

LM2623A Design Document

National Semiconductor
LM2623A
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1.0 Design Specifications

Inputs	Outputs #1
VinMin=1.8 V	Vout1=3.5 V
VinMax=3.4 V	Iout1=0.65 A

2.0 Design Description

This design uses a boost topology. Specifically this circuit uses the LM2623 which is a high efficiency, general purpose, step-up DC-DC switching regulator for battery-powered and low input voltage systems. The LM2623 uses a PFM topology which provides switching until the output voltage is reached and then skips pulses to maintain the output voltage, thus inherently making the circuit very efficient.

The LM2623 provides a constant output with +/- 5% regulation. But in High brightness LEDs, it is important to regulate

the load current. The load current in the LED is regulated by using an LM321. The load current is sensed across R8 (0.15 ohm resistor). R2/R3 sets the reference point for the output load current (set to 150mV). The output load can be changed by adjusting the voltage divider.

Notes: A1 in the schematic (the LM321) is represented as U2 in the PCB layout.

3.0 Schematic

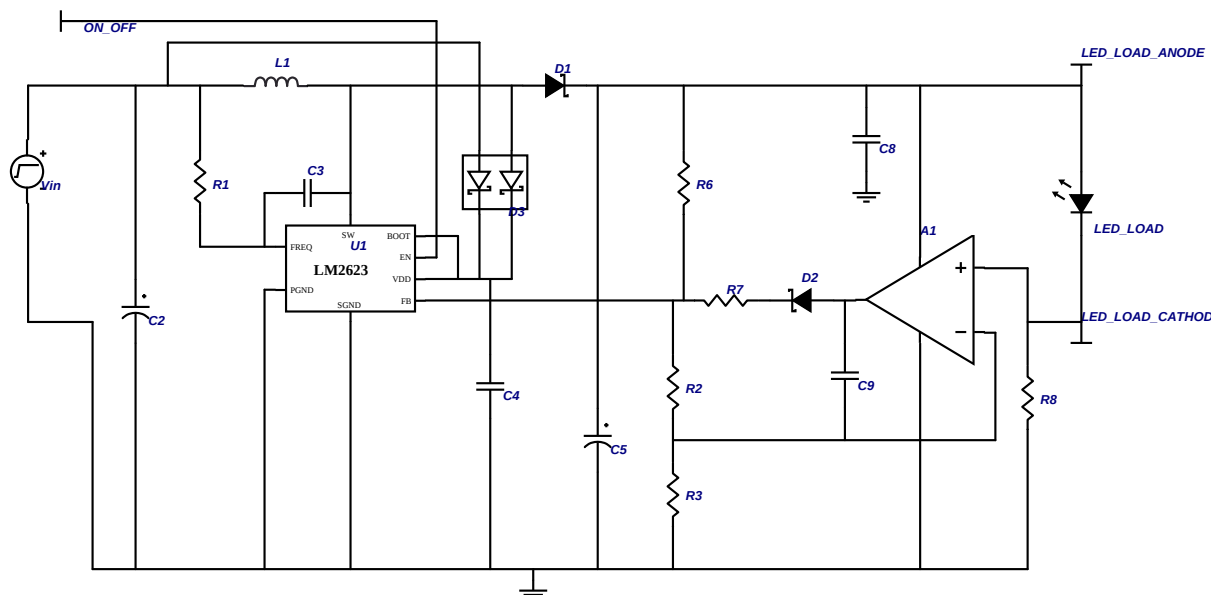
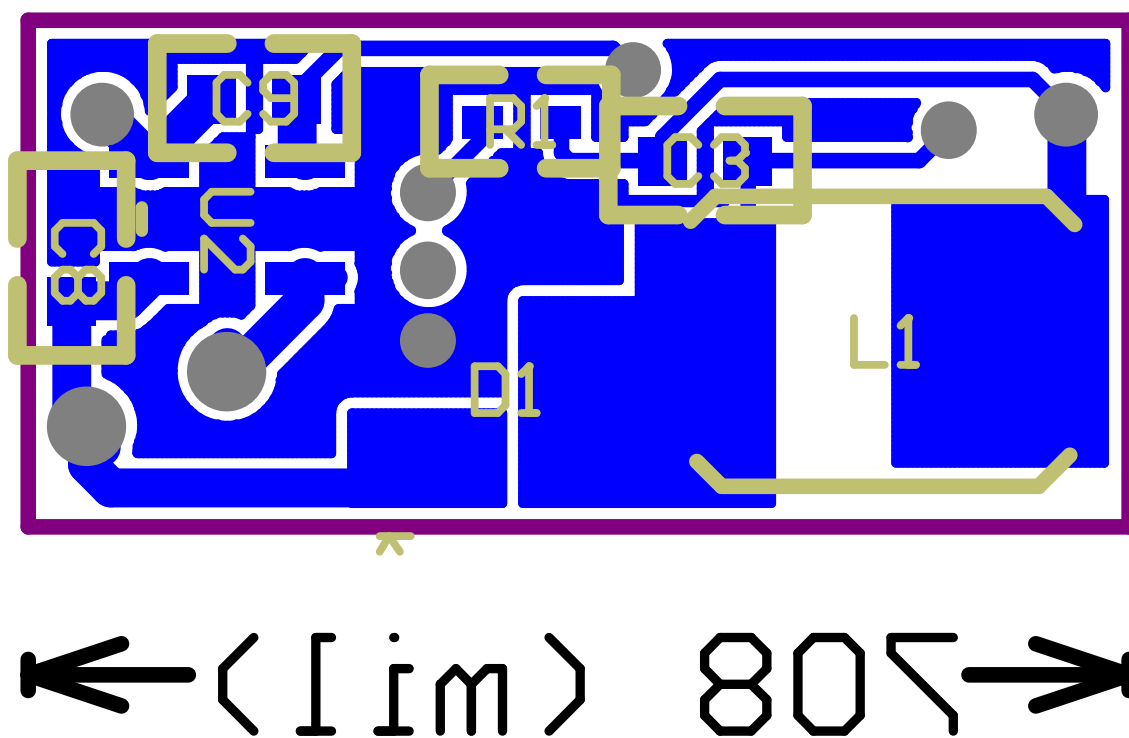


