	5mm × 5mm QFN-32	Full Bridge Rectifier, Buck	750nA	3.0V(EH) 1.8V(V <sub>BATT</sub> )	19V(EH) 5V(V <sub>BATT</sub> )
LTC3331	Nanopower Buck-Boost DC/DC with Energy Harvesting Battery Charger	0.1mW to 50mW	1	Vibration, Solar (AC or DC)	5mm × 5mm QFN-32	Full Bridge Rectifier, Buck	950nA	3.0V	19V
LTC3107	Ultralow Voltage Energy Harvester and Primary Battery Life Extender	0.01mW to 5mW	2	Thermal	3mm × 3mm DFN-10	Boost	80nA	20mV	500mV
LTC3106	300mA Ultralow I <sub>q</sub> Step-Up Converter and Power Manager with MPPC	0.1mW to 160mW	2	Solar	3mm × 4mm QFN-20, TSSOP-20E	Buck-Boost	1.5μA	330mV	5.5V

## Energy Harvesting ICs

LTC4071	Li-Ion/Polymer Shunt Battery Charger System with Low Battery Disconnect	0.1mW to 250mW	1	-	DFN-8, MSOP-8	Shunt Battery Charger	550nA		None
LTC4070	Li-Ion/Polymer Shunt Battery Charger System	0.1mW to 250mW	1	-	DFN-8, MSOP-8E	Shunt Battery Charger	450nA		None
LTC3588-1/ LTC3588-2/ LTC3588-3	Piezoelectric Energy Harvesting Power Supply	0.1mW to 50mW	1	Piezoelectric	MS-10, DFN-10	Buck	450nA	14	20
LTC3388-1/ LTC3388-3	20V, High Efficiency Nano Step-Down Regulator	0.1mW to 250mW	1	All	DFN-10, MS-10	Buck	400nA	2.7	20
LTC3526L	550mA 1MHz Synchronous Step-Up DC/DC Converters in 2mm × 2mm DFN	0.1mW to 650mW	1	Solar	DFN-6	Boost	9μA	0.5	5
LTC3109	Auto-Polarity, Ultralow Voltage Step-Up Converter and Power Manager	0.1mW to 50mW	3	Thermoelectric	QFN-20, SSOP-20	Boost	200nA	0.02	0.5
LTC3108/ LTC3108-1	Ultralow Voltage Step-Up Converter and Power Manager	0.1mW to 50mW	3	Thermoelectric	DFN-12, SSOP-16	Boost	200nA	0.02	0.5
LTC3105	400mA Step-Up DC/DC Converter with Maximum Power Point Control and 250mV Start-Up	0.1mW to 1100mW	1	Solar	DFN-10, MS-12	Boost	24μA	0.2	5
LT3652HV	Power Tracking 2A Battery Charger	1W to 30W	1	Solar	DFN-12, MS-12	Buck	19μA	4.95	34
LT3652	Power Tracking 2A Battery Charger for Solar Power	1W to 30W	1	Solar	DFN-12, MS-12	Battery Charger	19μA	4.95	32