

ISL21080XXEV1Z User's Guide

Introduction

The ISL21080XXEV1Z evaluation board is designed to measure the performance of the nano power ISL21080 voltage reference. The reference comes in a wide selection of output voltages ranging from 0.9V to 5.0V, and an initial accuracy as low as 0.2% (3.0V to 5.0V options). With a typical supply current of 500nA or less, the ISL21080 is ideal for extending battery life while reducing cost for general purpose portable applications.

The evaluation board includes voltage input test points (V_{IN} and GND) for a power supply input, as well as a pair of test points for the output (V_{OUT} and GND). Additionally, a jumperable R-C damper network can connect to V_{OUT} (J_1), and R_2 accepts surface mount or through-hole style resistors for output load testing.

Reference Documents

- ISL21080 Datasheet, [FN6934](#)

TABLE 1. ORDERING INFORMATION

| BOARD NUMBER | OUTPUT VOLTAGE (V) | TYPE |
|----------------|--------------------|------------------|
| ISL2108009EV1Z | 0.9 | Evaluation Board |
| ISL2108010EV1Z | 1.024 | Evaluation Board |
| ISL2108012EV1Z | 1.25 | Evaluation Board |
| ISL2108015EV1Z | 1.5 | Evaluation Board |
| ISL2108020EV1Z | 2.048 | Evaluation Board |
| ISL2108025EV1Z | 2.5 | Evaluation Board |

TABLE 1. ORDERING INFORMATION (Continued)

| BOARD NUMBER | OUTPUT VOLTAGE (V) | TYPE |
|----------------|--------------------|------------------|
| ISL2108030EV1Z | 3.0 | Evaluation Board |
| ISL2108033EV1Z | 3.3 | Evaluation Board |
| ISL2108040EV1Z | 4.096 | Evaluation Board |
| ISL2108050EV1Z | 5.0 | Evaluation Board |

ISL21080XXEV1Z Board

The schematic of the evaluation board is shown in Figure 5. The ISL21080XXEV1Z contains the ISL21080 voltage reference (U_1), input decoupling capacitors (C_1 , C_2), and a load capacitor (C_3). The power supply leads attach to TP1 and TP2 (V_{IN} , GND). The output is measured at test points TP3 and TP4 (V_{OUT} , GND).

The R-C damper network is populated and can be connected to the reference output by adding a shunt to the R-C jumper (J_1). The damper network improves stability by reducing transient load ringing with high value ($>0.47\mu\text{F}$) capacitors.

TABLE 2. COMPONENTS PARTS LIST

| DEVICE # | VALUE | DESCRIPTION |
|----------|--------------------|------------------------|
| C_1 | 10 μF | Bypass Capacitor |
| C_2 | 0.01 μF | Bypass Capacitor |
| C_3 | 0.01 μF | Load Capacitor |
| C_4 | 10 μF | Damper Capacitor |
| R_1 | 2.21k Ω | Damper Resistor |
| R_2 | DNP | Optional Load Resistor |
| U_1 | ISL21080 | SOT-23 3-Pin Package |


