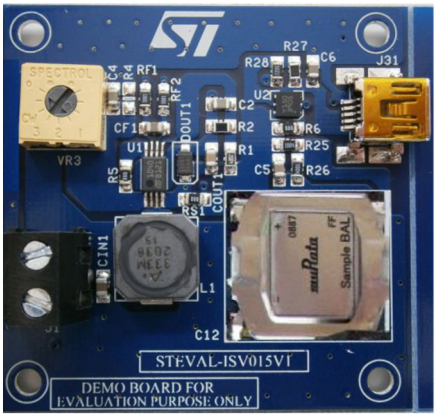
STEVAL-ISV015V1

Up to 2.5 W solar USB supply based on the SPV1040 and LD39050

Data brief

Features

- Proprietary “Perturb and Observe” embedded MPPT algorithm
- Very low input voltage (down to 0.3 V)
- Input reverse polarity protection
- Fully integrated solution with power MOSFET, reverse blocking, diode and output current sense resistor
- Ultra low dropout and low noise, low quiescent current LDO
- RoHS compliant



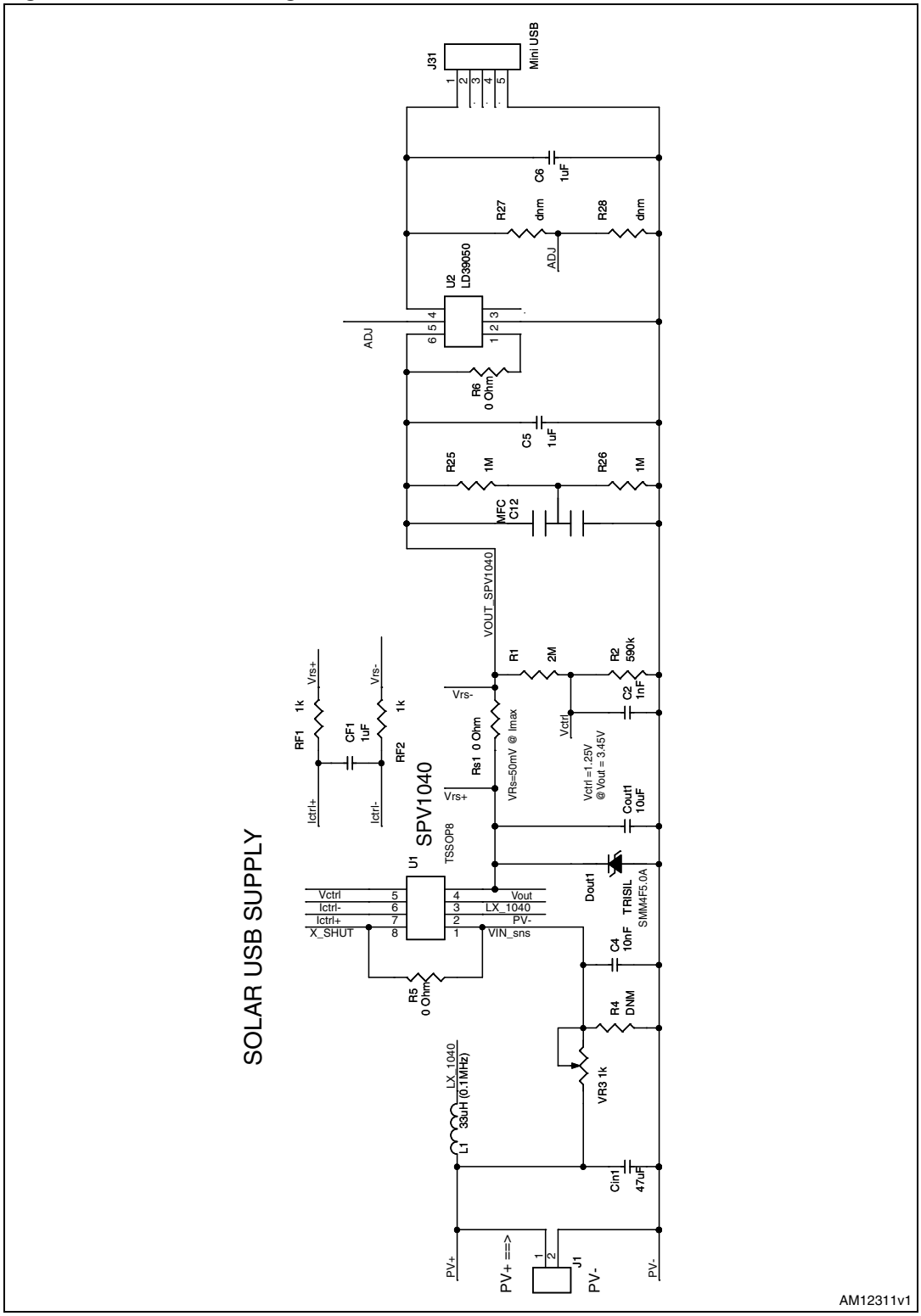
STEVAL-ISV015V1

Description

The STEVAL-ISV015V1 demonstration board is a solar harvester system designed to supply USB devices and is based on the ST devices SPV1040 (solar voltage boost converter) and LD39050 (voltage regulator with low quiescent current and low noise). The SPV1040 is a high efficiency, low power and low voltage monolithic step-up converter that operates over a 0.3 V to 5 V input voltage range, therefore allowing the use of even a few solar cells in all portable applications where the capability of handling low input voltages is of utmost importance. Despite the variation of several conditions throughout the day (such as irradiation, dirt, temperature, etc.) the SPV1040 allows the achievement of maximum efficiency (90% typ.) in terms of power harvested from the cells and transferred to the output thanks to the embedded MPPT algorithm. The SPV1040 allows the output voltage to be regulated by using an external resistive divider up to 5.2 V, limiting the current supplied to protect the battery and the measuring of input current and voltage to research the maximum power point through a dedicated input pin. Furthermore, the device can be shut off by driving an XSHUT pin to a logic level low, in order to save power when its working mode is not required. Self protection features like overtemperature and overcurrent at the input are implemented. The LD39050 provides 500 mA maximum current