

AN-1394 LM3224 Evaluation Board

1 Introduction

The LM3224 is a step-up DC/DC converter with a $0.15\ \Omega$ (typ.), 2.45A (typ.) internal switch and pin selectable operating frequency. The LM3224 can be operated at switching frequencies of 615 kHz and 1.25 MHz allowing for easy filtering and low noise. An external compensation pin gives you flexibility in setting frequency compensation, which makes possible the use of small, low ESR ceramic capacitors at the output. An external soft-start pin allows you to control the amount of inrush current during start up.

The LM3224 evaluation board is set up for a 5 V output from an input voltage from 2.7 V to 4.2 V, or the equivalent range of a Li-Ion battery. Included on the board are two jumpers: one to select the switching frequency and one to select if the device is on or off. Both can also be controlled externally by removing the jumper. The regulator is capable of supplying up to at least 650 mA of load current down to the minimum of 2.7 V input at 1.25 MHz operation.

2 Schematic and Layout

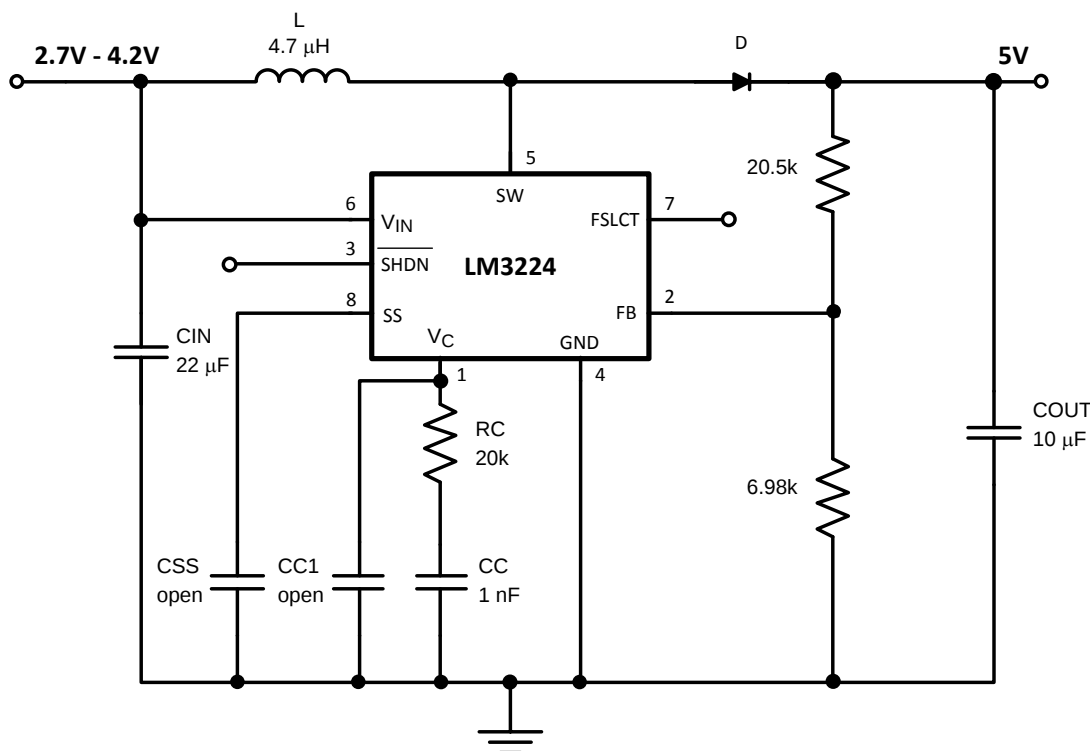


Figure 1. Schematic

3 Bill of Materials (BOM)

Table 1. Bill of Materials (BOM)

Designator	Component	Manufacturer
U1	LM3224MM, MSOP-8	Texas Instruments
L	4.7 μ H, DO3316P-472	Coilcraft, (800) 322-2645
CIN	22 μ F, JMK325BJ226MM	Taiyo Yuden, (408) 573-4150
COUT	10 μ F, TMK432BJ106MM	Taiyo Yuden, (408) 573-4150
D	2A, 40 V Schottky, MBRS240LT	On Semiconductor
RC	20k, 1206 Case, CRCW12062002F	Dale (Vishay), (402) 564-3131
CC	1 nF, 1206 Case, VJ1206A102KXAA	Vitramon (Vishay), (203) 268-6261
CC1, CSS	Open	
RFB1	20.5k, 1206 Case, CRCW12062052F	Dale (Vishay), (402) 564-3131
RFB2	6.98k, 1206 Case, CRCW12066981F	Dale (Vishay), (402) 564-3131

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