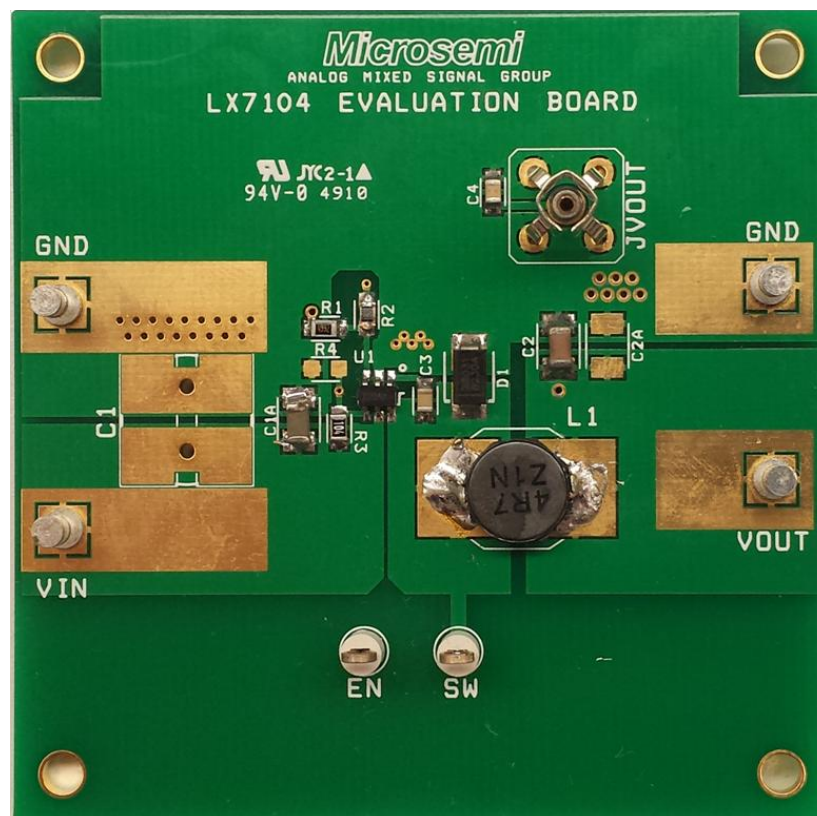




LX7104 EVALUATION BOARD USER GUIDE



LX7104 1.4MHz 1.5A Asynchronous Buck Converter

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Introduction to Product

The LX7104 is a 1.4MHz fixed frequency, current mode, PWM buck (step-down) DC-DC converter, capable of driving a 1.5A load with high efficiency, excellent line and load regulation. The device integrates a N-channel power MOSFET switch with low on-resistance. The converter accepts a wide input voltage range from 4.5V to 18V, and provides an output voltage adjustable typically from 0.81 to 15V.

Soft-start is built in, and current mode control provides fast transient response and cycle-by-cycle current limit. Short circuit protection will be triggered when current is over limit and FB is below 0.25V.

The LX7104ISF is available in SOT23-6 package.

Key Features

- Input Supply Range: 4.5V to 18V
- Output Voltage Adjustable from 0.81V to 15V
- Integrated High-Side NMOS Switch
- Current Mode Control
- Output Current: 1.5A
- Fixed 1.4MHz Frequency
- High Efficiency: Up To 92%
- Built-in Soft-start
- Built-in OV, UV & OT Protection
- Cycle-by-cycle Over Current Protection
- Short Circuit Protection
- RoHS Compliant & Halogen Free

Applications

- LCD TV's / Monitor
- DPF
- Portable DVD

Part Specific Information

IC Part Number	Description
LX7104ISF	SOT23-6L

Evaluation Board Part Number	Description
LX7104 EVALUATION BOARD	Evaluation PCB for LX7104ISF

