

General Description

The AOZ1210 evaluation board is a fully assembled and tested circuit board built with the AOZ1210 buck regulator IC. It outputs a preset or adjustable voltage at up to 2A of continuous current. The evaluation board requires an input voltage from 4.5V to 27V. The output voltage is preset and can be adjusted.

The AOZ1210-EVA circuit has features like current limit, short circuit protection, input under voltage lock out, internal soft start and thermal shut down. The current mode control and integrated internal MOSFET minimize component count, board area and total cost.

The AOZ1210 comes in an SO-8 package and is rated over a -40°C to +85°C ambient temperature range.

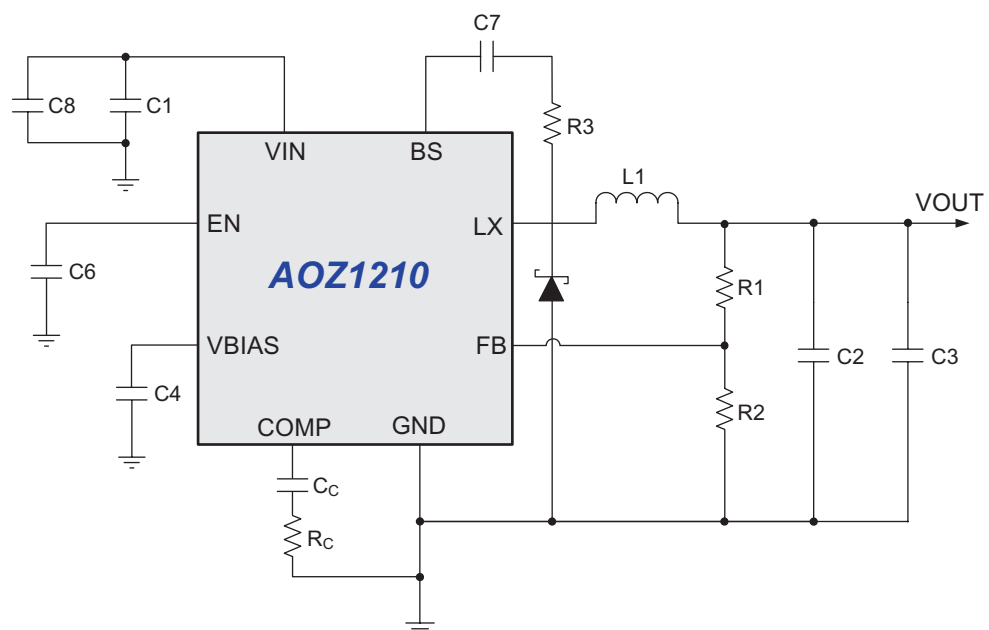
Features

- 4.5V to 27V operating input voltage range
- Output voltage is preset to 3.3V, adjustable down to 0.8V
- 2A continuous output current
- Internal soft start
- Cycle-by-cycle current limit
- Short-circuit protection
- Thermal shutdown

Applications

- Point of load DC/DC conversion
- PCIe graphics cards
- Set top boxes
- DVD drives and HDD
- LCD panels
- Cable modems
- Telecom/networking/datacom equipment

Evaluation Board Schematic



BOM of 5V/2A AOZ1210 Regulator

Ref Designation	Value	Description	Package	Manufacturer
C1	10 μ F	Ceramic Cap, 50V, X7R/X7R	1210	Murata, AVX
C2	22 μ F	Ceramic Cap, 25V, X7R/X5R	1210	
C3	22 μ F	Ceramic Cap, 25V, X7R/X5R	1210	
C4	1 μ F	Ceramic Cap, 25V, X7R/X5R	0603	
C5	NC			
C6	1 μ F	Ceramic Cap, 50V, X7R	0603	
C7	0.1 μ F	Ceramic Cap, 50V, X7R	0603	
C8	10 μ F	Ceramic Cap, 50V, X7R/X7R	1210	
C _C *	2000pF	Ceramic Cap, 50V, X7R	0603	DALE
R _C *	5k Ω	Thick Film Res, 1%	0603	
R1*	31.6k Ω	Thick Film Res, 1%	0603	
R2	10k Ω	Thick Film Res, 1%	0603	
R3	0k Ω	Thick Film Res, 1%	0603	
L1*	6.8 μ H	MSS1260		Murata
D1		40V diode, B340B-13	SMB	Diodes
U1	AOZ1210A	Buck regulator IC	SO-8	AOS

