

ISL97516IUZEVALZ Evaluation Board Application Manual

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

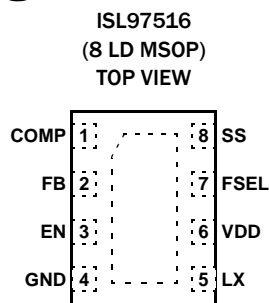
- A Complete evaluation platform for ISL97516 evaluation
- Input voltage: 2.3V to 5.5V
- Proven evaluation board layout
- Pb-free (RoHS compliant)

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

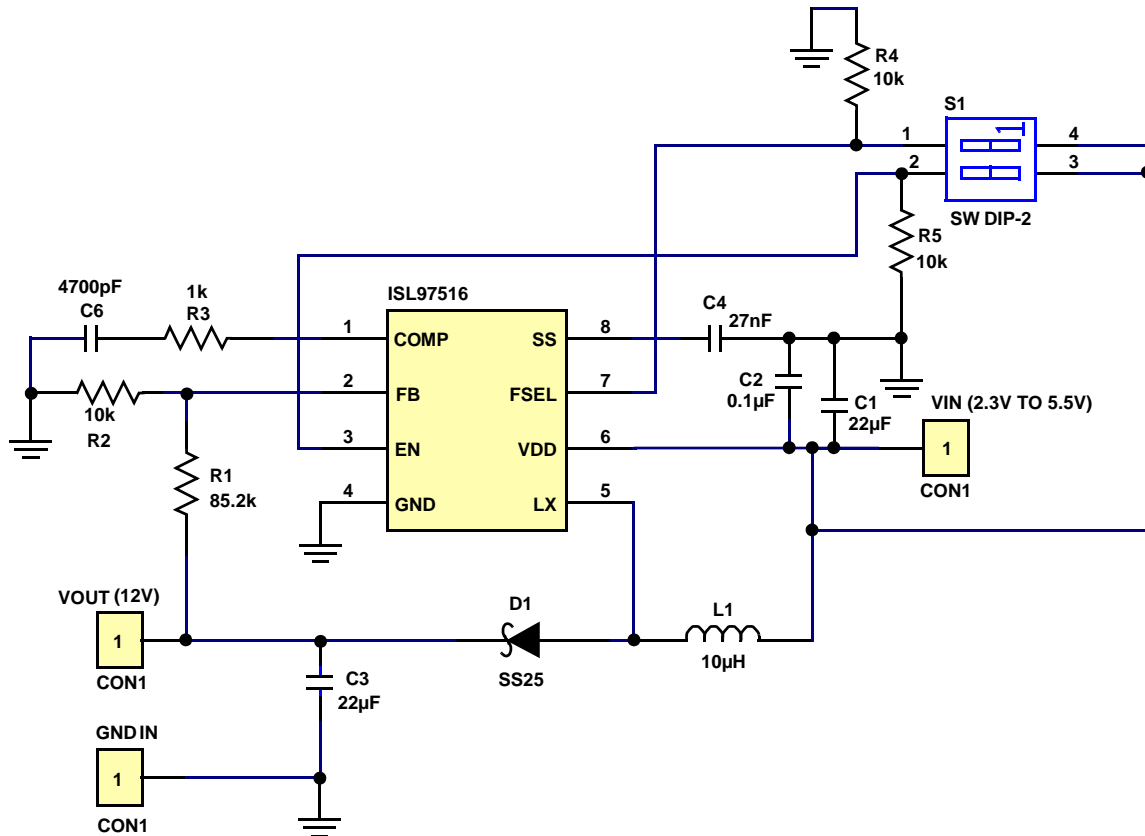


