

ISL21090xxEV1Z

Evaluation Boards

AN1764

Rev 1.00

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Introduction

The ISL21090XXEV1Z evaluation board is designed to measure the performance of the high precision ISL21090 voltage reference. The reference has a wide input voltage range from the individual threshold voltage to 36V and an initial accuracy of 0.02% to 0.035%. The voltage noise of 1µV_{p-p} in the 0.1Hz to 10Hz range (1.25V option) and maximum output voltage temperature coefficient of 7 ppm/°C make the ISL21090 ideal for high end applications.

The evaluation board includes voltage input test points (VIN and GND) for a power supply input, as well as a pair of test points for the output (VOUT and GND). Additionally, a jumperable R-C damper network can connect to VOUT (J1), and R2 accepts surface mount or through-hole style resistors for output load testing.

Reference Documents

- ISL21090 Datasheet [FN6993](#)

TABLE 1. ORDERING INFORMATION

BOARD NUMBER	OUTPUT VOLTAGE (V)	TYPE
ISL2109012EV1Z	1.25	Evaluation Board
ISL2109025EV1Z	2.5	Evaluation Board
ISL2109050EV1Z	5.0	Evaluation Board
ISL2109075EVAL1Z	7.5	Evaluation Board

ISL21090XXEV1Z Board

The schematic of the evaluation board is shown in Figure 5. The ISL21090XXEV1Z contains the ISL21090 voltage reference (U1), input decoupling capacitors (C1, C2), a compensation capacitor (C5), and a load capacitor (C3).

The power supply leads attach to TP1 and TP2 (VIN, GND). The output is measured at test points TP3 and TP4 (VOUT, GND), and is best measured with a high quality voltmeter.

The R-C damper network is populated and can be connected to the reference output by adding a shunt to the R-C jumper (J1). The damper network improves stability by reducing transient load ringing with high value (>0.47µF) capacitors.

TABLE 2. COMPONENTS PARTS LIST

DEVICE #	VALUE	DESCRIPTION
C1	10µF	Bypass Capacitor
C2	0.01µF	Bypass Capacitor
C3	0.1µF	Load Capacitor
C4	10µF	Damper Capacitor
C5	1nF	Compensation Capacitor
R1	2.21kΩ	Damper Resistor
R2	DNP	Optional Load Resistor
U1	ISL21090	SOIC 8-Pin Package
J1	DNP	Damper Jumper

