

General Description

The AP3032 is an inductor-based DC/DC boost converter designed to drive up to 4 rows of LEDs with 7 series for each in parallel for backlight.

A constant frequency 1MHz PWM control scheme is employed in this IC, which means tiny external components can be used. Specifically, 1mm tall 6.8 μ H inductor and 1 μ F aluminum output capacitor for the typical application is sufficient.

The over output voltage protection is equipped in AP3032, which protects the IC under open load condition. The AP3032 includes UVLO, soft-start, stand-by mode, current limiting and OTSD to protect the circuit under over load condition

The AP3032 is available in SOT-23-6 package.

Applications

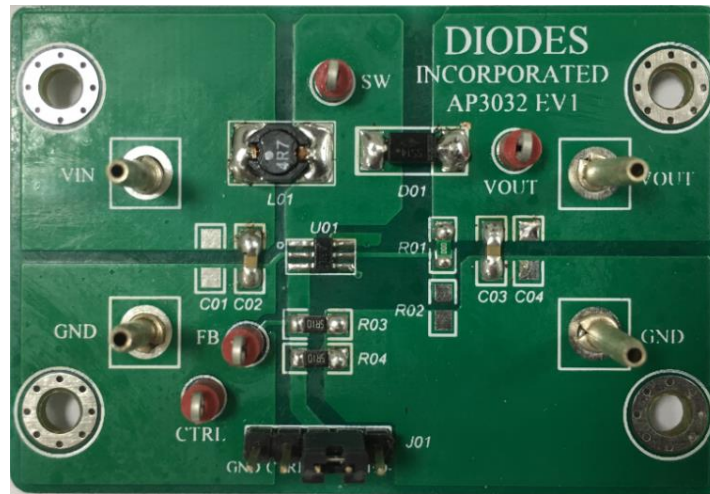
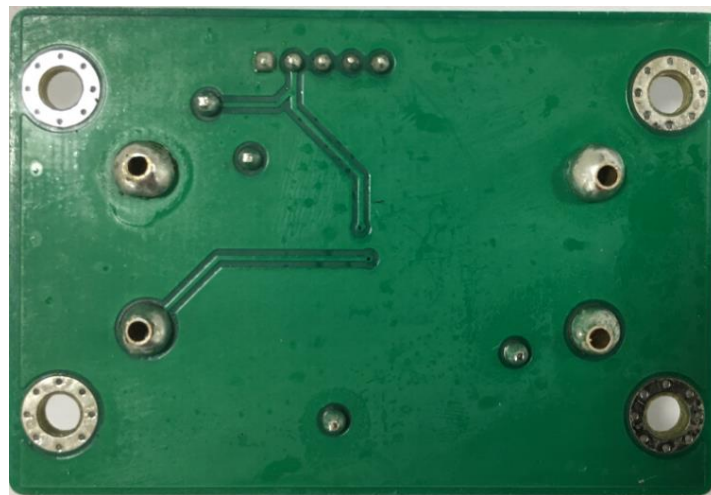
- 7' to 10' LCD Panels
- Digital Photo Frame
- GPS Receiver

Key Features

- Efficiency Up to 81% (VIN=5V, IOU=80mA)
- Drives up to 4 Rows of WLEDs with 7 Series for Each in Parallel (VIN=5V)
- Fast 1MHz Switching Frequency
- Wide Input Voltage Range: 2.7V to 9V
- Low Feedback Voltage: 200mV
- Output Over Voltage Protection
- Cycle by Cycle Current Limit: 1.4A
- Built-in Soft-start
- Built-in Standby Mode to Achieve High Frequency PWM Dimming
- Built-in Thermal Shutdown Function
- Under Voltage Lockout

AP3032EV1 Specifications

Parameter	Value
Input Voltage	5VDC Typ.
LED Current	80mA
Number of LEDs	7S4P: 7LEDs in series per string, 4strings in parallel
XY Dimension	62.5mm x 43mm

