

XL6005 DEMO Board manual

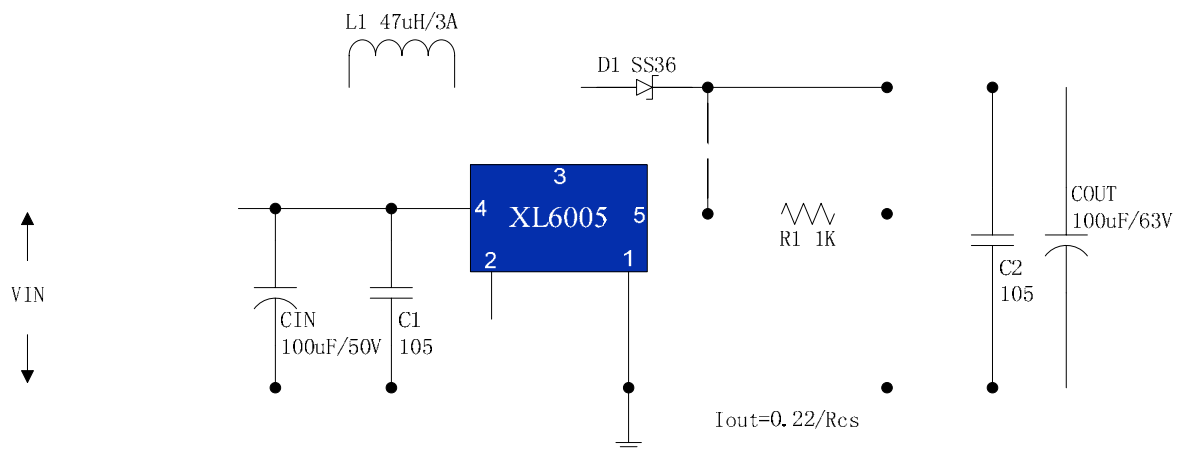
Introduction

The document describes a high efficiency LED driver designed to drive an LED driver at a current of 320 mA from an input voltage range of 5 VDC to 32 VDC, output support 2~16 series 1W LED.

The XL6005 also provides a sophisticated range of protection features including output LED open faults and soft-start function. 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, conducted EMI measurements, bill of materials and typical performance characteristics.

Schematic

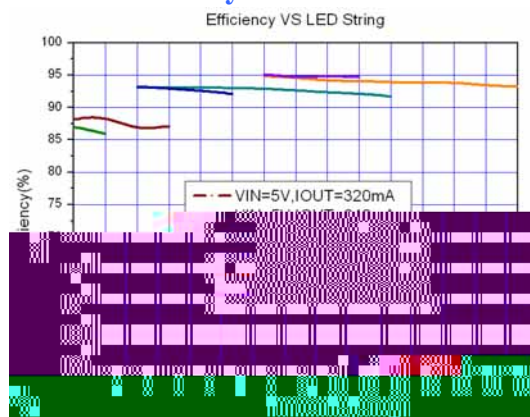


Bill of Materials

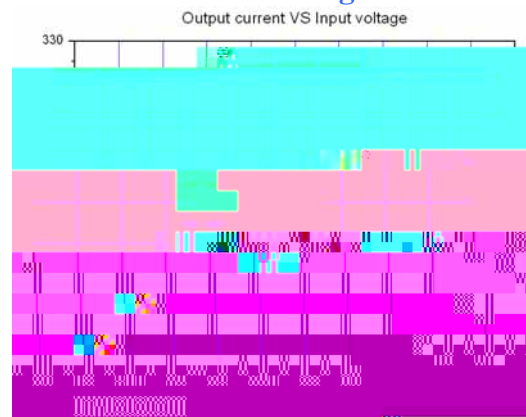
Item	Qty	Ref Des	Description	Mfg Part Number	Mfg
1	2	C1,C2	1uF,50V,Ceramic,X7R,0805	C2012X7R1H105K	TDK
2	1	C3	100uF,50V, Electrolytic, (8x11.5)	YXA-50V-100uF	Rubycon
3	1	Cin	100uF,50V, Electrolytic, (8x11.5)	YXA-50V-100uF	Rubycon
4	1	Cout	100uF,63V, Electrolytic, (8x11.5)	YXA-63V-100uF	Rubycon
5	1	D1	60V,3A,Schottky Barrier Rectifier,SMC	SS36	Fairchild
6	1	D2	56V,0.5W,Zener,MINI MELF	ZMM55C56	ICM
7	1	L1	47uH,3A,Toroidal,10*4		
8	1	L2	500uH,3A,Toroidal,10*4		
9	1	R1	1K ,1%,1/10W,Thick Film,0805	RL0805xR-071001L	Yageo
10	1	RCS	0.68 ,1%,1/4 W,Thick Film,1206	RL1206xR-07R680L	Yageo
11	1	U1	XLsemi ,XL6005, T0252-5L	XL6005	XLSEMI

