

# ISL9111H30/33/50/ADJZEVAL1Z Evaluation Board User Guide

## Evaluation Board Features

- ISL9111H30/33/50/ADJZEVAL1Z is a low input voltage, high efficiency boost regulator with fixed (3.0/3.3/5.0V) and adjustable output voltage
- Input voltage rating from 0.8V to 5.0V
- 100mA output current at  $V_{IN} = 0.9V$  and  $V_{OUT} = 3.3V$  and 240mA at  $V_{IN} = 1.8V$  and  $V_{OUT} = 3.3V$
- 1.2MHz switching frequency
- Jumper selectable EN (enabled/disabled)
- Jumper selectable for LED indication during FAULT conditions
- Connectors, test points and jumpers for easy evaluation

## Required Equipment

- Power supply capable of delivering up to 5.5V and 1A
- Electronic load
- Multimeter to measure voltages and currents
- Oscilloscope
- Test Points, Connectors and Jumpers

**TABLE 1. DESCRIPTION OF CONNECTOR**

CONNECTOR	DESCRIPTION
J1	VIN (Input Supply)
J2	GND (System ground)
J3	Power supply for FAULT pin pull-up
J4	VOUT (Output Voltage)
J5	GND (System ground)
J6	Fault Output (Fixed output version).

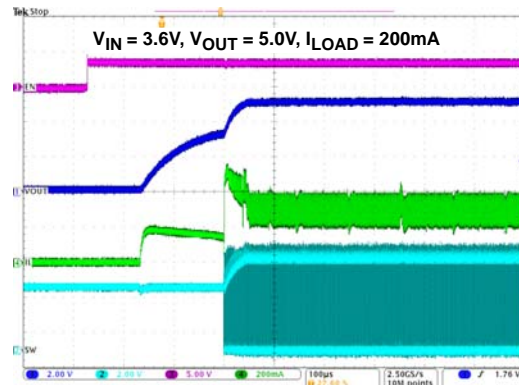
**TABLE 2. DESCRIPTION OF JUMPERS**

JUMPER	DESCRIPTION
JP1	Jumper to select EN input logic state. Set EN = VIN to enable device, or set EN = GND to disable device.
JP3	Jumper to select LED indication for FAULT conditions.

## Quick Setup Guide

1. Connect power supply to J1, with voltage setting between 0.8V and 5.0V.
2. Connect electronic load to J4.
3. Place scope probes on VOUT test point, and other test points of interest.
4. Turn on the power supply.
5. Assert EN pin high to enable the device.
6. Monitor the output voltage start-up sequence on the scope. The waveforms will look similar to Figure 1.
7. Turn on the electronic load.
8. Measure the output voltage with the voltmeter. The voltage should regulate within data sheet spec limits ([FN7602](#)).

## Typical Start-up Waveforms


**FIGURE 1. ISL9111 START-UP WITH  $V_{IN} = 3.6V$  AND  $V_{OUT} = 5.0V$**

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## Output Voltage Programming (ADJ Version)

$$V_O = V_{FB} \cdot \left(1 + \frac{R_1}{R_2}\right) \quad (\text{EQ. 1})$$

### Output Voltage Setting Resistor Selection

The voltage divider resistors,  $R_1$  and  $R_2$ , as shown in the evaluation board schematic for the ADJ version, set the desired output voltage values. The output voltage can be calculated using Equation 1:

where  $V_{FB}$  is the internal feedback reference voltage (0.8V typical). The current flowing through the divider resistors is calculated as  $V_O / (R_1 + R_2)$ . Large resistance is recommended to minimize the current into the divider; thus improving the total efficiency of the converter.

