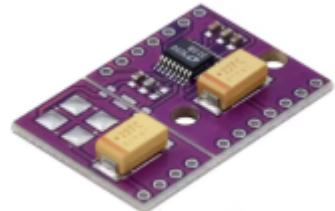


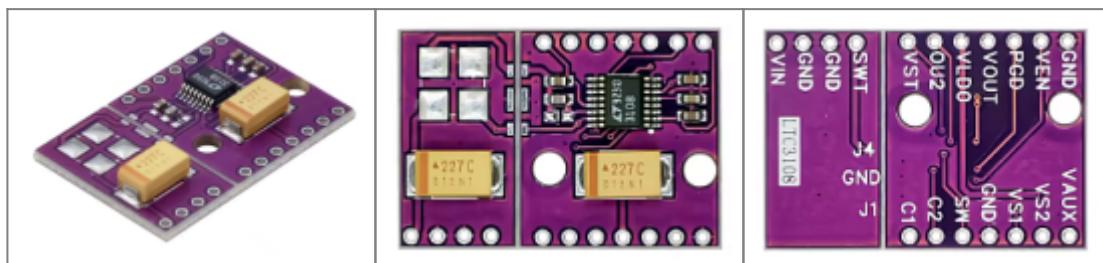
LamaPLC: LTC3108-1 Ultra Low Voltage Boost Converter Power Manager Breakout Development Board

The LTC3108-1 is a compact, ultralow-voltage step-up DC/DC converter and power manager from Analog Devices, engineered to harvest energy from sources as low as 20 mV, including thermoelectric generators (TEGs) and small solar cells.



Key Features and Specifications

- Ultralow Start-Up Voltage:** Operates from input voltages as low as 20mV (with a 1:100 transformer ratio), making it suitable for very low-power sources.
- Power Management:** Provides a complete solution for wireless sensing and data acquisition, including surplus energy management to a storage capacitor or rechargeable battery.
- Selectable Main Output (VOUT):** The main output is programmable to one of four fixed voltages using external pins (VS1 and VS2): 2.5V, 3V, 3.7V, or 4.5V. This differs from the standard LTC3108, which offers 2.35V, 3.3V, 4.1V, or 5V options.
- Integrated LDO:** Includes a 2.2V LDO (low dropout regulator) capable of supplying up to 3mA to power an external microprocessor.
- Additional Outputs:** Features a second logic-controlled output (VOUT2) and a reserve energy output (VSTORE) for backup power.
- Power Good Indicator:** A PGOOD indicator pin signals when the main output voltage is within regulation.
- Extremely Low Quiescent Current:** Ensures fast charging of the output reservoir capacitor.



Pinout

| Pin | Name | Function Description |
|---------------|---|----------------------|
| SW | Drain connection for the internal N-channel MOSFET switch. Connects to the primary of the step-up transformer. | |
| C1, C2 | Connections for the external charge pump capacitors used to boost the voltage. | |
| VAUX | Output of the internal rectifier. A bypass capacitor (typically 1 μ F) is required for the chip to function. | |
| VSTORE | Output for a large storage capacitor or battery to hold excess harvested energy for use when the input source is unavailable. | |

| Pin | Name | Function Description |
|-----------------|--|----------------------|
| VOUT | Main regulated output. Voltage is selectable (2.5V, 3V, 3.7V, or 4.5V) via VS1 and VS2 pins. | |
| VOUT2 | A second switched output controlled by the VOUT2_EN pin. Useful for powering sensors only when needed. | |
| VLDO | 2.2V low dropout (LDO) regulator output, providing up to 3mA for a microprocessor. | |
| PGD | Power Good Indicator. Logic is high when VOUT is in regulation. | |
| VS1, VS2 | Output voltage select pins. These determine the regulation level for the main VOUT. | |
| GND | Signal and power ground. For the DFN package, the exposed pad must also be soldered to ground. | |

Package Pin Mapping

- 12-Lead DFN: SW (1), VAUX (2), VSTORE (3), VOUT (4), VOUT2 (5), VOUT2_EN (6), PGD (7), VS1 (8), VS2 (9), C2 (10), C1 (11), GND (12).
- 16-Lead SSOP: Pins follow a similar sequence but include additional GND pins (1, 8, 9, 16).

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