Performance Data

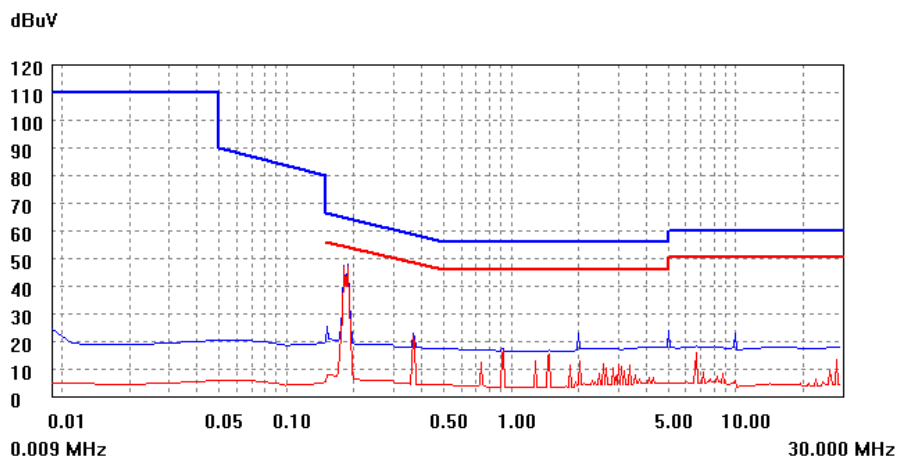
Efficiency VS Load current



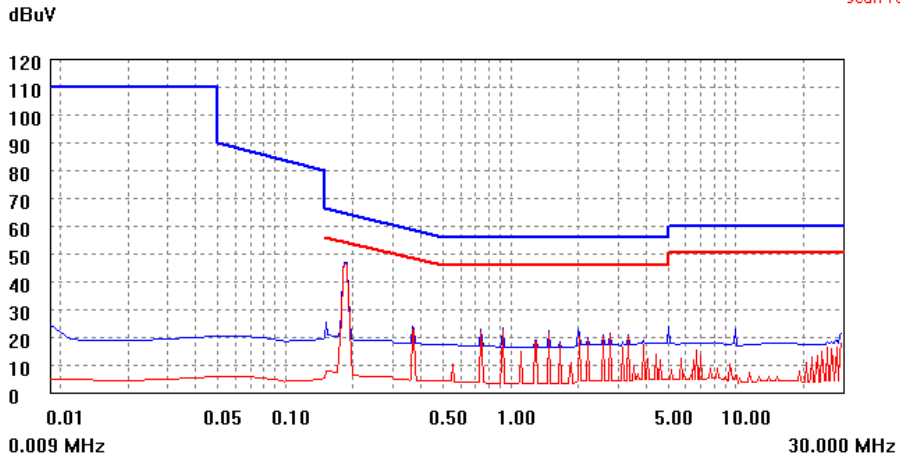
Line and Load Regulation



Conducted EMI Test Results

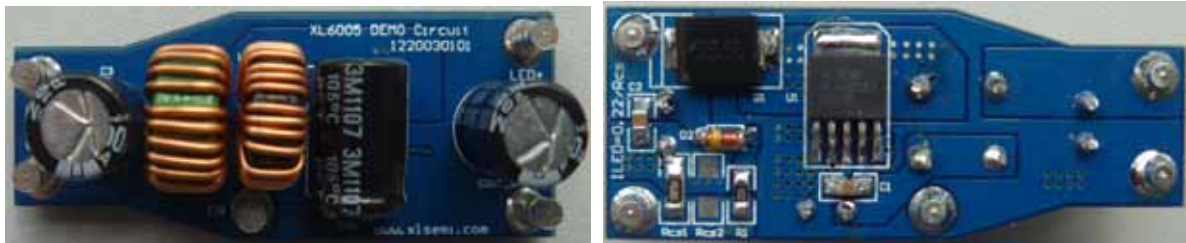


Conducted EMI, Vin=12VDC, Vout=33V, Iout=320mA, EN55015 Limits.