V_O is set by R1, (R2 = 10k Ω), $R1 = (10 \times V_O - 8) / 0.8k\Omega$

*Value may change for different output values.

PCB Layout

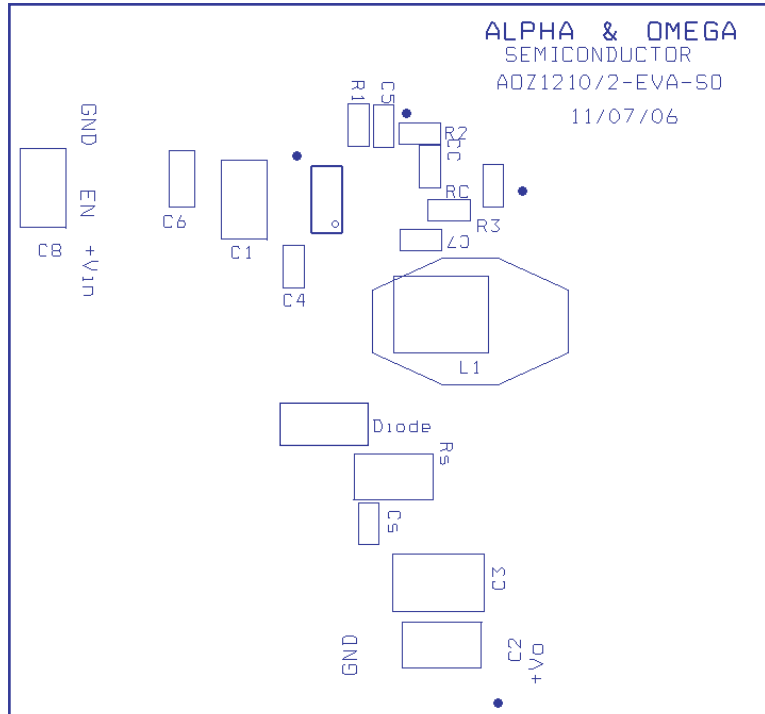


Figure 1. Top Silk Screen

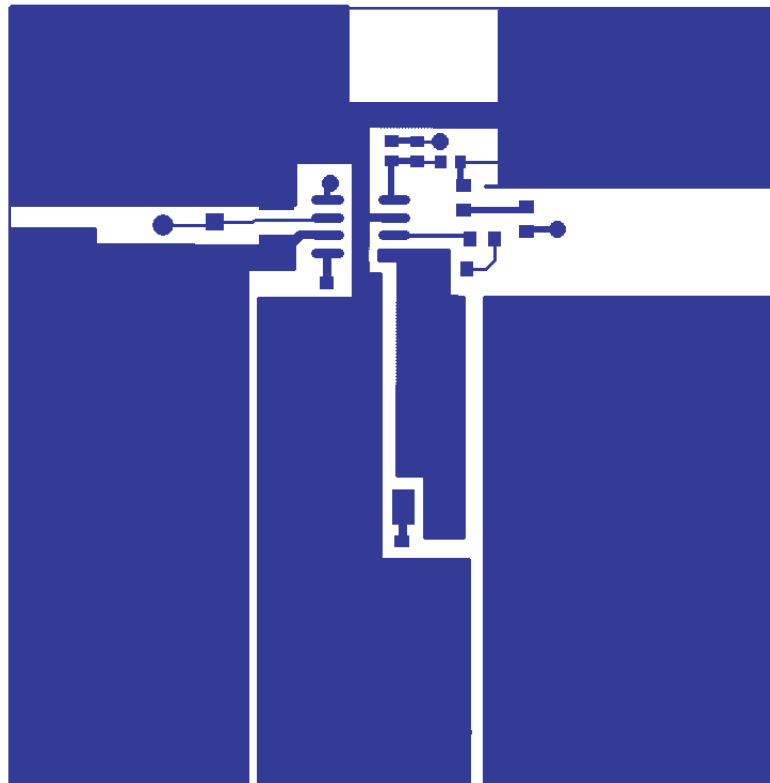


Figure 2. Top Layer

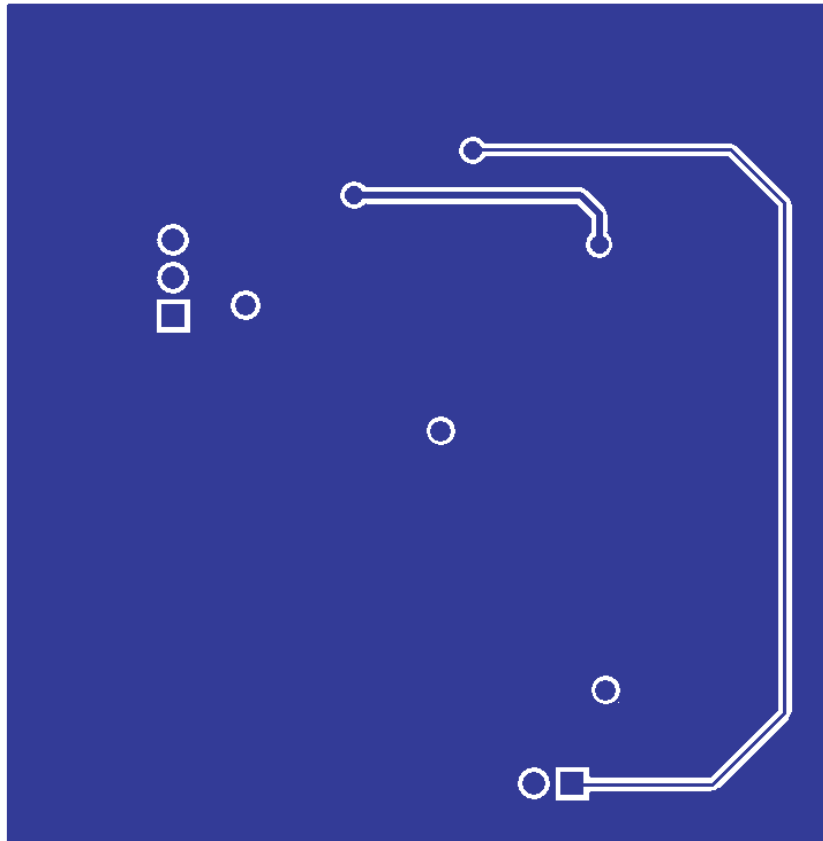


Figure 3. Bottom Layer

Quick Start Guide

1. Connect the terminals of load to +V_{OUT} pins and GND pins. Set load current to between 0A and 2A.
2. Connect the DC power supply to +V_{IN} pin and GND pins. Set DC power supply voltage to between 4.5V and 27V.
3. Connect EN pin to +V_{IN} or any voltage source which is between 2.5V and 27V.
4. Turn on DC power supply and evaluation circuit will start.
5. Measure input voltage at the +V_{IN} pin and GND pins to eliminate the effect of voltage drop on wire between DC power supply and evaluation board.
6. Measure output voltage at the +V_{OUT} pin and GND pins to eliminate the effect of the voltage drop on wire between load and evaluation board.
7. Use an oscilloscope to monitor input ripple voltage right across input capacitor C1.
8. Use an oscilloscope to monitor output ripple voltage right across output capacitor C2.

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