1.4MHz, 1.5A Asynchronous DC-DC Buck Converter LX7104

Content:

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1. Description

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 N-channel power MOSFET switch with low on-resistance. Current mode control provides fast transient response and cycle-by-cycle current limit.

A standard series of inductors are available from several different manufacturers optimized for use with the LX7104. This feature greatly simplifies the design of switch-mode power supplies.

This IC is available in SOT23-6 package.

2. Specification

Item	Value
Supply Voltage	12V Typ.
Output Voltage	3.3V
Output Current	1.5A MAX.
Efficiency	Up to 85%

3. Schematic of the Demo Board

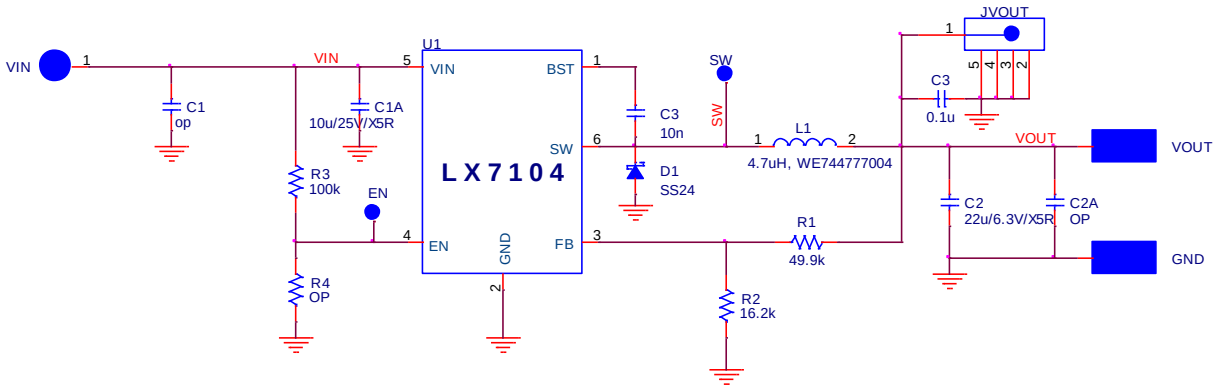

Figure 1 Schematic of the Demo Board

4. Operation

Please follow these steps to run the demo board:

1) Add 12V DC voltage to supply LX7104.
2) Add load to the output voltage.

5. BOM

Item	Quantity	Location	Part
1	1	U1	LX7104
2	1	L	4.7uH;WE744777004
3	1	CIN	10uF/25V/X5R
4	1	COUT	22uF/6.3V/X5R
5	1	R1	49.9 KΩ, 1% Precision
6	1	R2	16.2KΩ, 1% Precision
7	1	R3	100KΩ, 5% Precision
8	1	C3	10nF/25V, Ceramic X7R
9	1	D1	40V,2A; Fairchild: SS24

6. Test Result

6.1 Efficiency

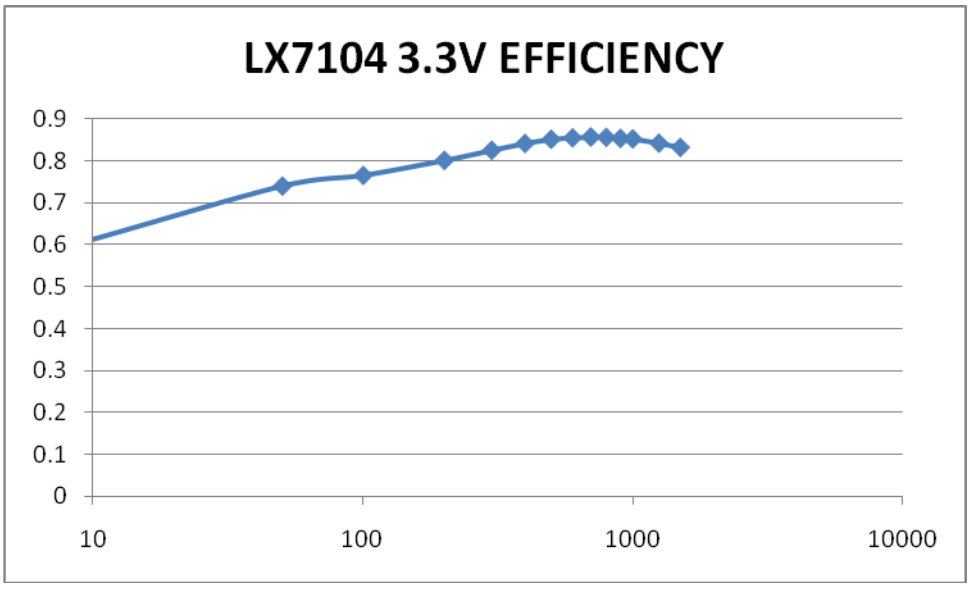

Figure 2 Efficiency vs. output current curve

6.2 Converter Operation Waveforms

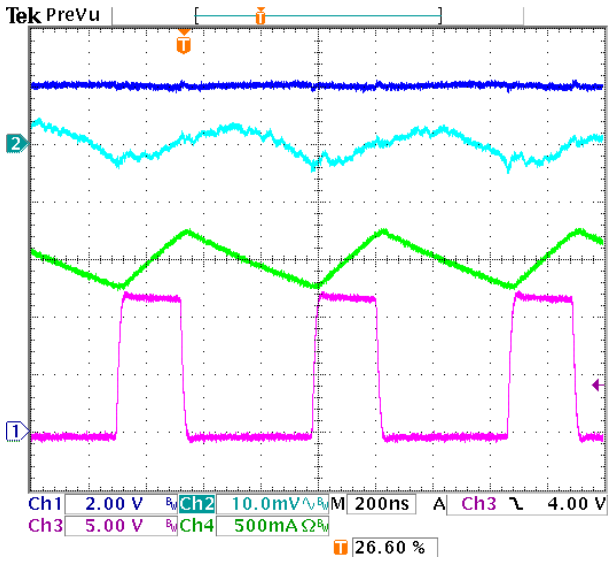

Figure 3 operation waveforms at Iout=1.5A

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