

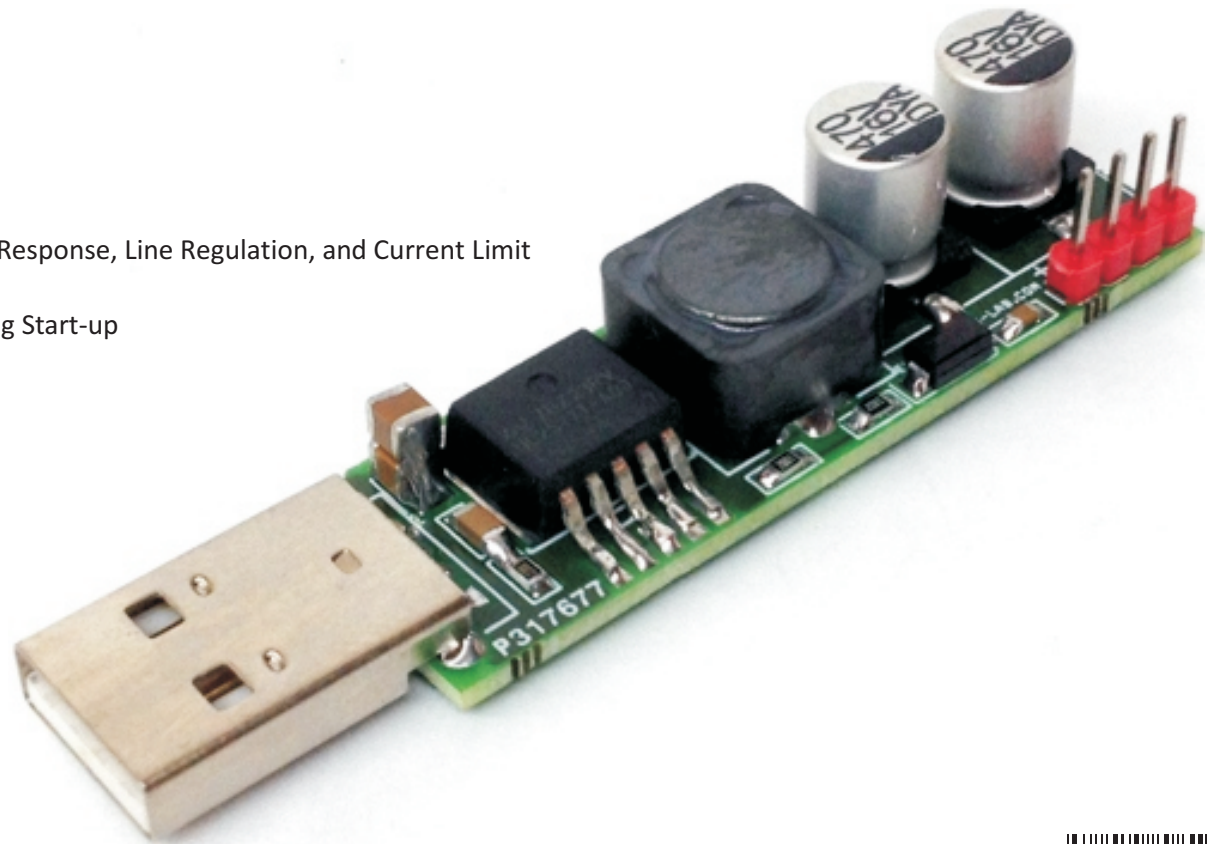
USB To 12V Boost Converter

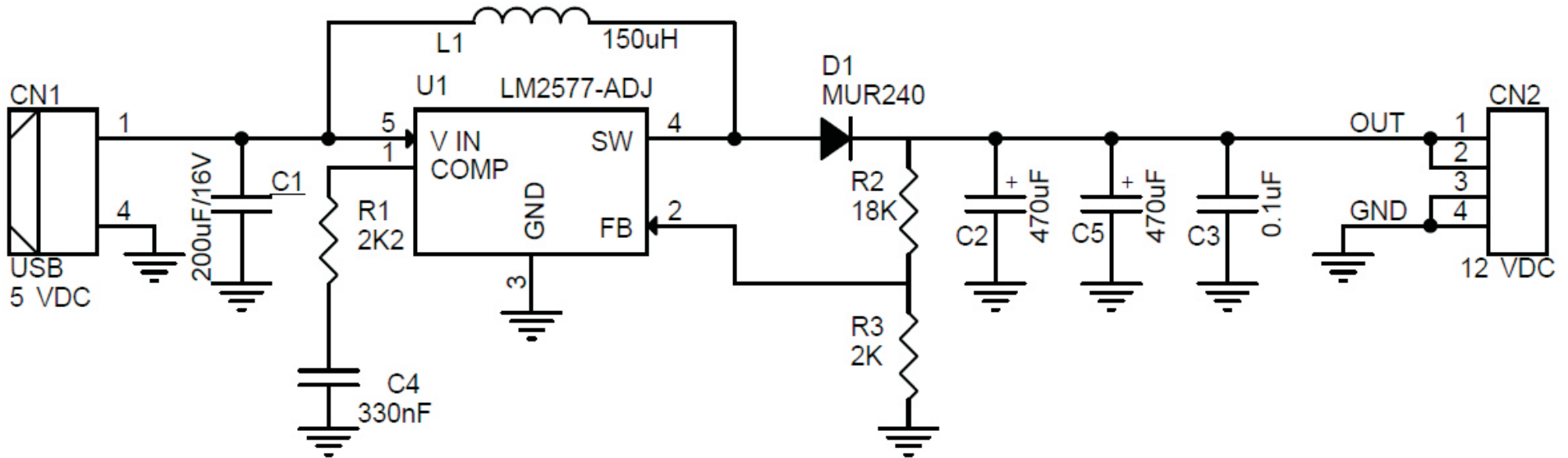
The project provides 12V output from any USB power source from PC USB port, USB adapter or power banks. LM2577ADJ boost converter IC is heart of the project. The IC can handle load up to 800mA, it's advisable to use only 200mA load on output for safer side. The LM2577 are monolithic integrated circuits that provide all of the power and control functions for step-up (boost), fly back, and forward converter switching regulators. The device is available in three different output voltage versions: 12V, 15V, and adjustable. Requiring a minimum number of external components, these regulators are cost effective, and simple to use. Listed in this data sheet are a family of standard inductors and fly back transformers designed to work with these switching regulators. Included on the chip is a 3.0A NPN switch and its associated protection circuitry, consisting of current and thermal limiting, and under voltage lockout. Other features include a 52 kHz fixed-frequency oscillator that requires no external components, a soft start mode to reduce in-rush current during start-up, and current mode control for improved rejection of input voltage and output load transients.