from an input voltage ranging from 1.5 V to 5.5 V with a typical dropout voltage of 200 mV. It is available in a fixed output voltage version from 0.8 V up to 4.5 V (100 mV steps), or adjustable between 0.8 V and V_{in}- V_{drop}. The ultra low drop-voltage, low quiescent current and low noise features make it suitable for low power battery-powered applications. Stability is ensured using ceramic capacitors. The power supply rejection is 65 dB at low frequencies and starts to roll off at 10 kHz. An enable logic control function puts the LD39050 in shut-down mode allowing a total current consumption of lower than 1 µA. The device also includes short-circuit constant current limiting and thermal protection.

1 Schematic diagram

Figure 1. Schematic diagram



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
28-May-2012	1	Initial release.
11-Jun-2012	2	Changed: title of the document

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Power Management IC Development Tools ***category:***

Click to view products by STMicroelectronics ***manufacturer:***

Other Similar products are found below :

EVAL6482H-DISC EVAL-AD5522EBUZ EVAL-ADM1060EBZ EVAL-ADM1073MEBZ EVAL-ADM1166TQEBZ EVAL-ADM1168LQEBZ EVAL-ADM1171EBZ EVAL-ADM1276EBZ EVB-EN5319QI EVB-EN5365QI EVB-EN6347QI EVB-EP5348UI MIC23158YML EV MIC23451-AAAYFL EV MIC5281YMME EV 124352-HMC860LP3E ADM00513 ADM8611-EVALZ ADM8612-EVALZ ADM8613-EVALZ ADP1046ADC1-EVALZ ADP1055-EVALZ ADP122-3.3-EVALZ ADP130-0.8-EVALZ ADP130-1.2-EVALZ ADP130-1.5-EVALZ ADP130-1.8-EVALZ ADP160UJZ-REDYKIT ADP166UJ-EVALZ ADP1712-3.3-EVALZ ADP1714-3.3-EVALZ ADP1715-3.3-EVALZ ADP1716-2.5-EVALZ ADP1740-1.5-EVALZ ADP1752-1.5-EVALZ ADP1754-1.5-EVALZ ADP1828LC-EVALZ ADP1870-0.3-EVALZ ADP1871-0.6-EVALZ ADP1873-0.6-EVALZ ADP1874-0.3-EVALZ ADP1876-EVALZ ADP1879-1.0-EVALZ ADP1882-1.0-EVALZ ADP1883-0.6-EVALZ ADP197CB-EVALZ ADP199CB-EVALZ ADP2102-1.25-EVALZ ADP2102-1.2-EVALZ ADP2102-1.875EVALZ