

XL8001 DEMO Board manual

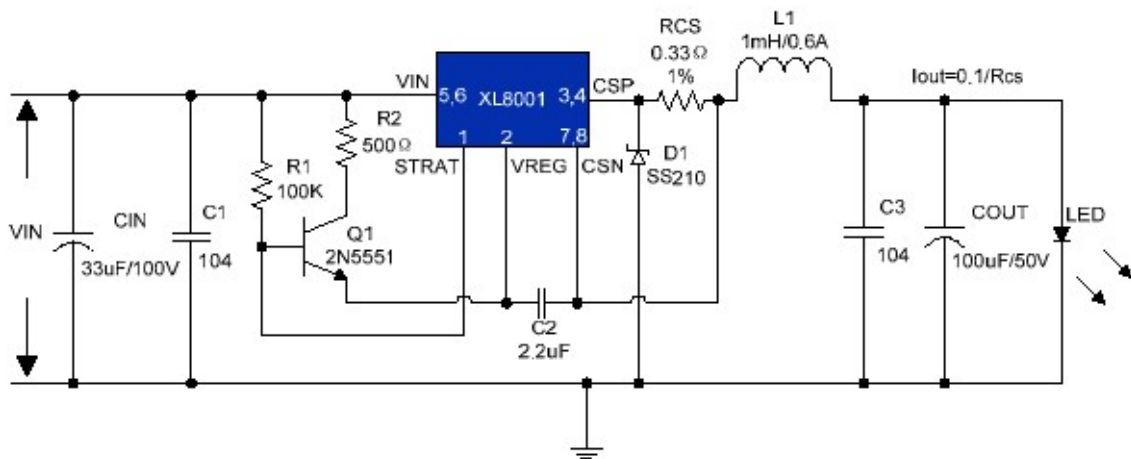
Introduction

The document describes a high efficiency LED driver designed to drive an LED driver at a current of 300 mA from an input voltage range of 12 VDC to 80 VDC, output support 1~8 series 1W LED.

The XL8001 also provides a sophisticated range of protection features including auto-restart for control loop open/short faults and output short-circuit conditions. Accurate hysteretic thermal shutdown ensures safe average PCB temperatures under all conditions. Design with very low parts count.

This document contains the converter specification, schematic, PCB diagram, bill of materials.

Schematic



XL8001 VIN=DC12V~DC80V, IOU=300mA Typical Application Circuit

Pin Description

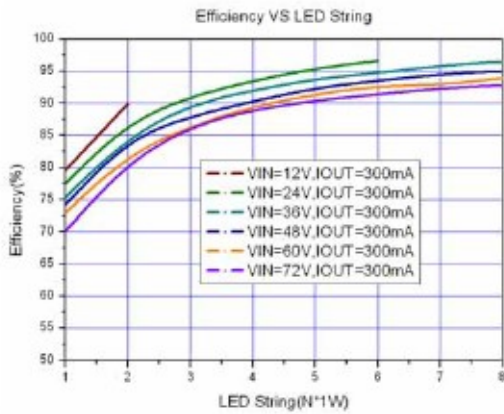
| Pin Number | Pin Name | Description |
|------------|----------|----------------------------------|
| 1 | START | Internal start up Pin. |
| 2 | VREG | Internal Voltage Regulation Pin. |
| 3,4 | CSP | Current Sense Positive Pin. |
| 5,6 | VIN | Input high voltage Pin. |
| 7,8 | CSN | Current Sense Negative Pin. |

Bill of Materials

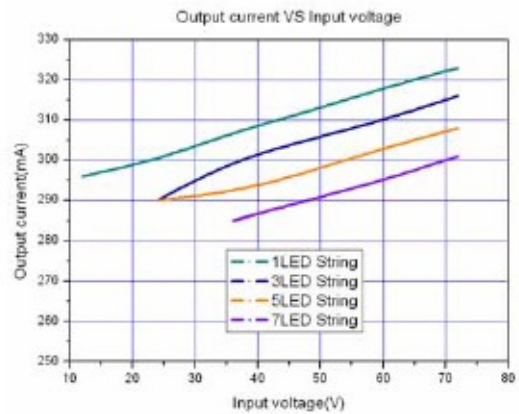
| Item | Qty | Ref Des | Description | Mfg Part Number | Mfg |
|------|-----|---------|---------------------------------|------------------|---------|
| 1 | 2 | C1,C3 | 0.1uF,100V,Ceramic,X7R,0805 | C2012X7R2A104K | TDK |
| 2 | 1 | C2 | 2.2uF,50V,Ceramic,X7R,0805 | C2012X7R1H225K | TDK |
| 3 | 1 | Cin | 33uF,100V,Electrolytic,(8x11.5) | YXA-100V-33uF | Rubycon |
| 4 | 1 | Cout | 100uF,50V,Electrolytic,(8x11.5) | YXA-50V-100uF | Rubycon |
| 5 | 1 | D1 | 100V,2A,Schottky Rectifier,SMB | SS210 | 东森微 |
| 6 | 1 | L1 | 1mH,0.6A | C12-K7.5L GA102 | Mitsumi |
| 7 | 1 | Q1 | NPN,160V,600mA,TO92 | 2N5551 | 东森微 |
| 8 | 1 | R1 | 100KΩ,1%,1/4 W,Thick Film,1206 | RC1206xR-071003L | Yageo |
| 9 | 1 | R2 | 500Ω,1%,1/4 W,Thick Film,1206 | RC1206xR-075100L | Yageo |
| 10 | 1 | RCS | 0.33Ω,1%,1/4 W,Thick Film,1206 | RL1206xR-07R330L | Yageo |
| 11 | 1 | U1 | XL8001,SOP-8L | XL8001 | 东森微 |

