iWatt Solutions for White LED Driver

26 Mar ’08

LED LAMP




1W-3W




3W-5W



5W-20W

General Requirement For WLED Driver

a) Line isolation & Hi-pot test – Meet IEC60968&IEC61347

b) Tight CC Regulation – Accuracy between +/- (5 – 10)%

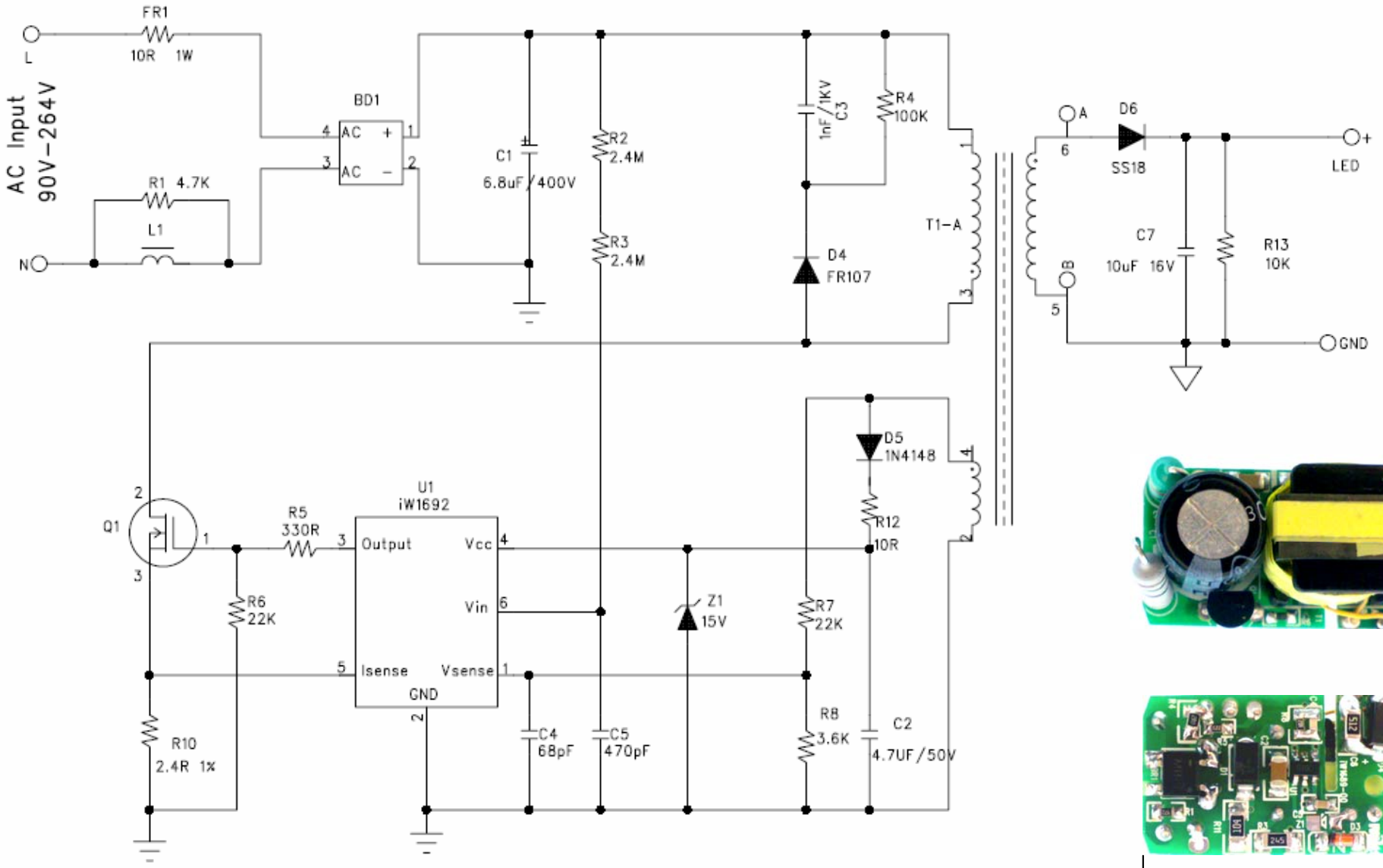
c) High Efficiency - Typical 65% min for 1W

d) Size and Part count – Minimum and Smallest

e) Protections – Line UV, OV, Output Short / Open

f) EMC requirement – Meet EN55015B (QP & AV scan)

iWATT solution for white LED driver (CC @ +/-5%)

