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Evaluation Board for QPO-2 Active Output Filter

The QPO-2-EVAL1 board provides an easy to use evaluation platform for testing the QPO-2 in a low-voltage system. A filtered voltage range of 0.3 Vdc to 5.5 Vdc at output load currents up to 20A can be accomplished. A low current bias supply is required at the VAUX input in the range of 7 to 12 volts respectively to the output voltage range. The board comes with a QPO-2LZ and some essential external components pre-mounted. Please refer to the QPO-2 datasheet for product details. Terminals for horizontal or vertical mounting are also provided. The user must mount and select component values for RHR, RSC, RSL and RSA based on their system needs.

RCP will preset the QPO-2's reference voltage to a value close to the desired steady-state value. This reduces the time required for the QPO-2's output to reach the steady-state output voltage. There is a provision for a start-up circuit (Q1 RDLY D1 CDLY) if the initial headroom voltage needs to start from zero and increase gradually to the set headroom voltage. Remote sense components (CRS RRS), Figure 3 of the product datasheet, are mounted on the evaluation board.

When remote sensing is not used RSC is the current programming resistor that determines the current sourced by the QPO-2's Adjust+ pin to drive the TRIM pin of a

converter. The RSL resistor shown in Figure 4 of the product datasheet (not on the evaluation board) can be used to limit the correction current sourced from the Adjust+ circuit if needed during start-up preventing the converter from tripping OVP.

RHR is the headroom voltage setting resistor that will determine the voltage dropped across the QPO-2. The RSA resistor is for the slope-adjust option, which can be used to reduce the amount of voltage across the QPO-2 depending on load current. This reduced drop in voltage will result in a lower power loss across the QPO-2 providing greater efficiency but lower attenuation. An optional capacitor, CHR, can be added to extend the low-frequency attenuation range of the QPO-2.

The RP resistor connects the QPO-2's peak detection circuit to the input voltage rail. The peak detector will adapt the headroom voltage by adding half the peak-to-peak ripple voltage to the headroom. Internally, the QPO-2 has a 0.1uF capacitor on its peak detector pin that allows the user to filter out the converter's ripple with an appropriate RP resistor value, disabling the peak detector. This filtering is enabled by using a low resistance value for RP, such as a zero ohm that comes pre-installed on the QPO-2 Eval board.