FIGURE 1. Example Schematic Showing Connection for all Components.

4.0 Bill Of Materials

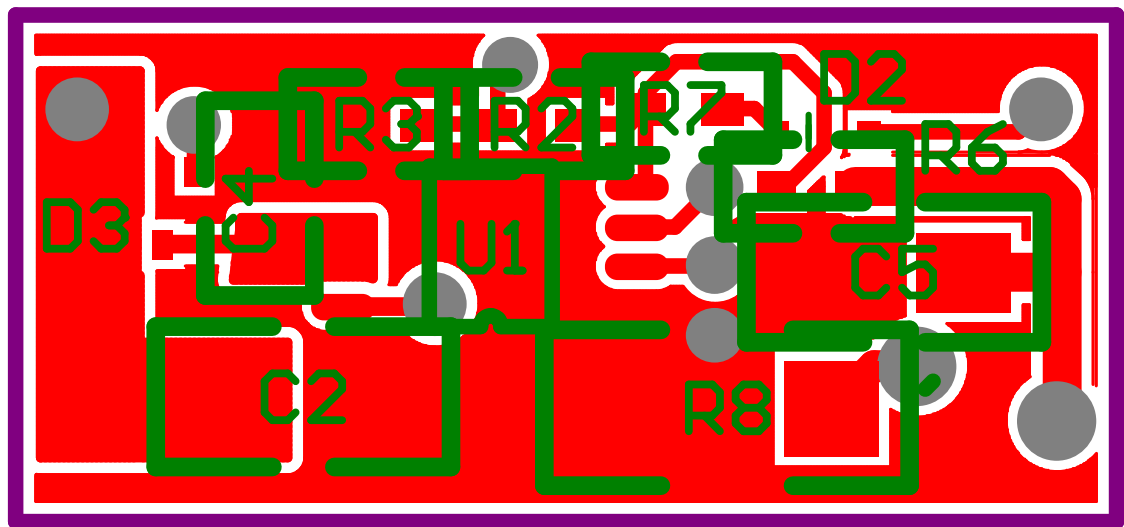
Part	Manufacturer	Part#	Attributes
A1	National Semiconductor	LMV301	
C2	TDK	C3216X5R0J476	47u F
C3	Vitramon	VJ0603C0G100GXAT	10p F
C4	Vitramon	VJ0603C0G102GXAT	0.1u F

Part	Manufacturer	Part#	Attributes
C5	TDK	C3216X5R0J476	47u F
C8	Vitramon	VJ0603C0G102GXAT	0.1u F
C9	Vitramon	VJ0603C0G102GXAT	0.1u F
D1	Diodes	DFLS120L	0.32 V
D2	Vishay	BAT54C	1 V
D3	Vishay	BAT54C	1 V
L1	Coilcraft	MSS5131-472MX	4.7u H, 0.045 Ohms
R1	Dale	CRCW0402-150K	150k Ohms
R2	Dale	CRCW0402-11.3K	11.3k Ohms
R3	Dale	CRCW0402-1.00K	1.00k Ohms
R6	Dale	CRCW0402-32.4K	32.4K Ohms
R7	Dale	CRCW0402-10.0K	10.0k Ohms
R8	Vishay	WSL0805-18 0.1	0.15 Ohms
U1	National Semiconductor	LM2623A	



PADC_NSC0498_lo_1

FIGURE 2. Board's Bottom View



←708 (mil)→

PADC_NSC0498_i0_2

FIGURE 3. Board's Top View

Notes

Notes

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