The SD1050xIQ or SD1120xIQ are fully integrated step down DC-DC converters with control/compensation, gate drive, MOSFET switches, and high-performance magnetics. It comes in a 6mm x 4mm x 1.85mm low profile QFN package and requires only a small number of external components to make a complete converter solution.

This user guide should be used together with the latest eval board schematic revision.

The following are the features of this evaluation board.

- Populated with one SD1050xIQ or SD1120xIQ.
- Pads are available for a wide range of input and output capacitor configurations.
- Output voltage programming is accomplished via a simple resistor divider. Jumpers are provided for 4 pre-configured output settings. These settings are as follows:
  1.2V, 1.8V, 3.3V, 5.0V
- Easy jumpers are provided for the following signals:
  1. Enable / Disable function
  2. Vout selection
- Numerous test points are provided as well as clip leads for input and output connections
- The board comes with input decoupling.

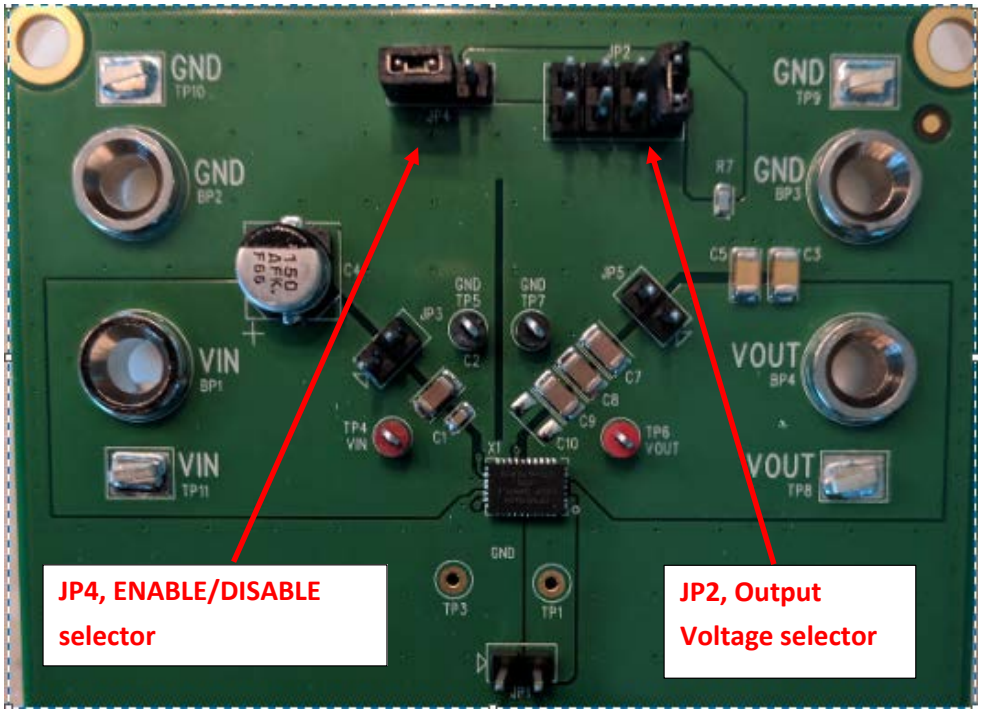

Figure 1: SD1050xIQ and SD1120xIQ Evaluation Board

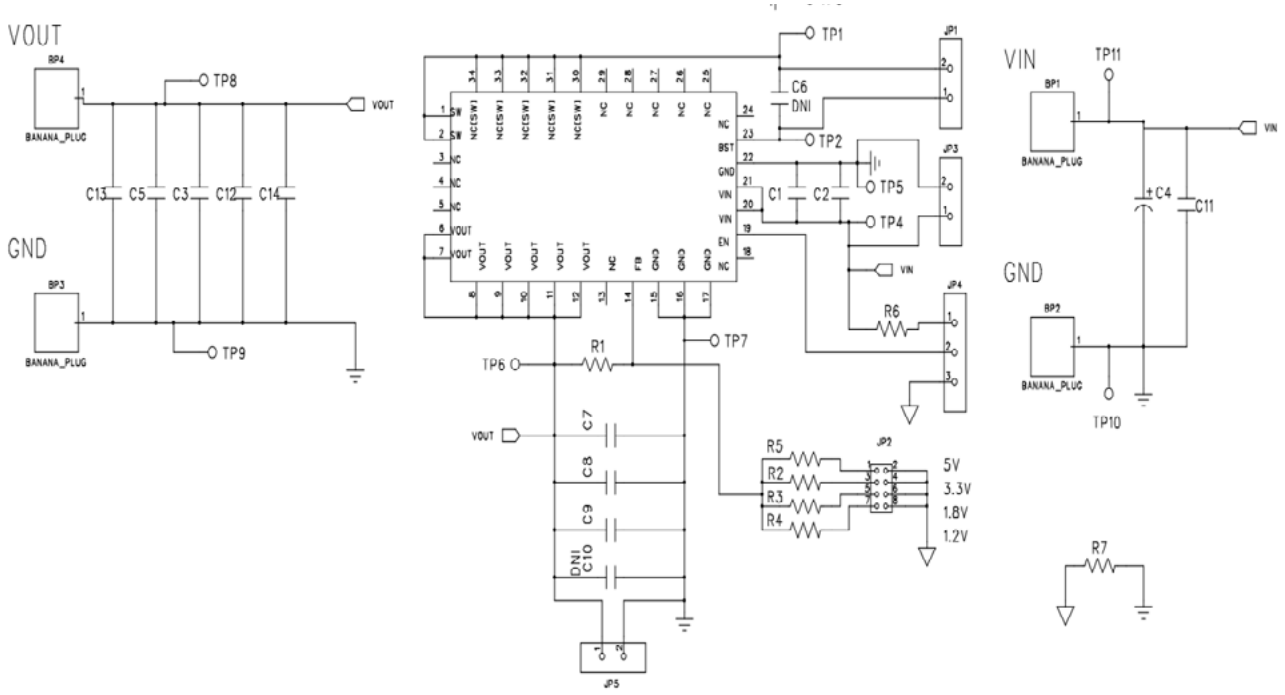

Figure 2: SD1050xIQ and SD1120xIQ Evaluation Board Schematic

STEP 1: Set the "ENABLE" jumper to the Disable Position by placing jumper on pins 2 and 3 on JP4

STEP 2: Select the desired VOUT voltage setting by placing the jumper JP2 on the correct jumper pin.

Below shows the VOUT jumper options:

- VOUT = 5V, connect jumper to pins 1 and 2 on JP2
- VOUT = 3.3V, connect jumper to pins 3 and 4 on JP2
- VOUT = 1.8V, connect jumper to pins 5 and 6 on JP2
- VOUT = 1.2V, connect jumper to pins 7 and 8 on JP2

CAUTION: the VOUT jumper settings can only be changed when the device is disabled. Failure to follow this guideline may result in damage to the part.