Evaluation Board Schematic

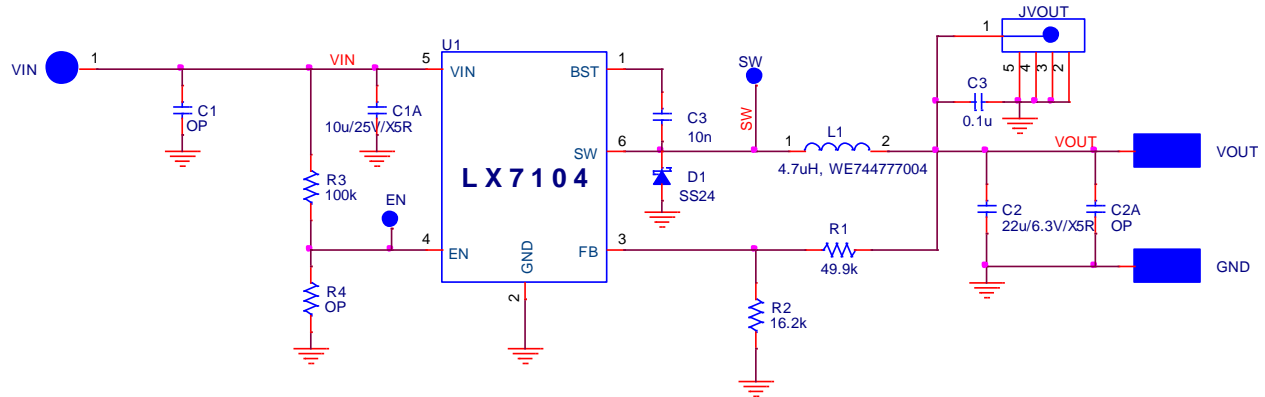


Figure 1 Schematic of LX7104 EVALUATION BOARD

Basic Connection Instructions

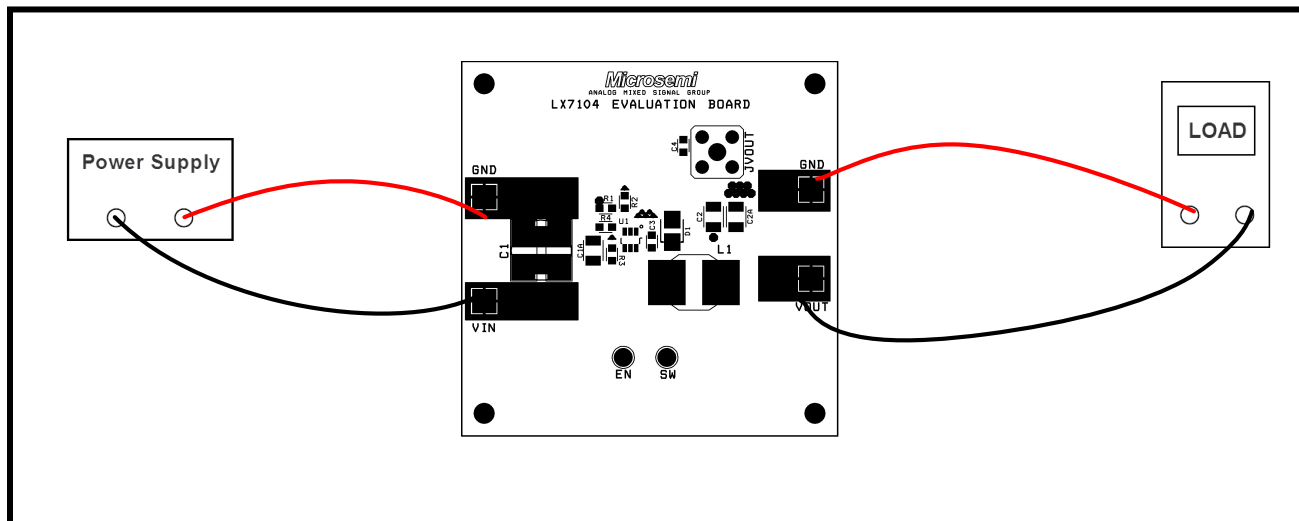


Figure 2 Power Supply and Load Connection

Board Specification

Description	Symbol	Min	Unit
		Max	
Input Voltage	VIN	12	V
Output Voltage	VOUT	3.3	V
Maximum Output Current	IOUT	1.5	A

