

ISL97516IUZEVALZ

Evaluation Board

AN1472
Rev 1.00
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Description

The ISL97516IUZEVALZ evaluation board is an evaluation kit for evaluating the ISL97516, a step-up voltage regulator that operates with high frequency and high efficiency. This evaluation kit is designed to deliver over 90% efficiency.

The ISL97516IUZEVALZ kit provides a dip switch that allows users to select either 620kHz or 1.2MHz switching frequency.

Key Features

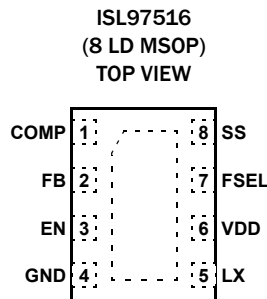
- A Complete evaluation platform for ISL97516 evaluation
- Input voltage: 2.3V to 5.5V
- Proven evaluation board layout
- Pb-free (RoHS compliant)

What is Needed

The following instruments will be needed to perform testing:

- Power supplies
- DC electronic load
- Multimeters
- Oscilloscope
- Cables and wires

Pin Configuration



Ordering Information

PART NUMBER	DESCRIPTION
ISL97516IUZEVALZ	Evaluation Board for ISL97516

Quick Setup Guide

1. Connect power supply between headers of V_{IN} and GND. The positive output of the power supply should be connected to V_{IN} header. Set power supply voltage between 2.3V and 5V, and current limit at 3A.
2. Connect E-load between headers of V_{OUT} and GND. The positive input of the E-load should be connected to V_{OUT} header. Set E-load current. The load current should not exceed the maximum output current the part can supply.
3. Close pins 1 and 4 of S1 to tie FSEL pin to VIN. This will set the switching frequency to 1.2MHz. Open pins 1 and 4 to pull FSEL to ground with R_4 to set 620kHz.
4. Close pins 2 and 3 of S1 to tie EN pin to VIN to enable the part. To disable the part, open pins 2 and 3 to pull EN to ground with R_3 to disable the part.

Make sure all the connections on the evaluation board are correct, then turn on power supply and E-load. The part starts to operate.

Maximum Output Current

The MOSFET current limit is normally 2.0A and guaranteed 1.7A. This restricts the maximum output current that the ISL97516 can drive. Table 1 shows the ISL97516EVAL1Z maximum output current, I_{OMAX} in different input and output voltages.