**Figure 1: Top View****Figure 2: Bottom View**

Connection Instructions

Power Supply Input: 5V_{DC} (VIN, GND)

CTRL Signal Input: 5V_{DC} (CTRL, GND)

PWM Signal Input: apply PWM signal to CTRL (CTRL, GND)

LED Outputs: connect LED anode to VOUT, connect LED cathode to LED-

Evaluation Board Schematic

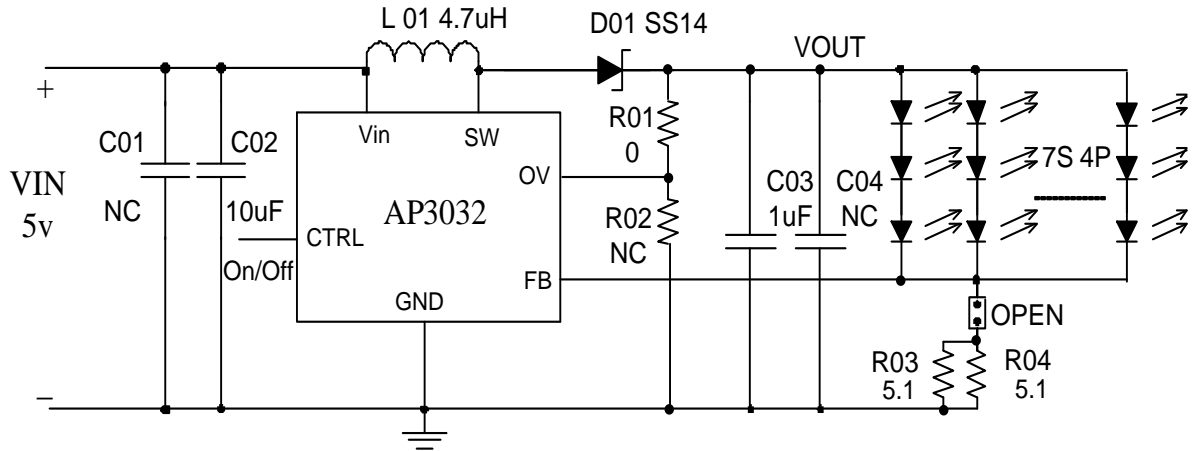


Figure 3: Evaluation Board Schematic

Evaluation Board Layout

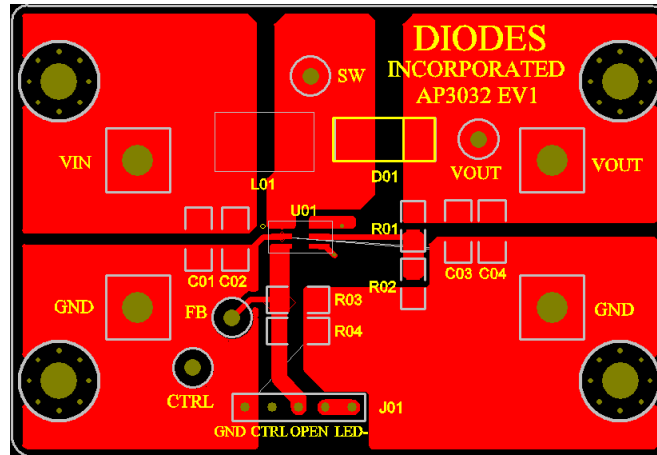


Figure 4: PCB Board Layout Top View

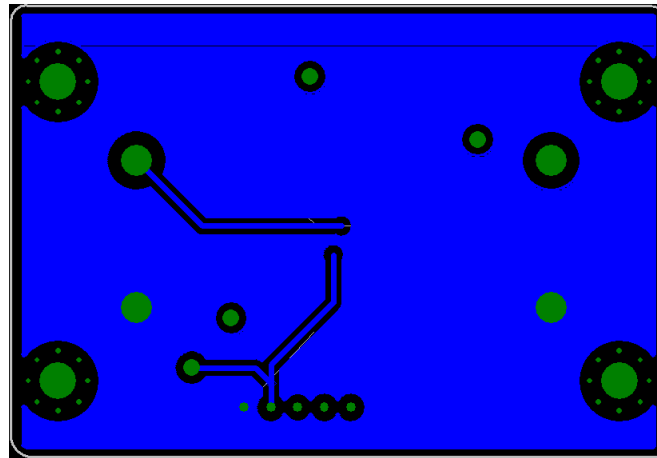


Figure 5: PCB Board Layout Bottom View

Quick Start Guide

1. By default, the evaluation board is preset at 80mA LED Current by R03 and R04..