Setting the Output Voltage

$$V_{OUT} = V_{REF} \times \left(1 + \frac{R_1}{R_2}\right), \quad V_{REF} = 0.81V$$

PCB Layout of Evaluation Board

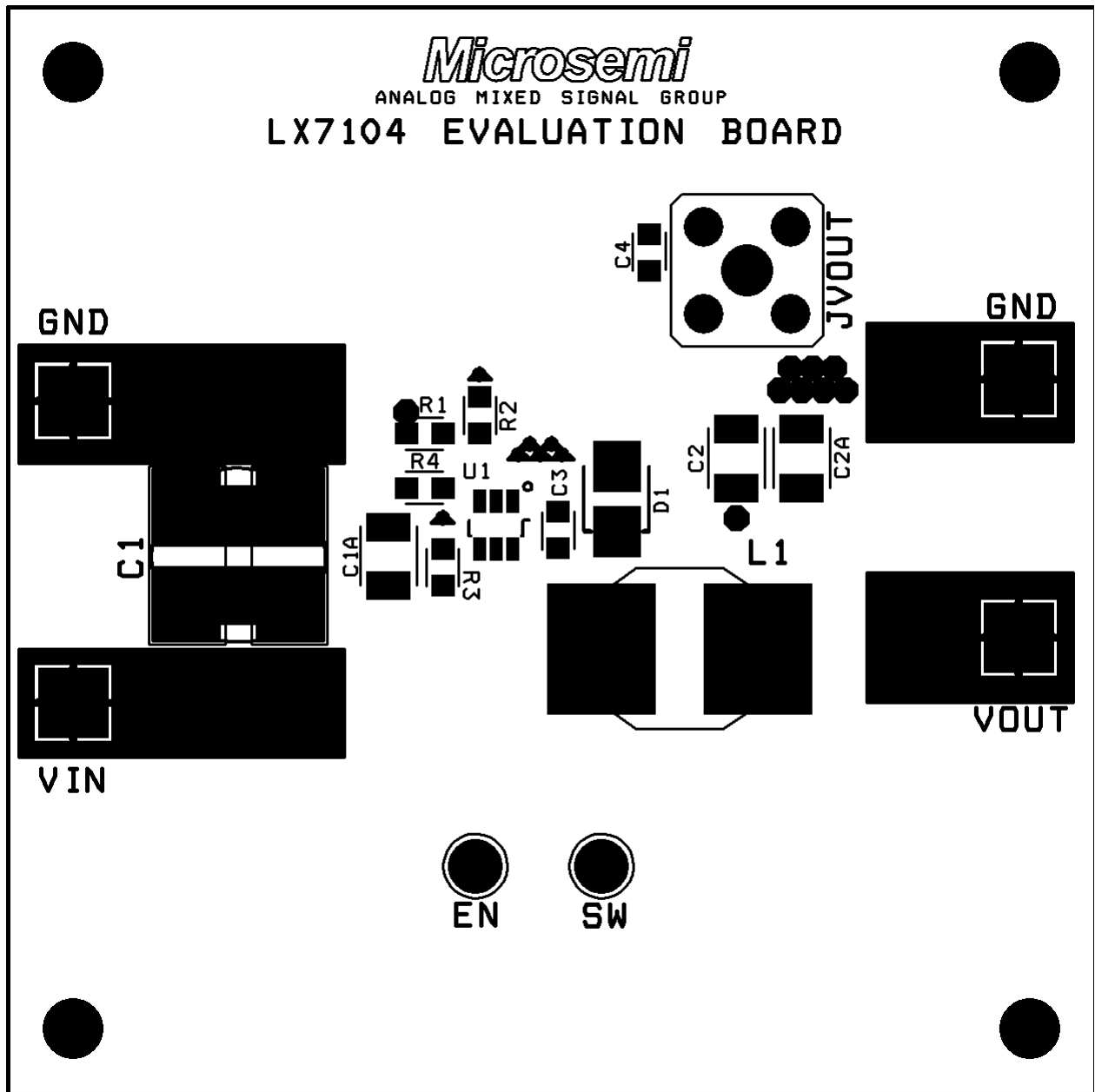


Figure 3 LX7104 EVALUATION BOARD Top Silkscreen

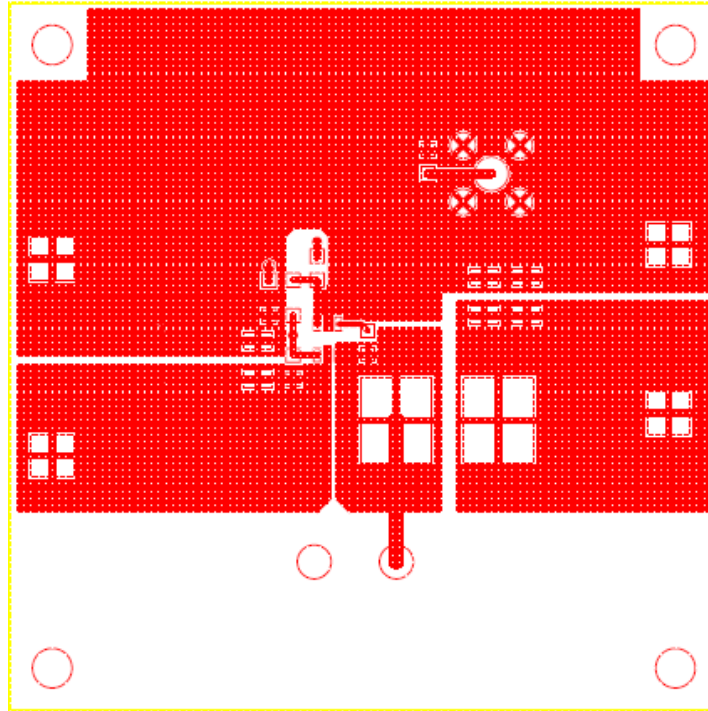


Figure 4 LX7104 EVALUATION BOARD Top Layer

