



10W LED Driver Using L4120G



Subject

L4120G 10W / 0.65A DC/DC LED Driver Demo Board Manual

Key features:

- DC Input Full Range 20Vdc~30Vdc
- DC-DC buck converter
- Efficiency 92.10%(@24Vdc)
- Short Circuit Protection and Open Loop Protection.

Revision History

Revise Date	Version	Reason/Issue
2014/7/31	A	First Issue



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1. LED Driver Demo Board Specification

1.1. Input Characteristics

- DC input voltage rating 20Vdc ~ 30Vdc
- AC input voltage range 17Vdc ~ 35Vdc

1.2. Output Characteristics

- Output voltage 9V~15V
- Typical output current 0.65A

1.3. Performance Specifications

- Maximum output power 10W
- Efficiency > 90%
- Current load regulation < ± 5%
- Current line regulation < ± 5%

1.4. Protection Function

- Short circuit protection Auto Recovery
- Open loop protection Auto Recovery

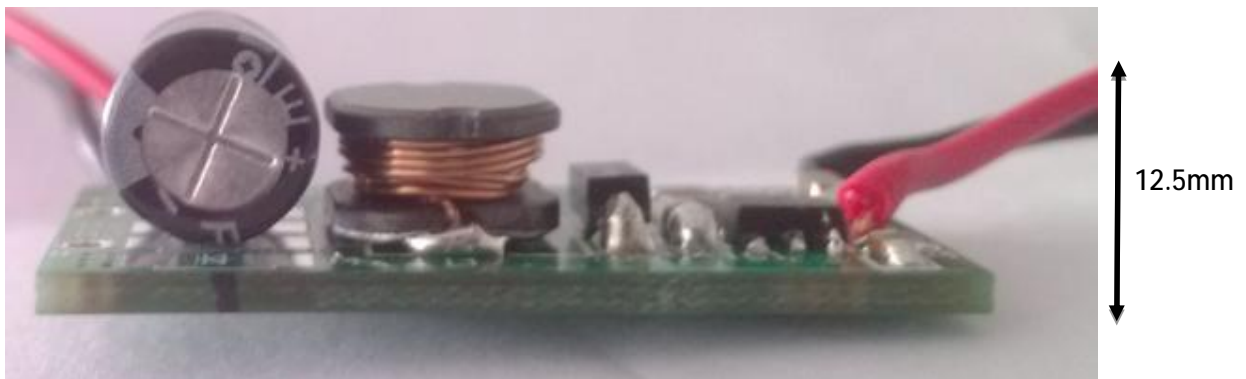
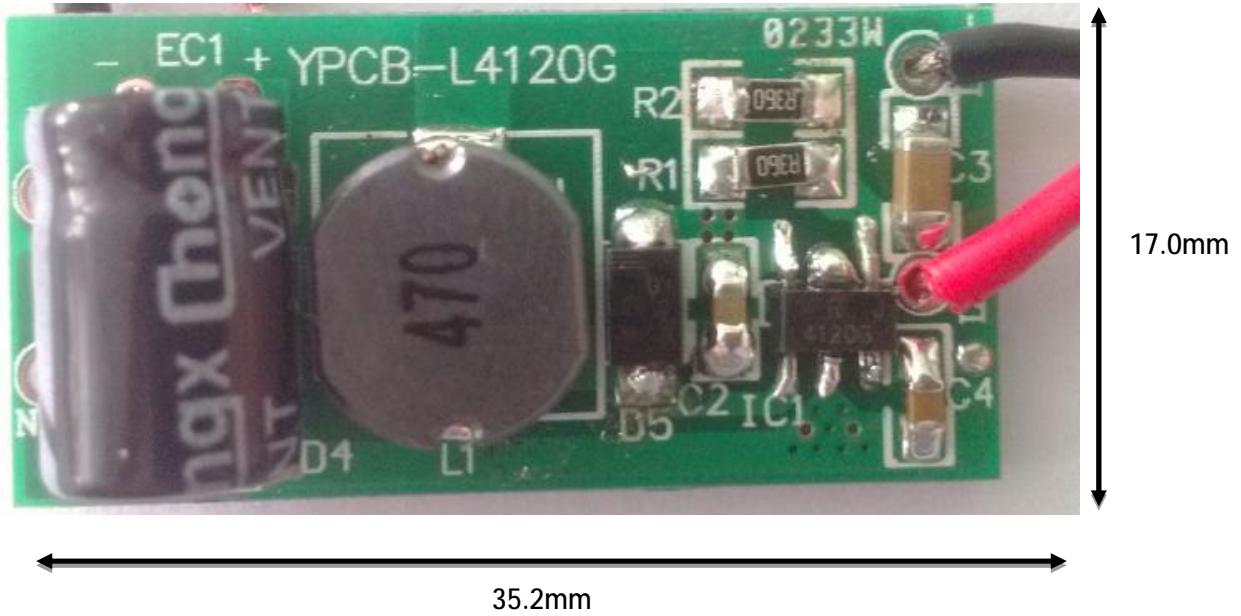
1.5. Environment

- Operation Temperature 0°C to 40 °C
- Operation Humidity 20% to 90% R.H
- Storage Temperature -40°C to 60 °C
- Storage Humidity 0% to 90% R.H



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2.3. Demo Board Snapshot



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3. Performance Evaluation

This document presented here is to describe the power module performance.
The measuring data are tested at the board end, unless otherwise specified.