## Evaluation Board Schematics

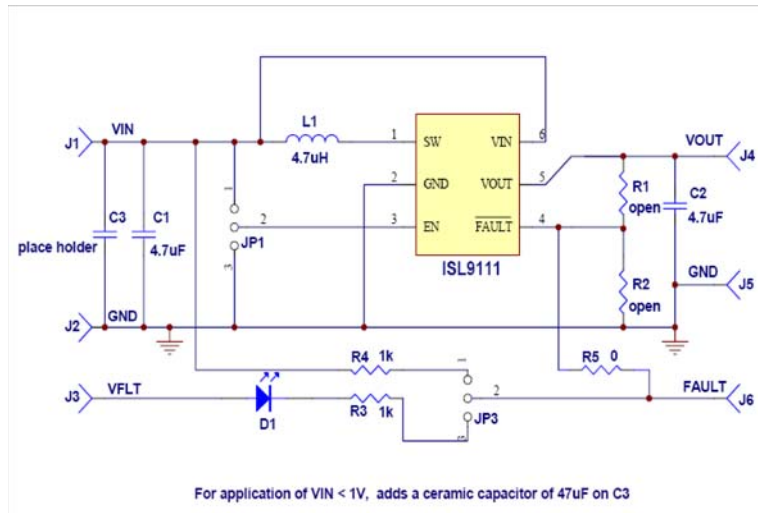


FIGURE 2. ISL9111H3.0/3.3/5.0EVAL1Z EVALUATION BOARD SCHEMATIC

TABLE 3. ISL9111H3.0/3.3/5.0EVAL1Z EVALUATION BOARD BILL OF MATERIALS

ITEM#	QTY	DESIGNATORS	PART TYPE	FOOTPRINT	DESCRIPTION	VENDORS
1	1	U1	ISL9111 or ISL9111A	SOT23-6L	Intersil ISL9111 Boost Regulator	INTERSIL
2	1	L1	4.7μH	0.126"x0.126"	CDRH2D18/HPNP-4R7NC	SUMIDA
3	2	C1, C2	4.7μF/6.3V/X5R	0603	GRM21BR71C475KA73L	MURATA
4	1	C3	Place Holder	0805		ANY
5	1	R1	OPEN	0402	Resistor, Generic	ANY
6	1	R2	OPEN	0402	Resistor, Generic	ANY
7	2	R3, R4	1kΩ	0603	Resistor, Generic	ANY
8	1	R5	0Ω	0603	Resistor, Generic	ANY
9	1	D1	LED	0805	LED, RED, SMD	ANY
10	6	J1, J2, J3, J4, J5, J6	POWER POST		Connectors	ANY
11	2	JP1, JP3	JUMPER	HDR-3		ANY

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## Evaluation Board Schematics (continued)

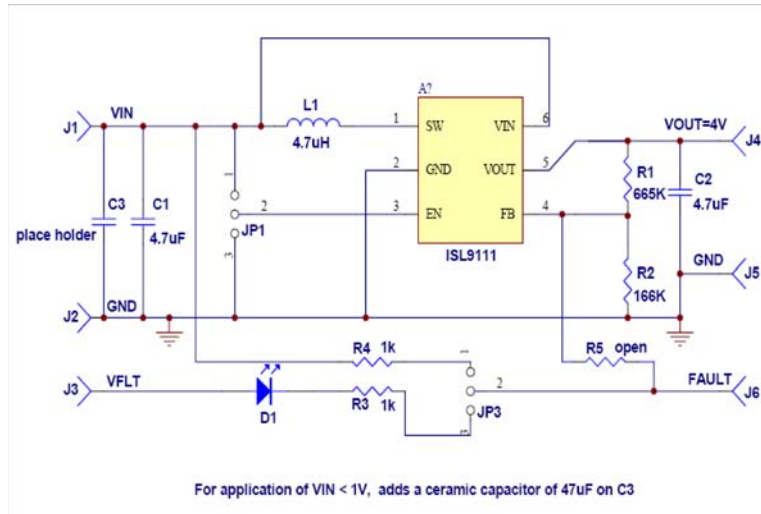


FIGURE 3. ISL9111ADJEVAL1Z EVALUATION BOARD SCHEMATIC

TABLE 4. ISL9111HADJ-EVAL1Z EVALUATION BOARD BILL OF MATERIALS

ITEM#	QTY	DESIGNATORS	PART TYPE	FOOTPRINT	DESCRIPTION	VENDORS
1	1	U1	ISL9111 or ISL9111A	SOT23-6L	Intersil ISL9111 Boost Regulator	INTERSIL
2	1	L1	4.7µH	0.126"x0.126"	CDRH2D18/HPNP-4R7NC	SUMIDA
3	2	C1, C2	4.7µF/6.3V/X5R	0603	GRM21BR71C475KA73L	MURATA
4	1	C3	Place Holder	0805		ANY
5	1	R1	665k	0402	Resistor, Generic	ANY
6	1	R2	166k	0402	Resistor, Generic	ANY
7	2	R3, R4	1kΩ	0603	Resistor, Generic	ANY
8	1	R5	0Ω	0603	Resistor, Generic	ANY
9	1	D1	LED	0805	LED, RED, SMD	ANY
10	6	J1, J2, J3, J4, J5, J6	POWER POST		Connectors	ANY
11	2	JP1, JP3	JUMPER	HDR-3		ANY