Default output is set to 12V output however Output Voltage is adjustable using R2 and R3 refer data sheet of LM2577ADJ for more info. Output Voltage Formula $V_{Out} = 1.23V (1 + R2/R3)$ (Read Data Sheet for more information about Inductor value, Capacitor, Feedback resistors, Output current and voltage)

Features

- Input USB 5V DC
- Output 12V DC
- Output Load 200mA (Max 800mA)
- Current-mode Operation for Improved Transient Response, Line Regulation, and Current Limit
- 52 kHz Internal Oscillator
- Soft-start Function Reduces In-rush Current During Start-up
- Output Switch Protected by Current Limit,
- Under-voltage Lockout, and Thermal Shutdown





SR.	QTY.	REF.	DESCRIPTION
1	1	CN1	2 PIN SCREW TERMINAL CONNECTOR
2	1	CN2	2 PIN SCREW TERMINAL CONNECTOR
3	1	C1	100uF X 2 (200uF) SMD1210
4	2	C2,C5	470uF/16V
5	1	C3	0.1uF SMD 0805
6	1	C4	330nF SMD 0805
7	1	D1	MUR240 SMD ON SEMI
8	1	L1	100uH SMD 12MMX12MM SMD
9	1	R1	2.2K SMD 0805
10	1	R2	18K SMD 0805
11	1	R3	2K SMD 0805
12	1	U1	LM2577-ADJ SMD