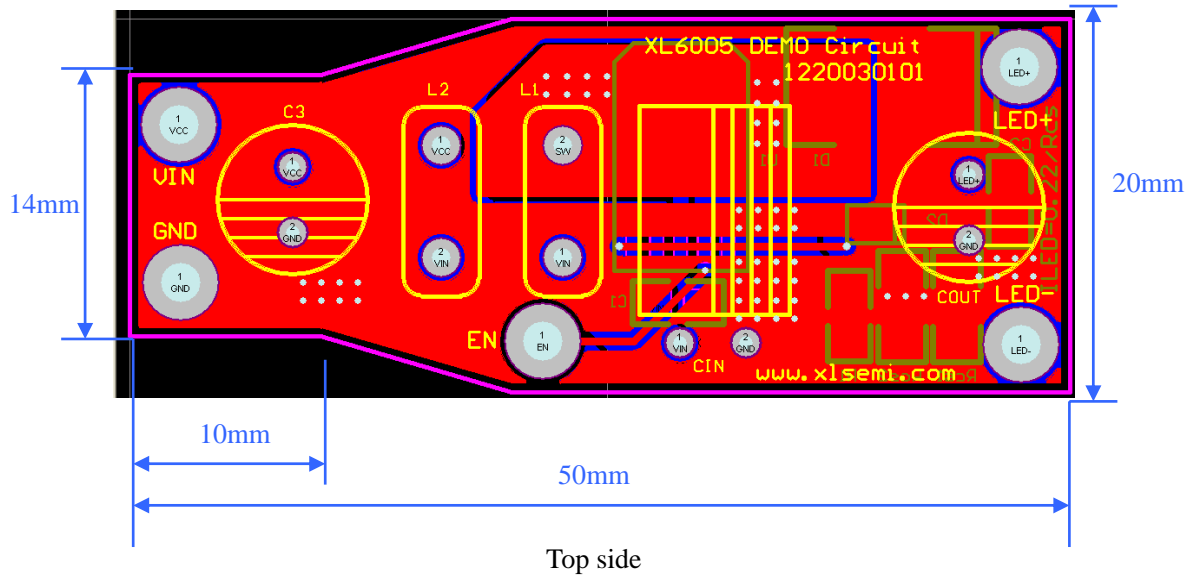


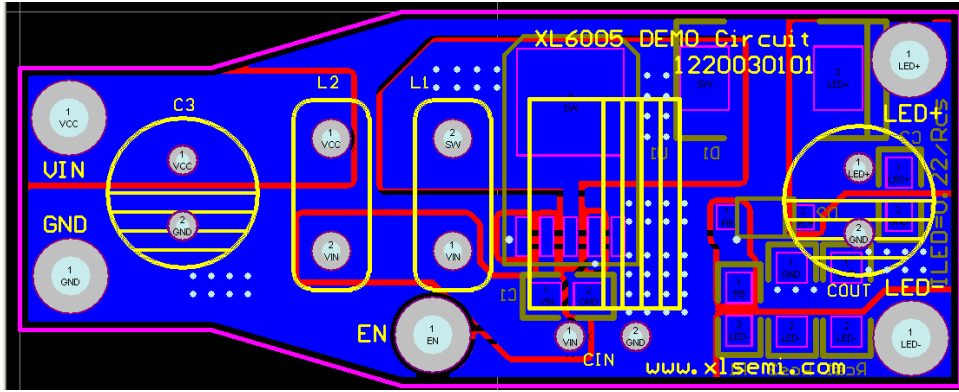
Conducted EMI, Vin=24VDC, Vout=33V, Iout=640mA, EN55015 Limits.

Populated Circuit Board Phtograph



PCBLAYOUT





Bottom side

Note :

1. Keep feedback wiring away from inductor and schottky.
2. VIN, SW, LED+, LED- lines must be short and ground plane construction for best results.