## Evaluation Board Layout

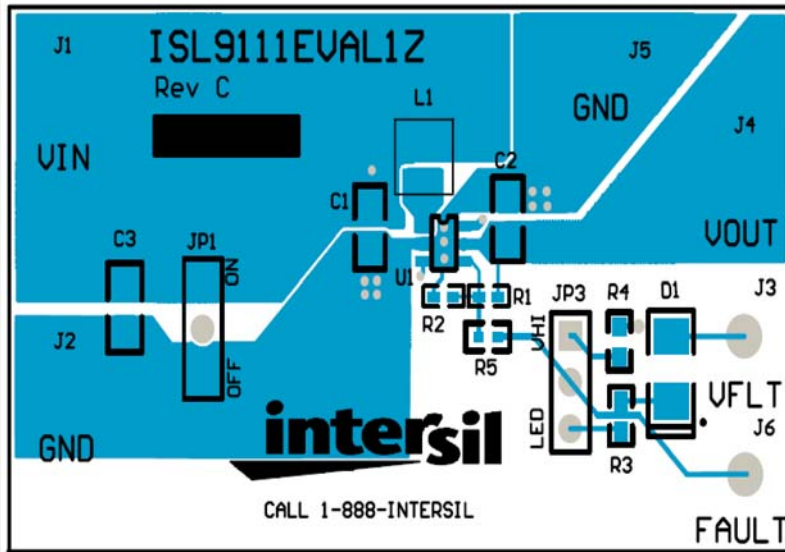


FIGURE 4. ISL9111 EVALUATION BOARD SILKSCREEN TOP

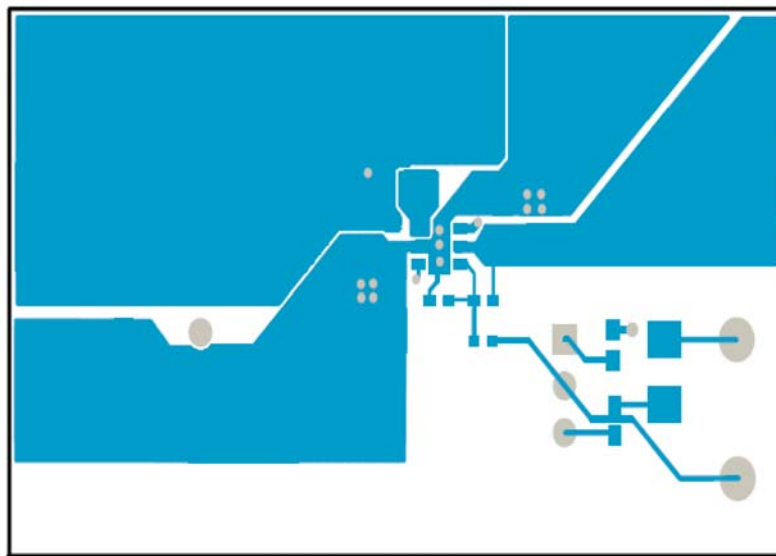


FIGURE 5. ISL9111 EVALUATION BOARD TOP COPPER

**Evaluation Board Layout** (Continued)

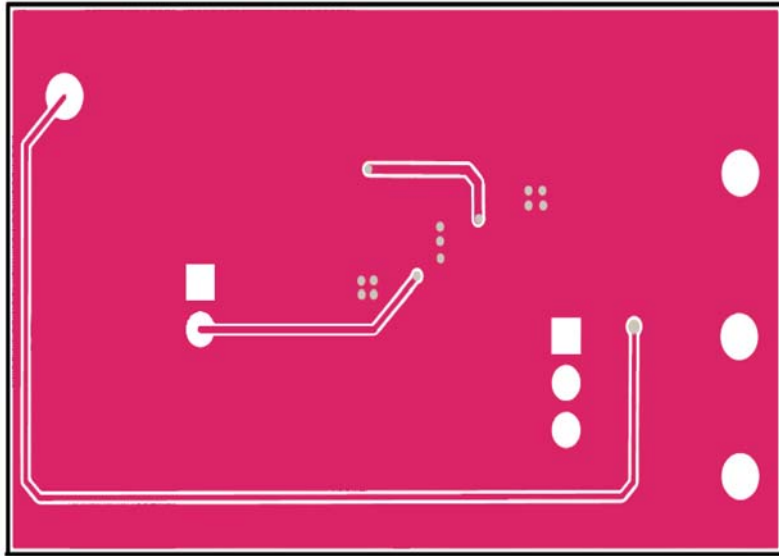


FIGURE 6. ISL9111 EVALUATION BOARD BOTTOM COPPER

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