FIGURE 1. VOLTAGE REFERENCE EVALUATION BOARD

Voltage Reference Evaluation Board Layout

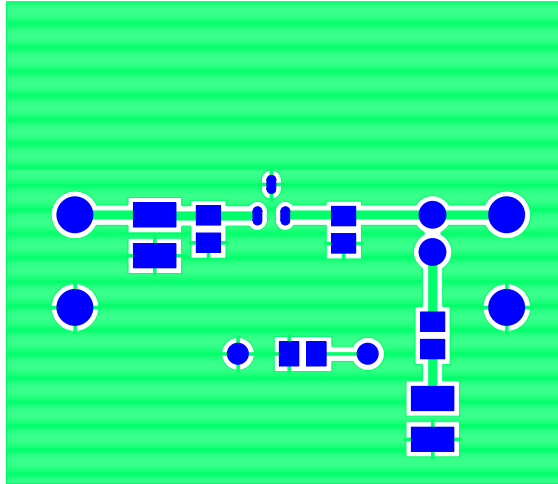


FIGURE 2. TOP COMPONENTS

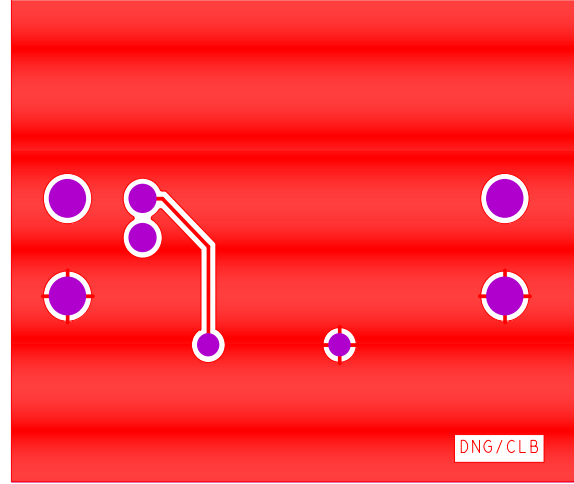


FIGURE 3. BOTTOM LAYER

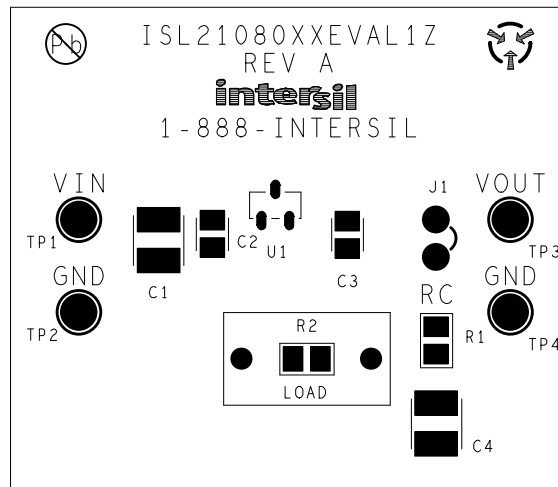


FIGURE 4. ASSEMBLY DRAWING

Intersil Corporation reserves the right to make changes in circuit design, software and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that the Application Note or Technical Brief is current before proceeding.

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ISL21080XXEV1Z Schematic

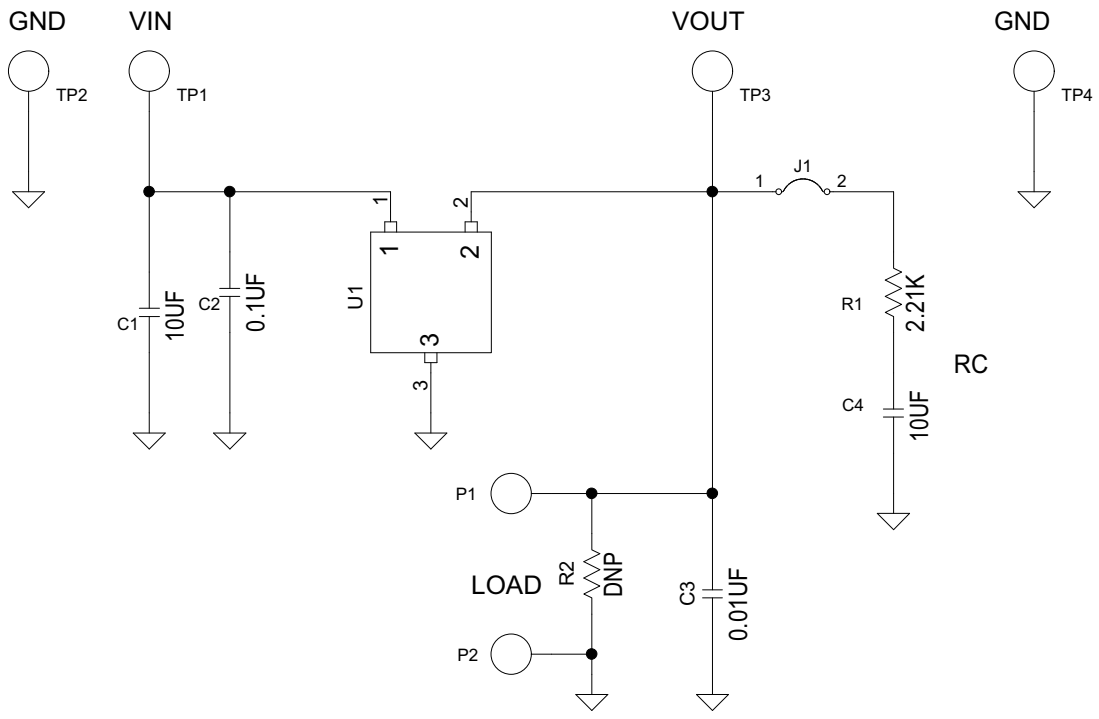


FIGURE 5. SCHEMATIC