TABLE 1. TYPICAL MAXIMUM I_{OUT} VALUES

V_{IN} (V)	V_{OUT} (V)	I_{OMAX} (mA)
2.5	5	870
2.5	9	500
2.5	12	380
3.3	5	1150
3.3	9	655
3.3	12	500
5	9	990
5	12	750

Board Design Schematic

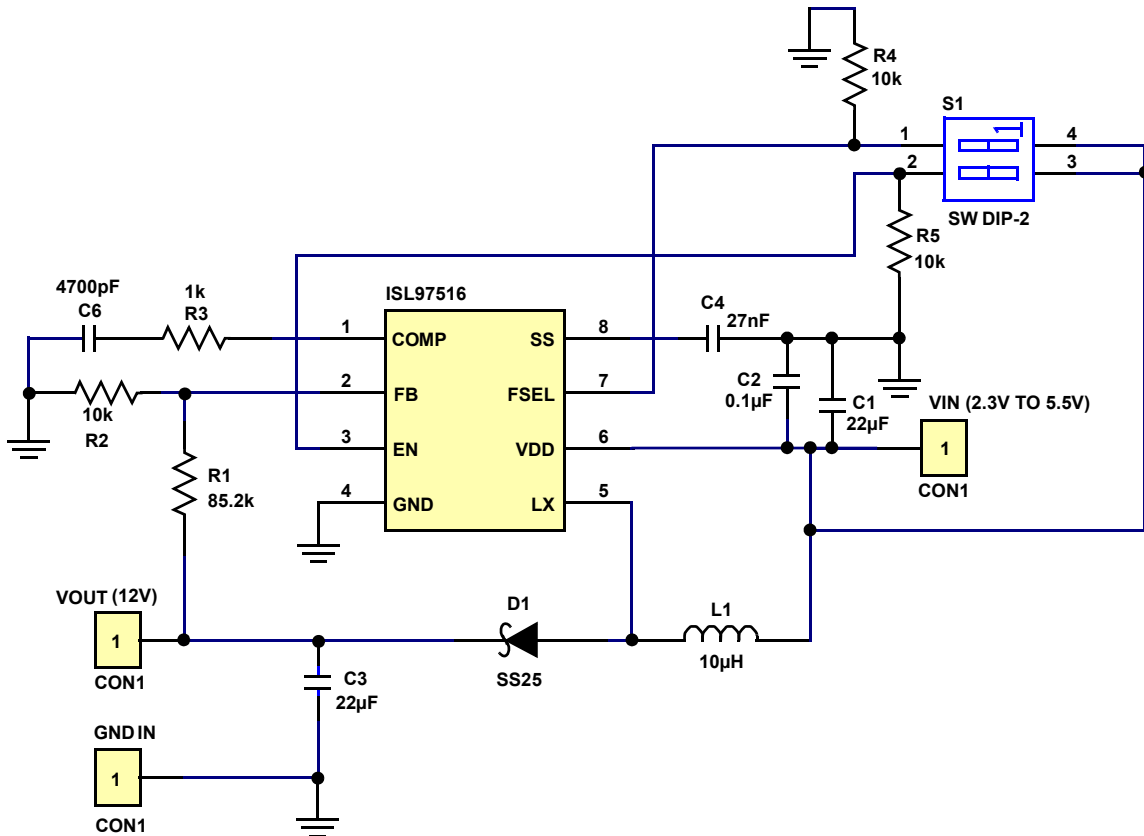


FIGURE 1. SCHEMATIC

TABLE 2. ISL97516IUZEVALZ BILL OF MATERIALS (BOM)

ITEM	QTY	REFERENCE	PART DESCRIPTION	PCB FOOTPRINT	PART NUMBER	VENDOR
1	1	C4	27nF	603		TDK
2	1	C6	4700pF	603		TDK
3	1	C2	0.1µF/16V	603	C1068X7R1H104K	TDK
4	1	R1	85.2k	603		WALSIN
5	3	R2, R4, R5	10k	603	WR06W1002JTL	WALSIN
6	1	R3	1k	603		
8	1	C3	22µF	1206		MURATA
9	1	C1	22µF	1206	GRM31CR61C226KE15L	MURATA
10	1	L1	10µH	CDRH8D43-100NC	CDRH8D43-100NC	SUMIDA
11	1	U1	ISL97516	MSOP-8	ISL97516	INTERSIL
12	1	VOUT (12V)	CON1	Powerpost		
13	1	VIN (3.3V)	CON1	Powerpost		
14	1	GND IN	CON1	Powerpost		
15	1	D1	SS25	DO-214A	SS25	Fairchild
16	1	S1	SWDIP-2	DIP4		CKN3001-ND

