

ISL21060EVAL1Z User's Guide

Introduction

The ISL21060EVAL1Z evaluation board is designed to measure the performance of the low power, high precision ISL21060 voltage reference. The reference comes in output voltages ranging from 2.048V to 4.096V, and an initial accuracy of $\pm 1\text{mV}$ to $\pm 2.5\text{mV}$. With a maximum temperature coefficient of $10\text{ppm}/^\circ\text{C}$ (grade B) and $10\mu\text{V}_{\text{P-P}}$ noise from 0.1Hz to 10Hz, the ISL21060 is ideal for high end equipment, but is also good for low power applications thanks to a typical supply current of $14\mu\text{A}$ and a shutdown current of $0.4\mu\text{A}$ typical.

The evaluation board includes voltage input test points (V_{IN} and GND) for a power supply input, as well as three test points for the output (V_{OUTF} , V_{OUTS} , 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

- ISL21060 Datasheet, [FN6706](#)

TABLE 1. ORDERING INFORMATION

BOARD NUMBER	OUTPUT VOLTAGE (V)	TYPE
ISL2106020EVAL1Z	2.048	Evaluation Board
ISL2106025EVAL1Z	2.5	Evaluation Board
ISL2106030EVAL1Z	3.0	Evaluation Board
ISL2106033EVAL1Z	3.3	Evaluation Board
ISL2106041EVAL1Z	4.096	Evaluation Board

ISL21060EVAL1Z Board

The schematic of the evaluation board is shown in Figure 5. The ISL21060EVAL1Z contains the ISL21060 voltage reference (U_1), input decoupling capacitors (C_1 , C_2), and a load capacitor on each output line (C_3 , C_4). The enable pin is pulled high by R_1 and can be controlled with the EN test point.

When measuring the output voltage, V_{OUTF} and V_{OUTS} must connect in order to provide the correct voltage. Connect these two lines as close to the load as possible for the most accurate results.

The R-C damper network can be populated by adding a $10\mu\text{F}$ ceramic capacitor to C_5 and a $2.21\text{k}\Omega$ resistor to R_3 . Connect the network 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	$10\mu\text{F}$	Bypass Capacitor
C_2	$0.1\mu\text{F}$	Bypass Capacitor
C_3	1000pF	Load Capacitor
C_4	1000pF	Load Capacitor
C_5	$10\mu\text{F}$	Damper Capacitor
R_1	$10\text{k}\Omega$	Enable Pull-up Resistor
R_2	DNP	Optional Load Resistor
R_3	$2.21\text{k}\Omega$	Damper Resistor
U_1	ISL21060	SOT-23 6-Pin Package
J_1	Shunt	Damper Jumper



