

ISL71090SEH12EV1Z, ISL71090SEH25EV1Z, ISL71090SEH50EV1Z, ISL71090SEH75EV1Z User Guide

Introduction

The ISL71090SEHXXEV1Z evaluation boards are designed to measure the performance of the radiation hardened ultra low noise, high precision [ISL71090SEH](#) voltage reference family. The reference has a wide input voltage range from 4V to 30V and an initial accuracy of 0.05%. Its ultra low voltage noise ($1\mu V_{p-p}$ in the 0.1Hz to 10Hz range - ISL71090SEH12); a maximum output voltage temperature coefficient of 10ppm/°C and excellent radiation performance make the ISL71090SEH ideal for space applications.

Each output voltage option of the ISL71090SEH has its own evaluation board. Use the ordering number listed in [Table 1](#) to order the evaluation boards with the desired output voltage option.

Reference Documents

- [ISL71090SEH12](#) datasheet
- [ISL71090SEH25](#) datasheet
- [ISL71090SEH50](#) datasheet
- [ISL71090SEH75](#) datasheet

TABLE 1. ORDERING INFORMATION

ORDERING NUMBER	OUTPUT VOLTAGE (V)	TYPE
ISL71090SEH12EV1Z	1.25	Evaluation Board
ISL71090SEH25EV1Z	2.5	Evaluation Board
ISL71090SEH50EV1Z	5.0	Evaluation Board
ISL71090SEH75EV1Z	7.5	Evaluation Board

ISL71090SEHXXEV1Z Evaluation Boards

The schematic of the evaluation board is shown in [Figure 5](#). The ISL71090SEHXXEV1Zs contain the ISL71090SEH voltage reference (U1), input decoupling capacitors (C₁), a compensation capacitor (C₂), and a load capacitor (C₄).

The power supply leads attach to TP1 and TP2 (VIN, GND). The output is measured at test points TP8 and TP9 (VOUT, GND), and is best measured with a high quality voltmeter. In addition, there is a BNC connector on VOUT to measure noise. The SP1 (VIN), SP2 (GND, and SP3 (VOUT) are scope probe test points for easy connection to an oscilloscope.

TRIM 1-3

These pins are for trimming purpose and for factory use only. Do not connect these to the circuit in any way. It will adversely effect the performance of the reference.

TABLE 2. COMPONENTS PARTS LIST

REFERENCE	VALUE	DESCRIPTION
BNC1		50Ω PCB mount receptacle
C ₁	0.1μF	Bypass capacitor 0805, X7R, 50V, 10%
C ₂	1nF	Compensation capacitor 0805, X7R, 100V, 10%
C ₃	DNP	
C ₄	1μF (0.1μF for ISL71090SEH12)	Load capacitor 0805, X7R, 50V, 10%
SP1 - SP3		Scope probe test point PCB mount
TP1 - TP9		1514-2 test point turret
U1	ISL71090SEHXX	Radiation hardened ultra low noise, precision voltage reference