2. Power Supply: Apply 5V_{DC} to Vin & GND pin .
3. Enable the IC: Apply 5V_{DC} to CTRL & GND pin to enable the circuit.
4. PWM Dimming: Apply a PWM signal to CTRL & GND pin to dim the LEDs.
5. LED string should light up after 2~4 steps.

Bill of Material

#	Name	Quantity	Package	Description
1	U01	1	SOT-23-6	AP3032
2	L01	1	SMD	4.7uH, TDK
3	D01	1	DO-214AC	SS14
4	C02	1	1206	10uF/25V, Ceramic X7R
5	C03	1	1206	1uF/50V, Ceramic X7R
6	R01	1	0805	0 ohm / 1% Precision
7	R03	1	1206	5.1 ohm / 1% Precision
8	R04	1	1206	5.1 ohm / 1% Precision

Functional Data Curves

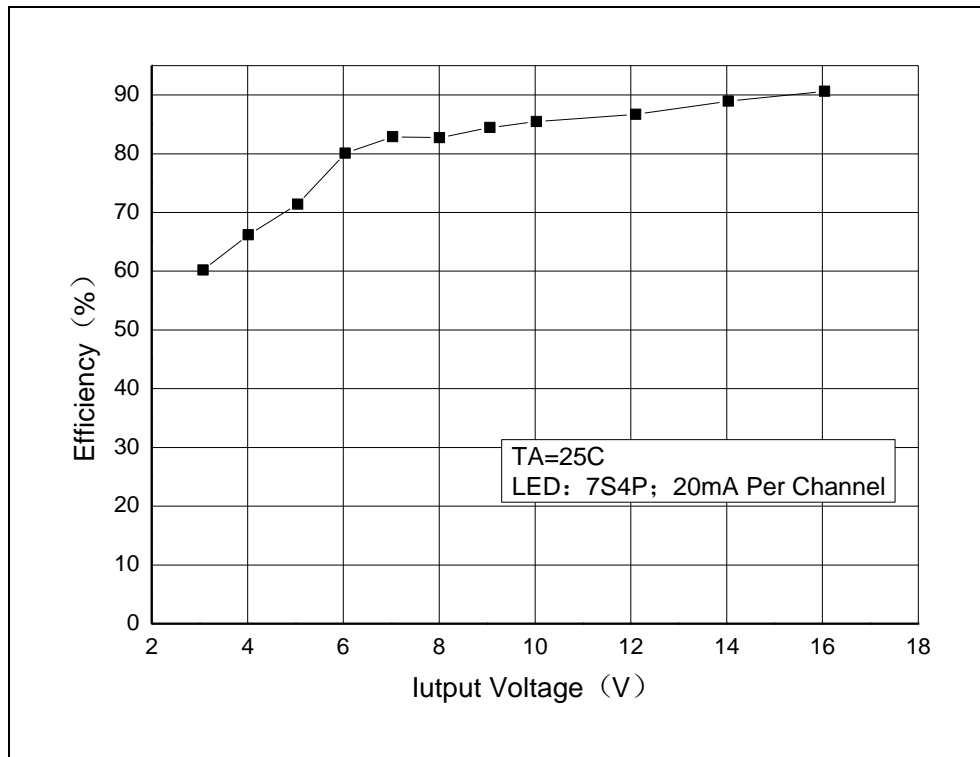


Figure 6. Efficiency vs. Input Voltage

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