The Summarized Result :

Item	Test result
1. Input Characteristics	
Efficiency (@24Vdc)	92.10%
2. Output characteristics	
Maximum Output Power	10W
Output Typical Voltage	9V~15V
Output Typical Current	0.65A
Load Regulation	+/-1.62%
Current Line Regulation	+/-1.62%
3. Protection	
Short Circuit Protection	Auto Recovery
Open Loop Protection	Auto Recovery

Test Equipment:

Item	Vendor	Model No:
1.DC Source	MATRIX	MPS-3003L-3
2.Multimeter	KEITHLEY	2000
3.Electronic load	PRODIGIT	3310



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3.1. Input Characteristics

3.1.1. Efficiency Operation at Full Load

Table 2 Efficiency :Operation at Vout as 12 V.

Input Voltage	Efficiency(%)	Spec	Result
20Vdc	92.55	>90%	PASS
22Vdc	91.93		
24Vdc	92.10		
26Vdc	91.47		
28Vdc	91.04		
30Vdc	90.58		

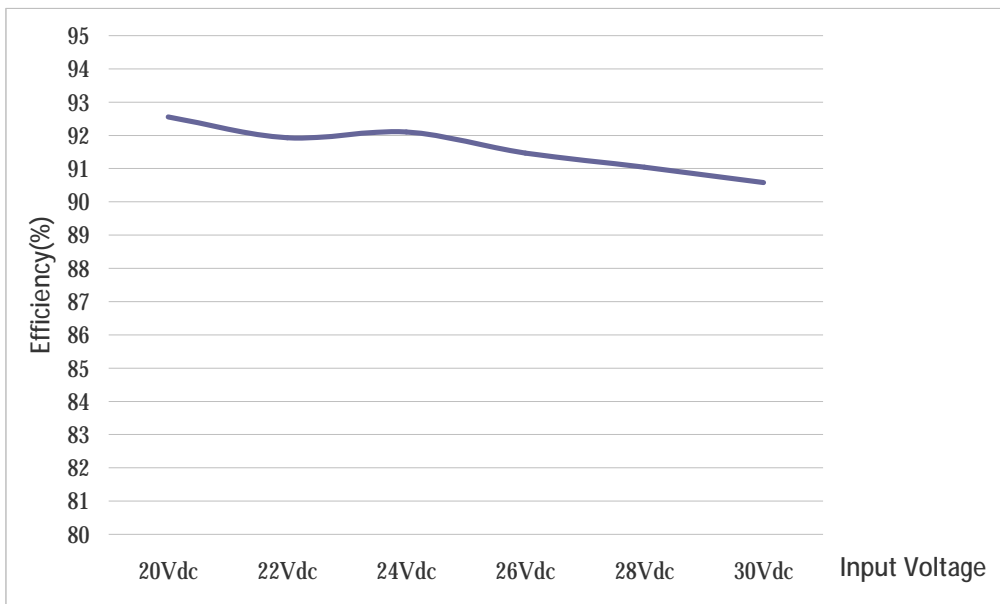


Fig.1 Efficiency V.S. Input Voltage

3.2. Output Characteristics

3.2.1. Output Current Regulation

Table 4 Line Regulation and Load Regulation

Input Voltage	Output Current(mA)			Load Regulation(%)	Spec	Result
	Vout=9V	Vout=12V	Vout=15V			
20Vdc	651	640	630	±1.62	<5%	PASS
22Vdc	655	644	634	±1.62		
24Vdc	658	648	638	±1.54		
26Vdc	663	653	642	±1.62		
28Vdc	667	657	647	±1.54		
30Vdc	670	661	651	±1.46		
Line Regulation(%)	±1.46	±1.62	±1.62			



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3.3 DC Voltage Dimming and Pulsed Dim

Wide dimming range from 30% up to 100% with DC voltage (0.3V~1.2V) dimming or a wide range of pulsed dimming.

3.4. Protection

3.4.1. Open Loop Protection

When LED connection is opened , the Output will be limited to Input. Once the condition is removed, and the power will be back to normal output Voltage .

3.4.2. Short Circuit Protection

When Short Circuit Protection condition is removed and the power automatically recover