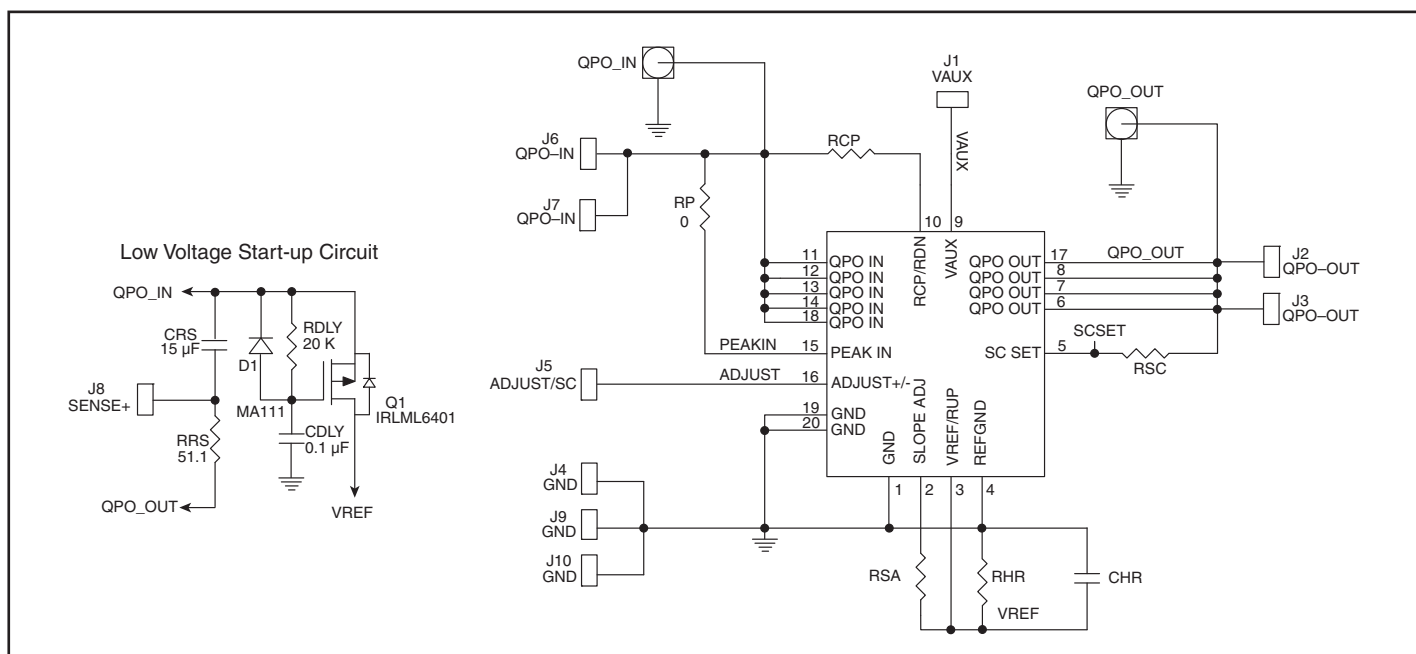


Figure 1 - Evaluation board schematic

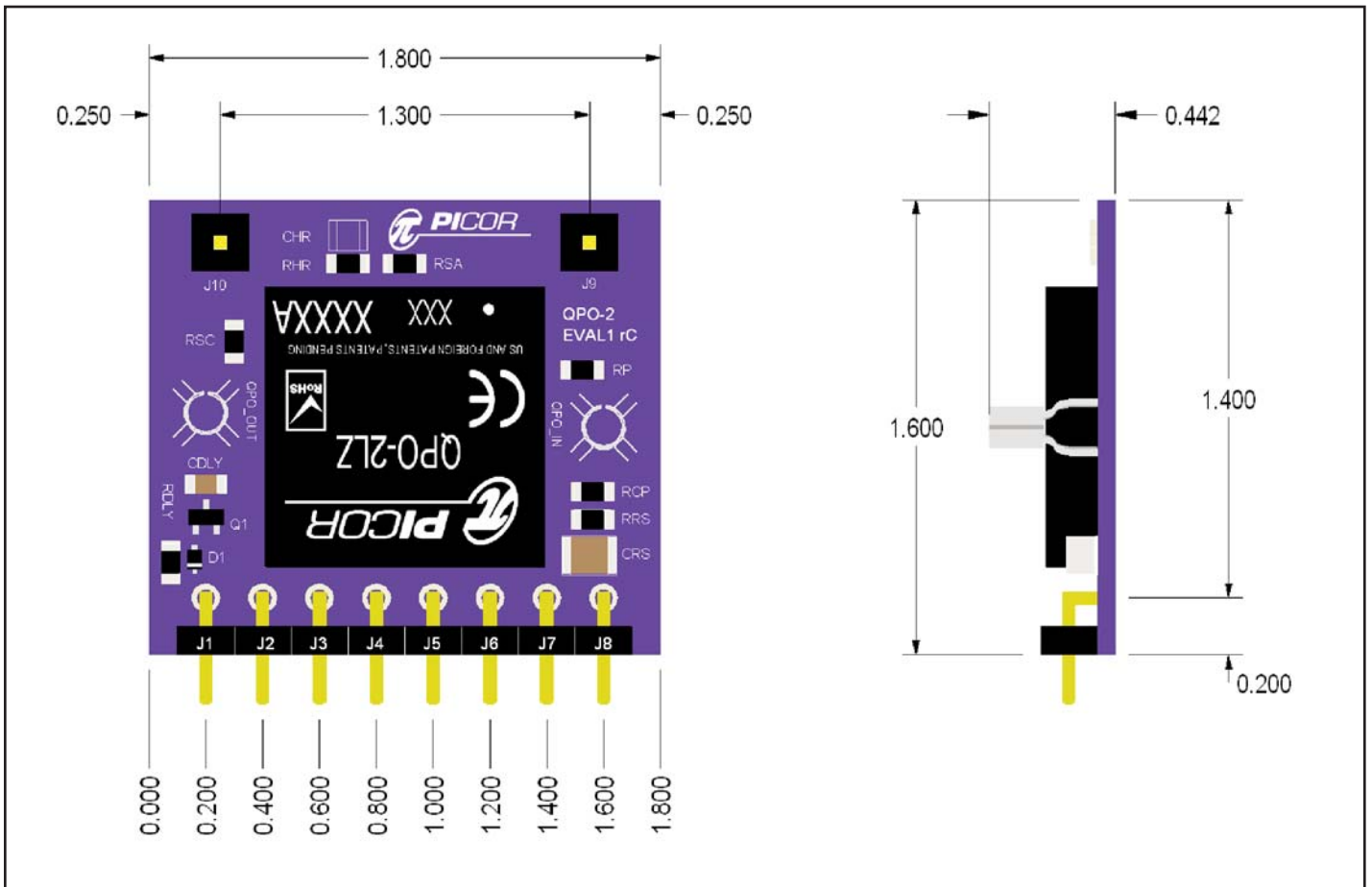


Figure 2 - Figure 2 – Evaluation Board Layout

* Note: Components Q1, D1, RDLY and CDLY are for an optional start-up circuit.

Ordering Information

Part Number	Description
QPO-2-EVAL1	Evaluation board for QPO-2LZ

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