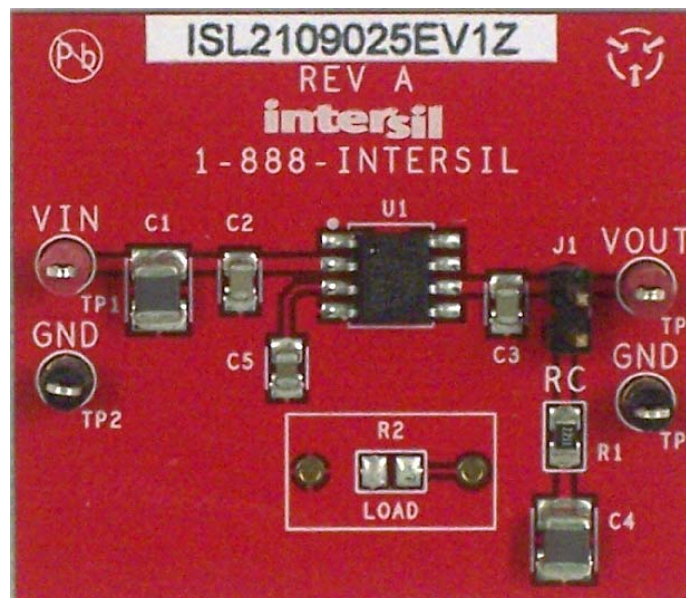


FIGURE 1. VOLTAGE REFERENCE EVALUATION BOARD

Voltage Reference Evaluation Board Layout

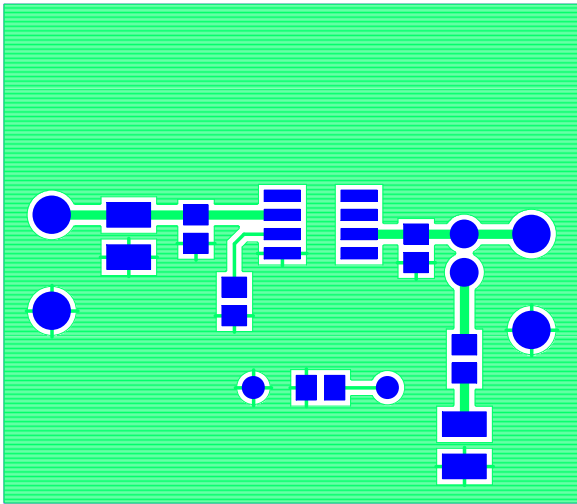


FIGURE 2. TOP COMPONENTS

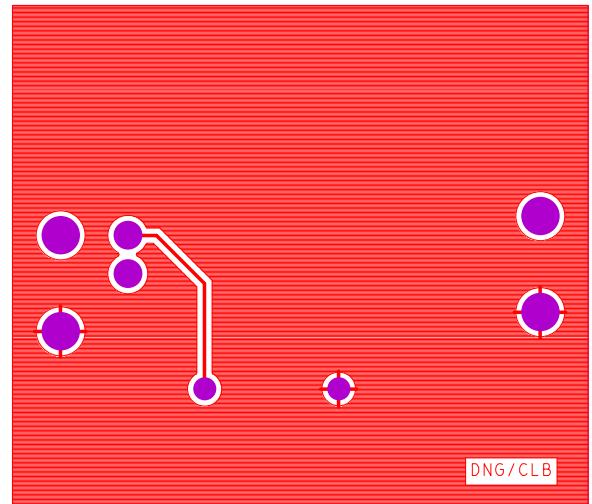


FIGURE 3. BOTTOM LAYER

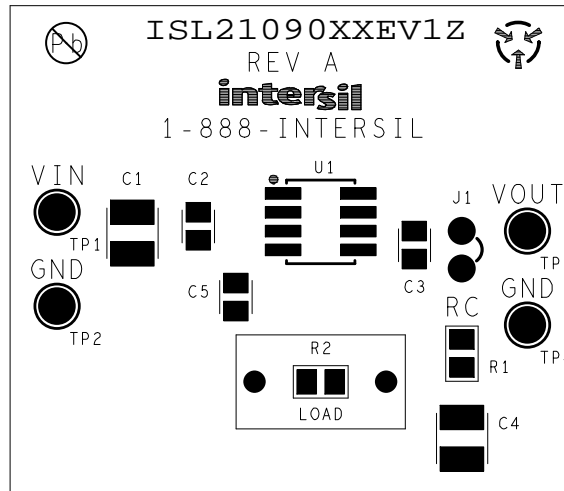


FIGURE 4. ASSEMBLY DRAWING

ISL21090XXEV1Z Schematic

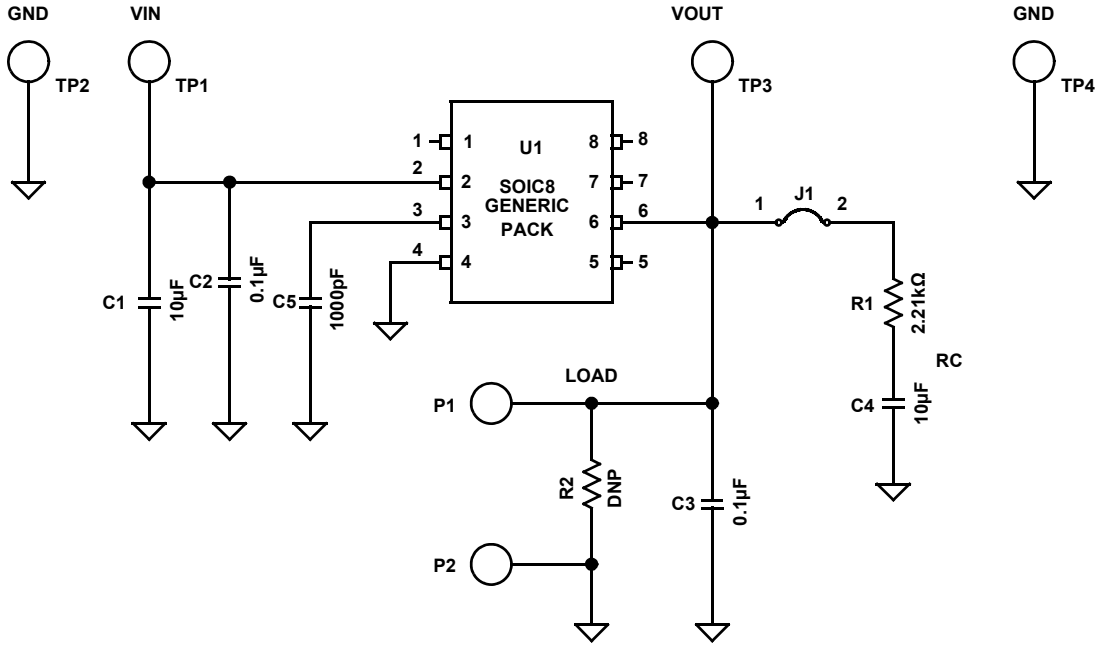


FIGURE 5. SCHEMATIC

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Renesas Electronics America Inc.
1001 Murphy Ranch Road, Milpitas, CA 95035, U.S.A.
Tel: +1-408-432-8888, Fax: +1-408-434-5351

Renesas Electronics Canada Limited
9251 Yonge Street, Suite 8309 Richmond Hill, Ontario Canada L4C 9T3
Tel: +1-905-237-2004

Renesas Electronics Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K
Tel: +44-1628-651-700, Fax: +44-1628-651-804

Renesas Electronics Europe GmbH
Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-6503-0, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.
Room 1709 Quantum Plaza, No.27 ZhichunLu, Haidian District, Beijing, 100191 P. R. China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.
Unit 301, Tower A, Central Towers, 555 Langao Road, Putuo District, Shanghai, 200333 P. R. China
Tel: +86-21-2226-0888, Fax: +86-21-2226-0999

Renesas Electronics Hong Kong Limited
Unit 1601-1611, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2265-6688, Fax: +852-2886-9022

Renesas Electronics Taiwan Co., Ltd.
13F, No. 363, Fu Shing North Road, Taipei 10543, Taiwan
Tel: +886-2-8175-9600, Fax: +886-2-8175-9670

Renesas Electronics Singapore Pte. Ltd.
80 Bendemeer Road, Unit #06-02 Hyflux Innovation Centre, Singapore 339949
Tel: +65-6213-0200, Fax: +65-6213-0300

Renesas Electronics Malaysia Sdn.Bhd.
Unit 1207, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: +60-3-7955-9390, Fax: +60-3-7955-9510

Renesas Electronics India Pvt. Ltd.
No.777C, 100 Feet Road, HAL 2nd Stage, Indiranagar, Bangalore 560 038, India
Tel: +91-80-67208700, Fax: +91-80-67208777

Renesas Electronics Korea Co., Ltd.
17F, KAMCO Yangjae Tower, 262, Gangnam-daero, Gangnam-gu, Seoul, 06265 Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5338