PCB Layout

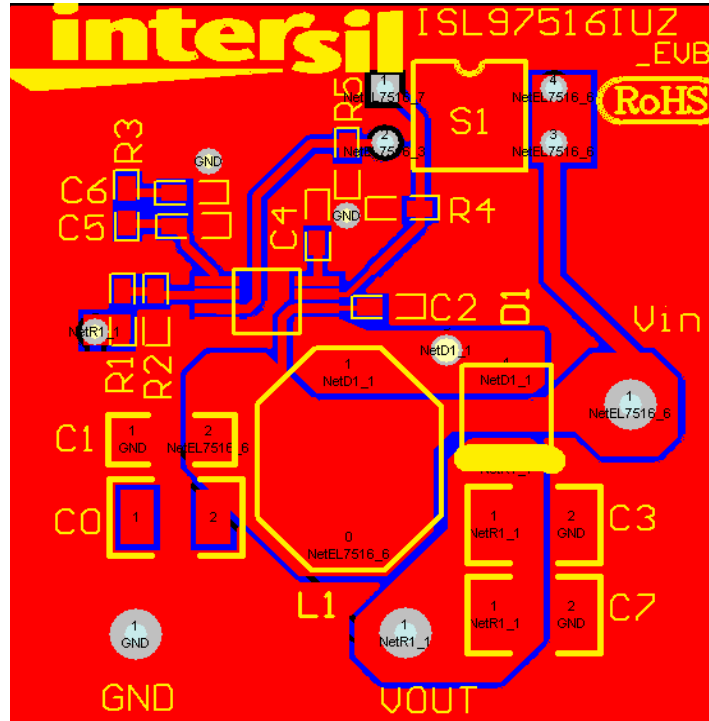


FIGURE 1. EVALUATION BOARD ASSEMBLY LAYER

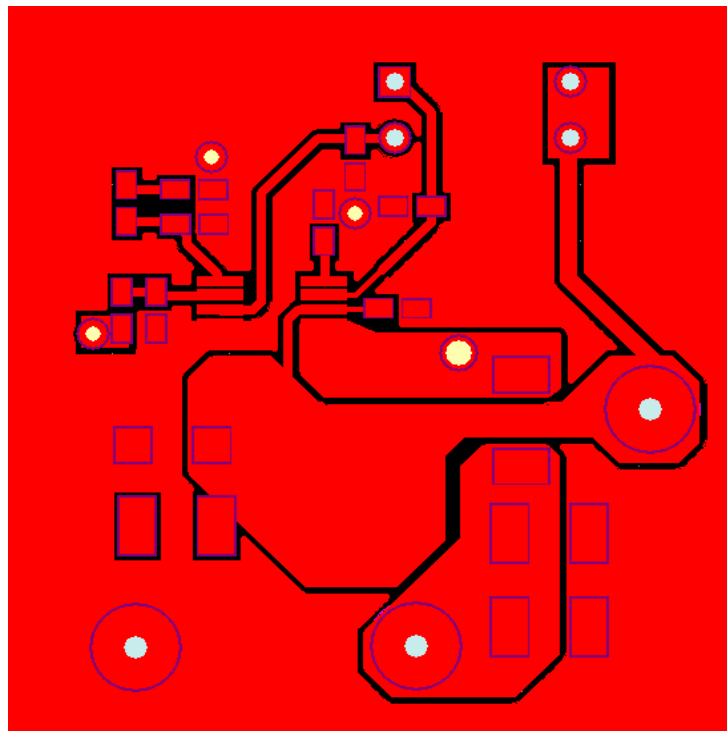


FIGURE 2. TOP LAYER

PCB Layout (Continued)

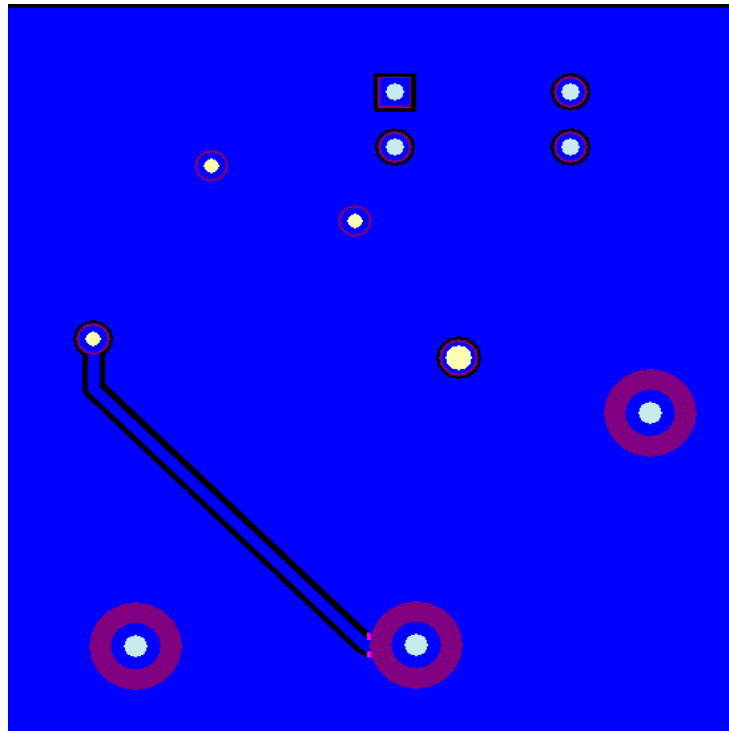


FIGURE 3. BOTTOM LAYER

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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