AN–1198 LM2622 Step-Up DC/DC Converter Evaluation Board

The LM2622 is a step-up converter with an adjustable switching frequency and a low-power shutdown feature. The evaluation board was designed for boosting a I-cell Li-Ion battery input voltage to a regulated output of 5 V. The board includes two jumpers: one selects whether the part is running or is in shutdown mode and the other selects a switching frequency of either 600 kHz or 1.3 MHz. The component values on the board are designed for 600 kHz operation, but will work well at 1.3 MHz. Smaller component values can generally be used if the part is operated at the higher frequency. The bill of materials is discussed in Table 1 and the schematic is shown in Figure 1.

Table 1. Bill of Materials (BOM)

Designator	Description	Manufacturer	Model Number
U1	Step-Up Regulator	Texas Instruments	LM2622
L1	Inductor (1.2A average rating)	Sumida	CDRH5D18-100NC
C_{IN2}	Input Capacitor (22 µF, 10 V rating)	Taiyo-Yuden	LMK432BJ226K
C_{OUT1}	Output Capacitor (10 µF, 16 V rating)	Taiyo-Yuden	EMK325BJ106K
D1	Output Diode	International Rectifier	15MQ040N
R_{FB1}	20.5 kΩ Feedback Resistor		
R_{FB2}	6.98 kΩ Feedback Resistor		
R_C	20 kΩ Compensation Resistor		
C_C	1 nF Compensation Resistor		

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Because of the capacitor ratings, the input to the board should always be 10V or less and the output should not be set to higher than 16V. Higher voltages (to the IC limits) may be used if higher voltage capacitors are used. A larger inductor may also be required if the input current is expected to exceed 1.2A, or if output short circuit conditions are anticipated.

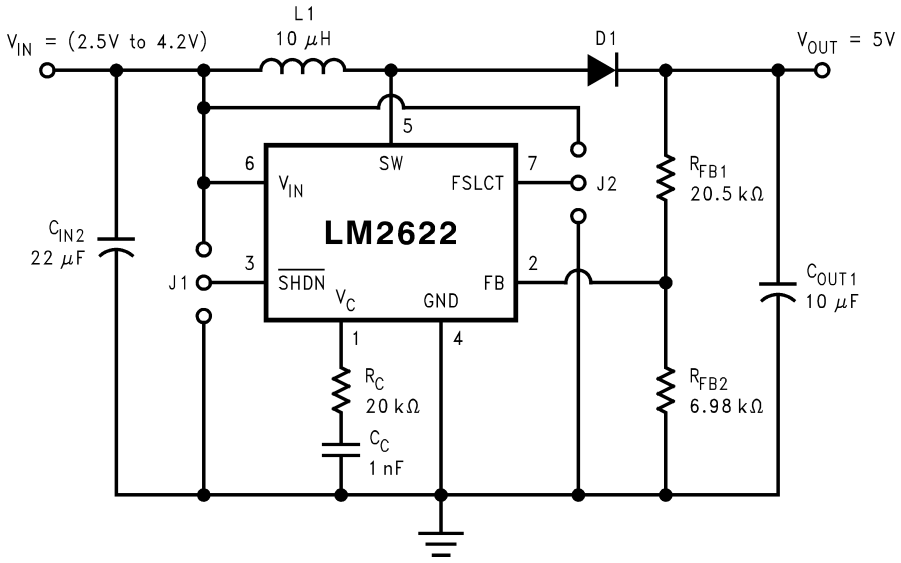


Figure 1. Schematic

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