FIGURE 1. VOLTAGE REFERENCE EVALUATION BOARD

Voltage Reference Evaluation Board Layout

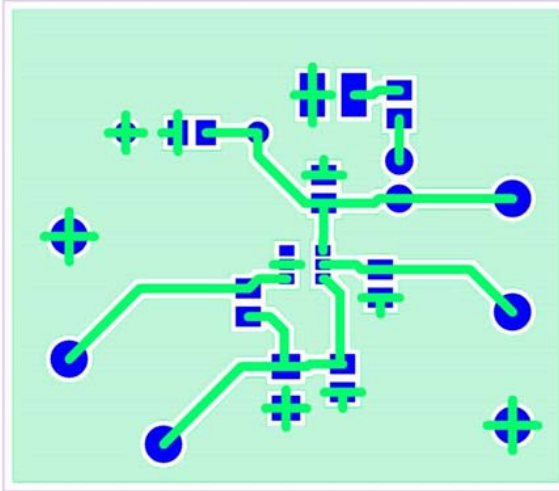


FIGURE 2. TOP COMPONENTS

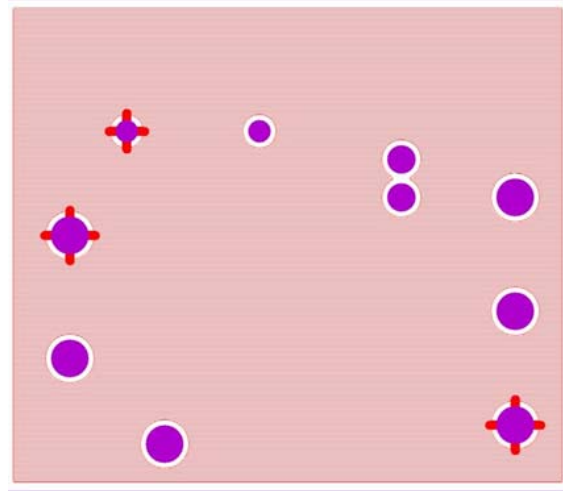


FIGURE 3. BOTTOM LAYER

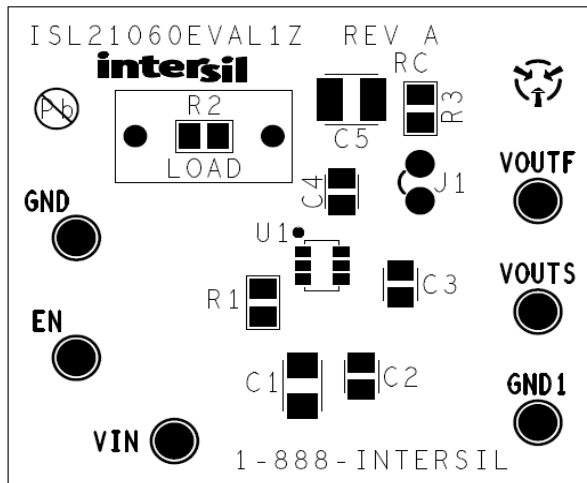


FIGURE 4. ASSEMBLY DRAWING

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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ISL21060EVAL1Z Schematic

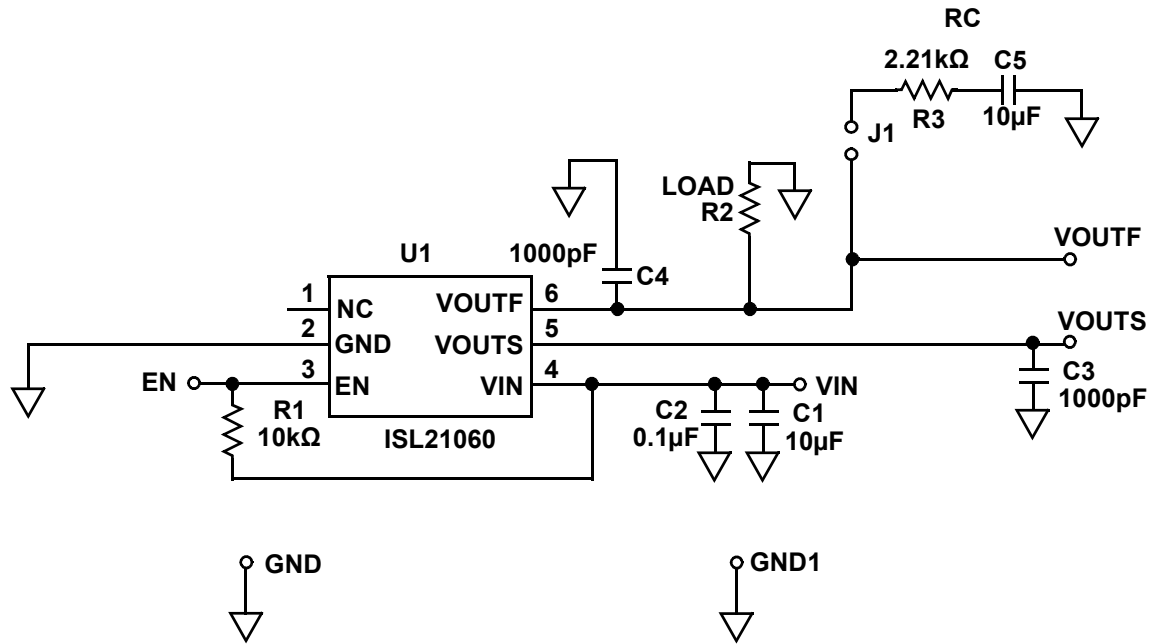


FIGURE 5. ISL21060 SCHEMATIC