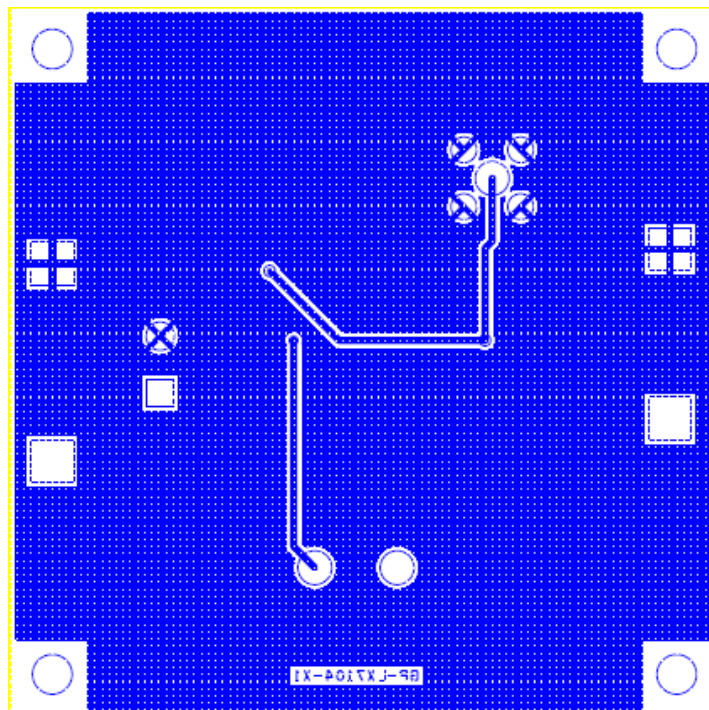


Figure 5 LX7104 EVALUATION BOARD Bottom Layer

Bill of Material

MISCELLANEOUS COMPONENTS

Item	Part Description	Reference	Qty
1	Microsemi IC – LX7104	U1	1
2	Test Point	SW, EN	2
3	Terminal	VIN, VOUT, GND, GND	4
4	Scope Test Point	JVOUT	1
5	SS24, 40V,2A Schottky Diode	D1	1