FIGURE 1. SCHEMATIC

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

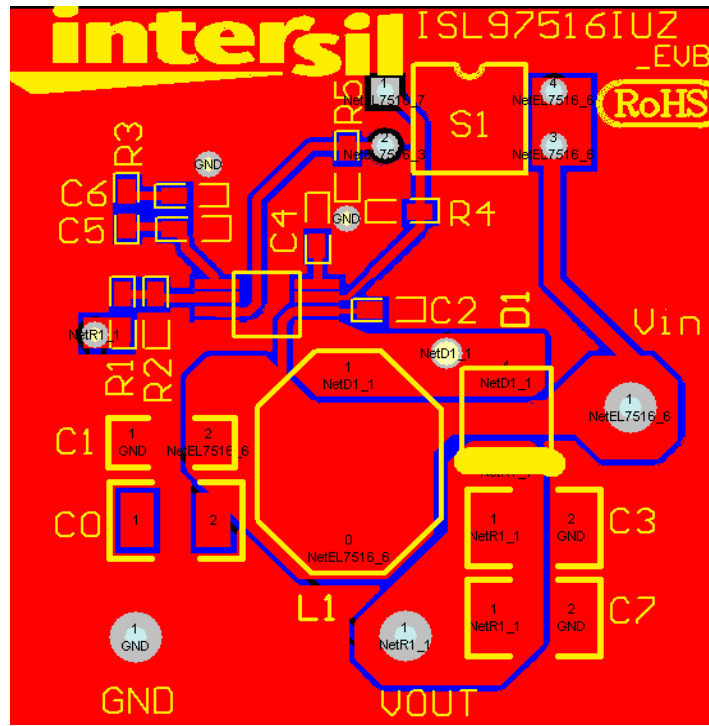


FIGURE 1. EVALUATION BOARD ASSEMBLY LAYER

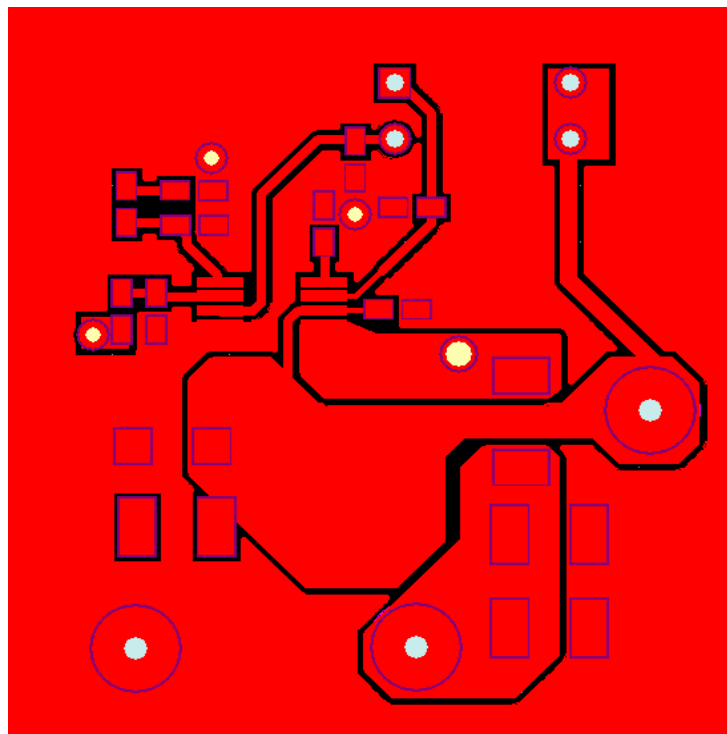


FIGURE 2. TOP LAYER

PCB Layout (Continued)

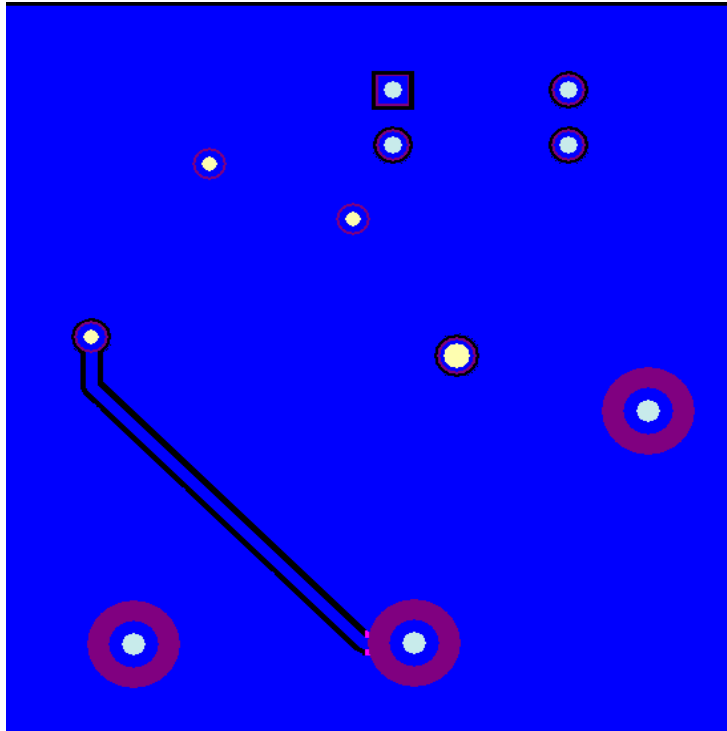


FIGURE 3. BOTTOM LAYER

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