

Evaluation Board for QPO-2 Active Output Filter

The QPO-2-EVAL1 board provides an easy to use evaluation platform for testing the QPO-2L 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-2L and some essential external components pre-mounted. Please refer to the QPO-2L datasheet for product details. Terminals for horizontal or vertical mounting are also provided. The user must select component values dependant upon 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 RSC1 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 RSA1 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. RP is required. The peak detection can be disabled adding a filter capacitor CP to the board. The full product datasheet with equations to calculate these component values plus more detailed explanations of their functions, can be found at www.picorpower.com.

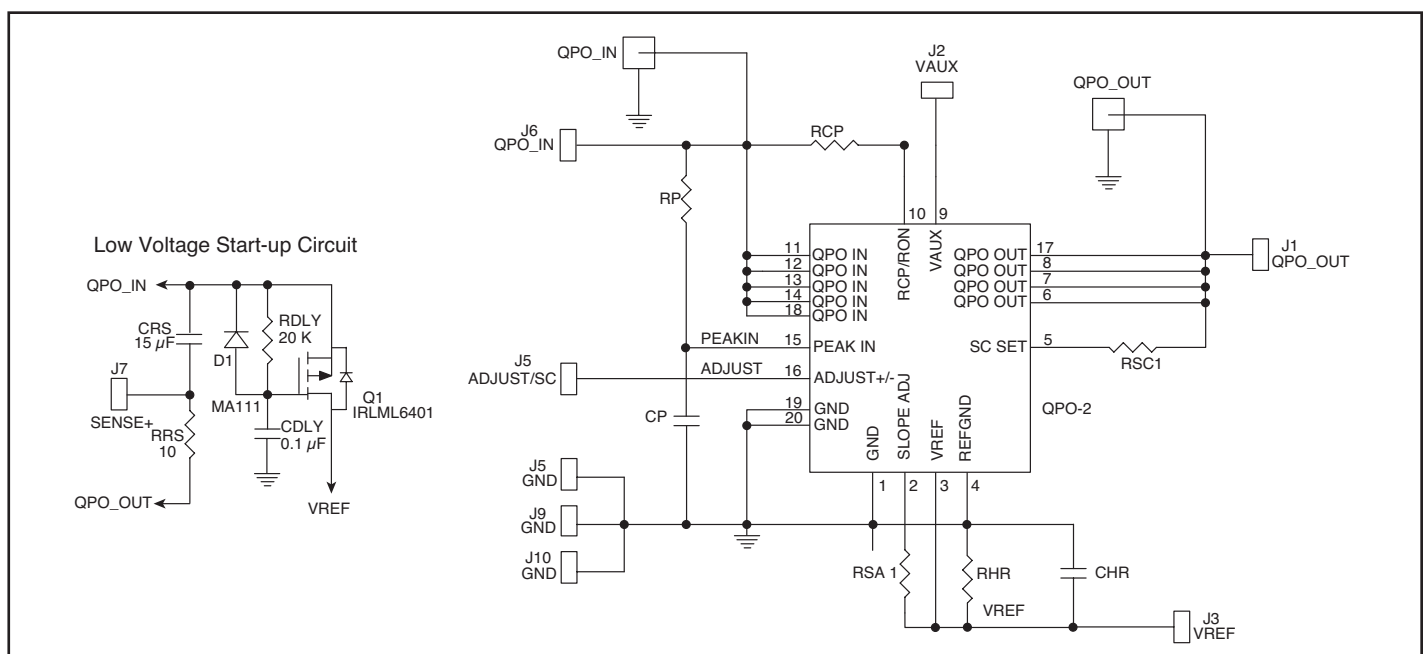


Figure 1 - Evaluation board schematic

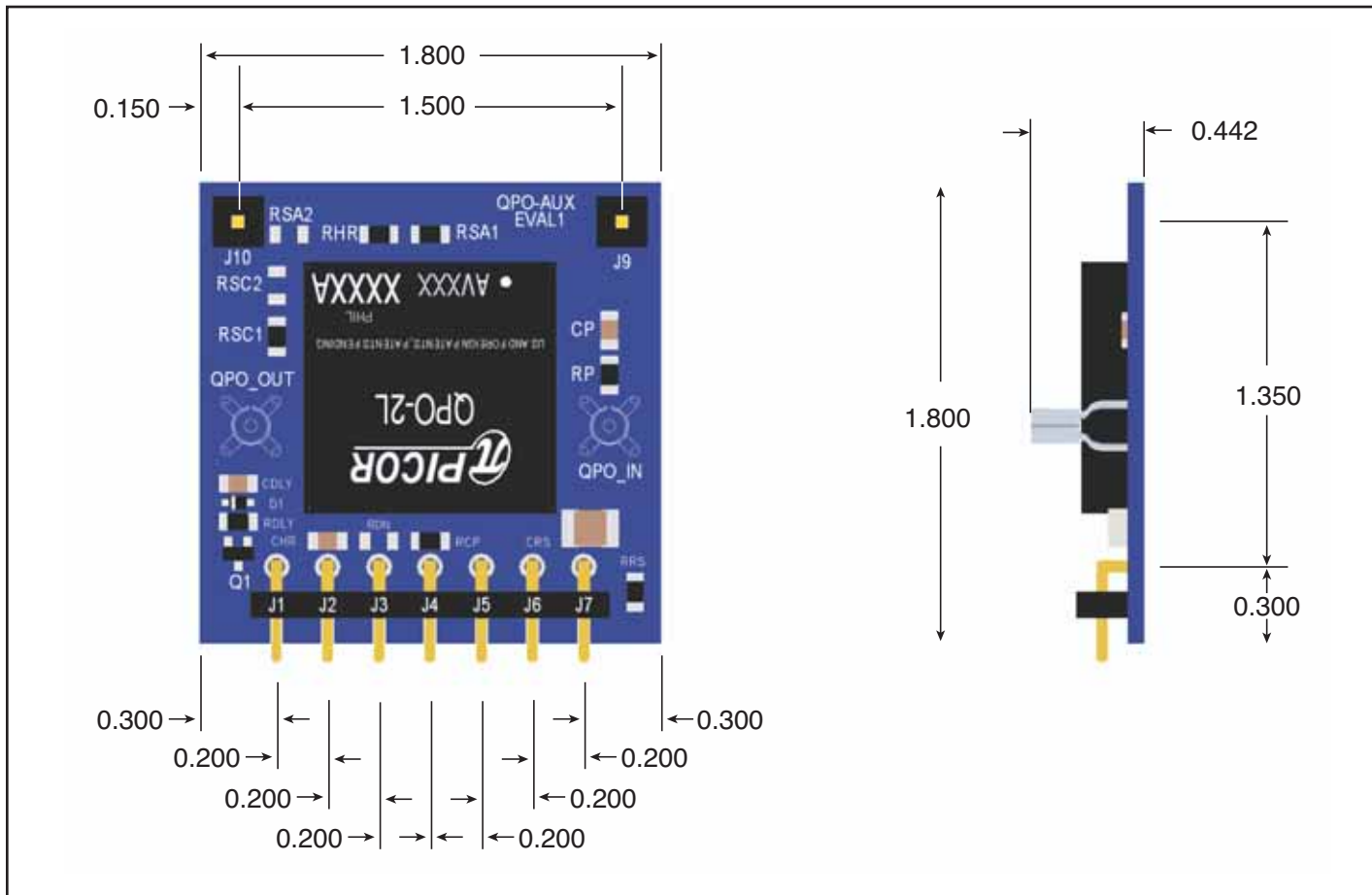


Figure 2 - Figure 2 – Evaluation Board Layout

* Note: Components RSA2, RSC2, and RDN are not used in the QPO-2L evaluation. Components Q1, D1, RDLY and CDLY are for an optional start-up circuit.

Ordering Information

Part Number	Description
QPI-2 EVAL1	Evaluation board for QP2-1L

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