CAPACITORS

Item	Part Description	Reference	Qty
6	10uF/25V/X5R	C1A	1
7	22uF/6.3V/X5R	C2	1
8	0.01uF/6.3V/X5R	C3	1
9	0.1uF/6.3V/X5R	C4	1

RESISTORS

Item	Part Description	Reference	Qty
10	49.9kOhm,1%	R1	1
11	16.2kOhm,1%	R2	1
12	100kOhm	R3	1

INDUCTOR

Item	Part Description	Reference	Qty
13	4.7uH/CDRH8D28NP-4R7NC	L1	1

Efficiency Plot

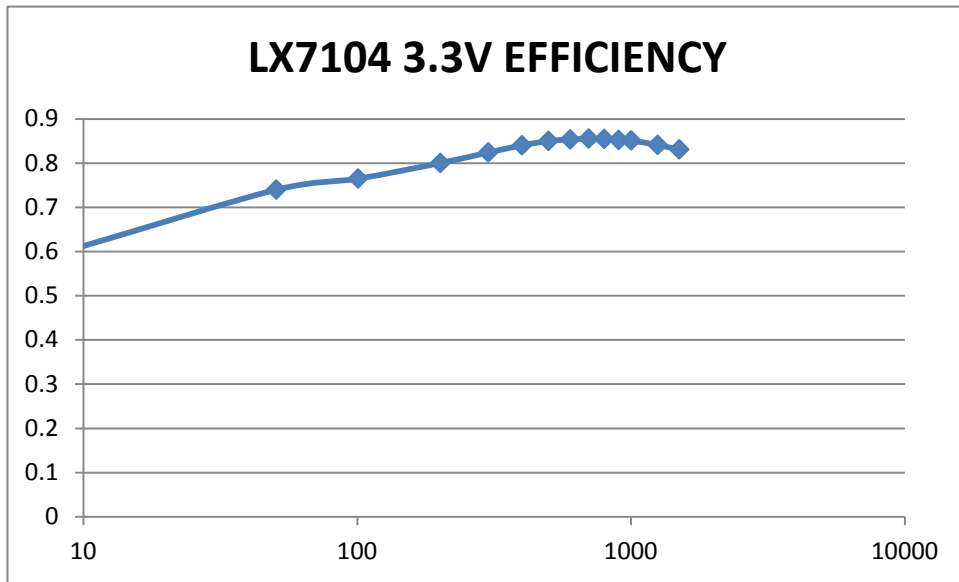


Figure 6 Efficiency Plot of LX7104

Converter operational waveform

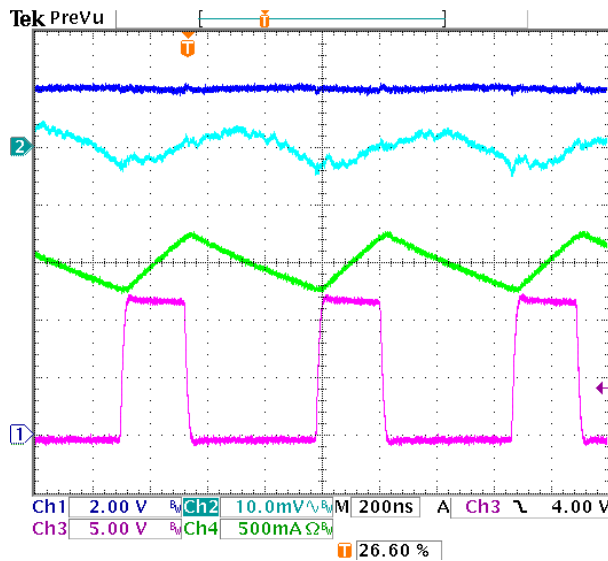


Figure 7 operation waveforms at Iout=1.5A

(CH1 VIN, CH3-VSW; CH2-V_{outAC}; CH4-Inductor Current)