FIGURE 1. VOLTAGE REFERENCE EVALUATION BOARD

Voltage Reference Evaluation Board Layout

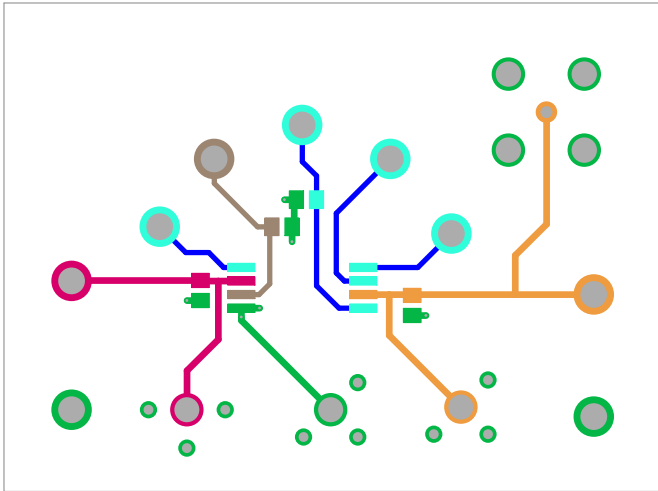


FIGURE 2. TOP LAYER

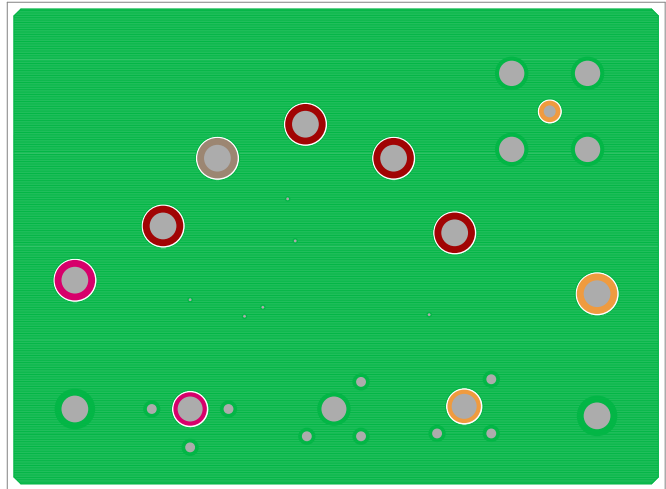


FIGURE 3. BOTTOM LAYER

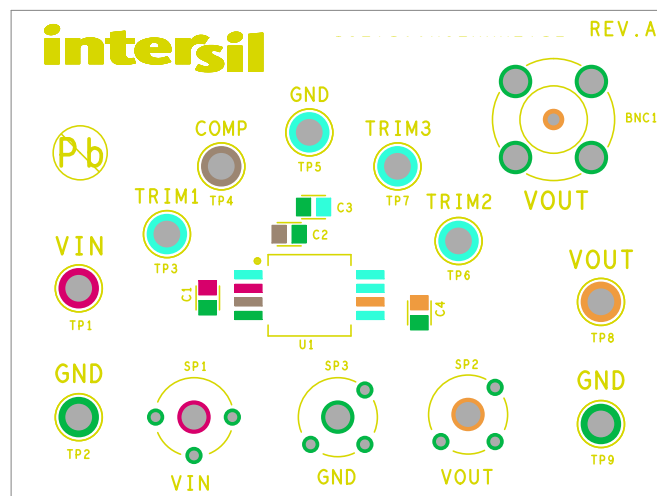


FIGURE 4. TOP SILKSCREEN

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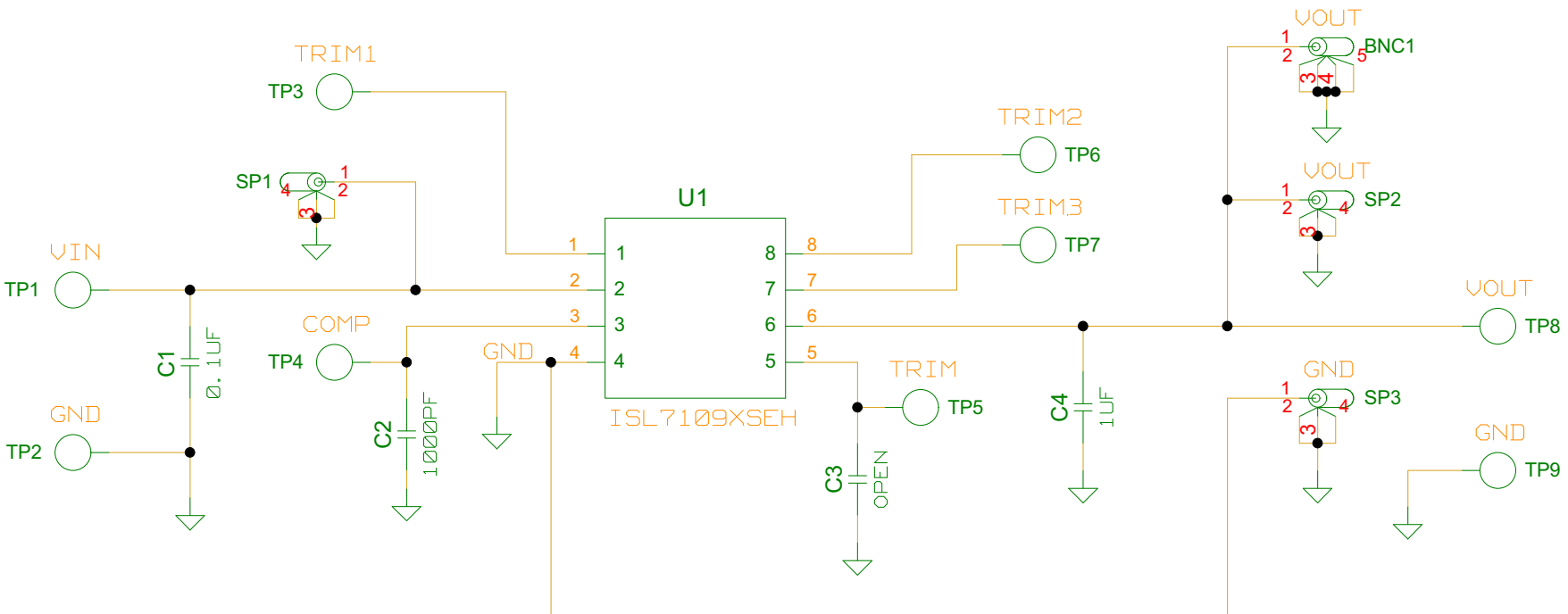


FIGURE 5. ISL71090SEHXXEV1Z SCHEMATIC