Performance Data

Efficiency VS Load current



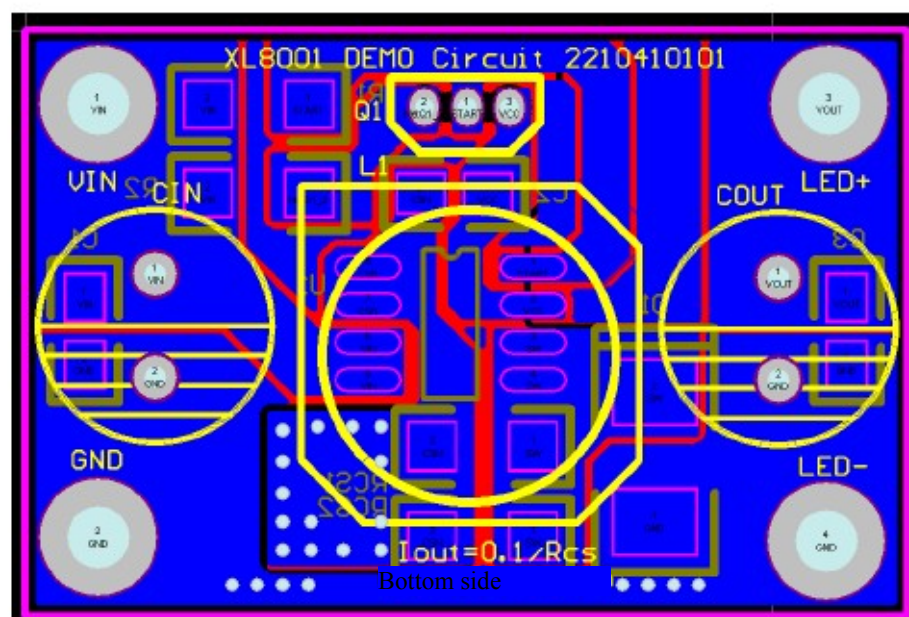
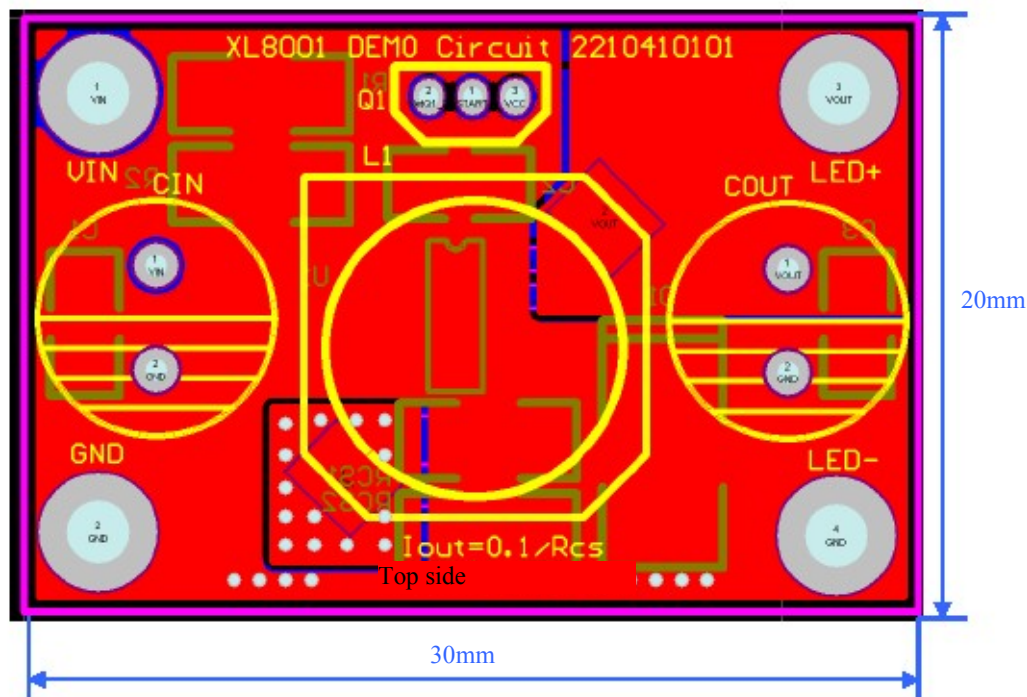
Line and Load Regulation



Populated Circuit Board Photograph



PCBLAYOUT



Note:

1. Keep feedback wiring away from inductor and schottky.
2. VIN,CSP lines must be short and ground plane construction for best results.
3. CSN lines as close as possible to Rcs.