STEP 3: Connect the Power Supply to the input power connectors, VIN (+) and GND (-) . **DO NOT**

CAUTION: be mindful of the polarity. Reversing polarity will result in damage to the part.

STEP 4: Connect an electronic load, or load board to the load to the output connectors VOUT (+) and GND (-) .

STEP 5: Power up the board and move the ENABLE jumper to the enabled position by placing jumper on pin 1 and 2 on JP4. (Pin 1 of JP4 is marked with an arrow on the board). The SD1050xIQ or SD1120xIQ is now powered up and should have a regulated output voltage.

To choose output voltage settings other than those configured on this Evaluation Board, replace one or more of the resistors R5, R4, R3, or R2 per the formula below and set the jumper J2 accordingly.

$$Rx = \frac{R1\ x\ Vref}{Vout - Vref}$$

Since R1 = 56kΩ and VREF = 0.605V, the equation becomes:

$$Rx = \frac{33.88}{Vout - 0.605}\ k\Omega$$

To guarantee measurement accuracy, the following precautions should be observed:

- Make all input and output voltage measurements at the board using the test points provided. This will eliminate voltage drop across the line and load cables that can produce false readings.

- Measure input and output current with series ammeters or accurate shunt resistors. This is especially important when measuring efficiency.

- Use a balanced impedance probe tip across COUT to measure VOUT Ripple to avoid noise coupling into the probe ground lead. The recommended probe configuration is shown in Figure 3.

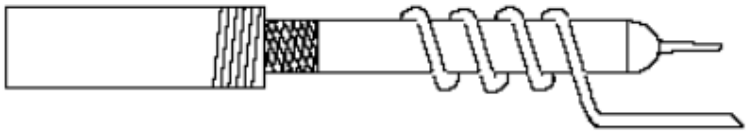

Figure 3. Recommended probe configuration.

Part Number	Evaluation Board (EVB)	Specifications
SD10501IQ	SD10501IQ-EVB	5V, 1A
SD10502IQ	SD10502IQ-EVB	5V, 2A
SD10503IQ	SD10503IQ-EVB	5V, 3A
SD11201IQ	SD11201IQ-EVB	12V, 1A
SD11202IQ	SD1202IQ-EVB	12V, 2A
SD11203IQ	SD11203IQ-EVB	12V, 3A

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