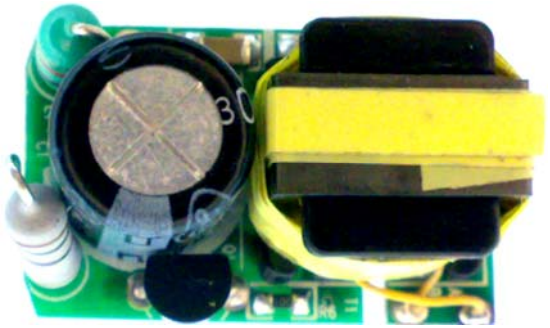


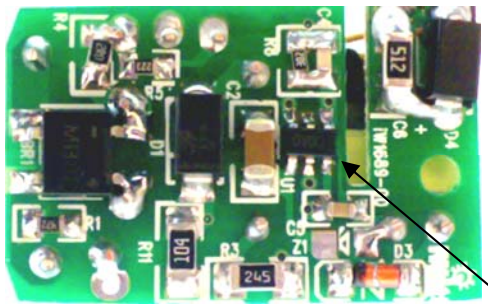
Isolated WLED Driver using iW1689/iW1692 (1W~3W)

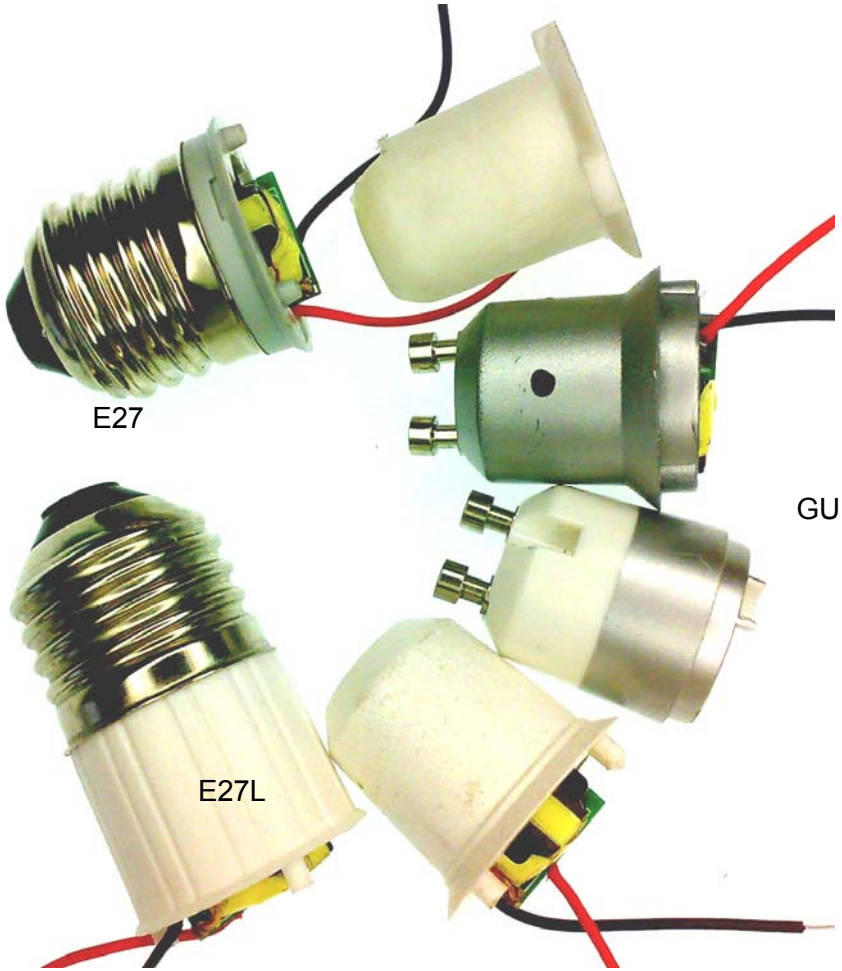
1W LED - 5V 350mA

3W LED - 5V 700mA

3x1W LED - 12V 350mA







Different PCB designs also available for matting with different Lamp housings

LED Driver Solution With iW1689/iW1692 For 1W-3W

a) Line isolation

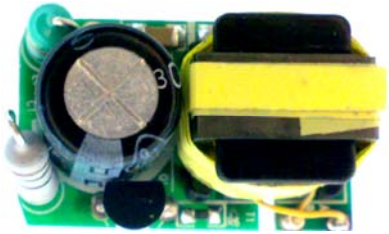
b) CC Regulation – Accuracy between +/- (5 – 15)%

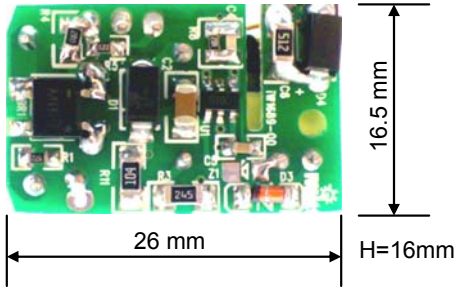
c) Efficiency - Typical 65% min@3.5V700mA

d) Part count – less than 24

e) Protections – Line UV, OV, Output Short / Open

f) EMI and EMC requirement – Meet EN55015B (QP & AV scan)





Demo and solutions for

1pcs 1W LED 3.5V350mA η =65%

1pcs 3W LED 3.5V700mA η=65%

3pcs 1W LED 10.5V350mA η=69%

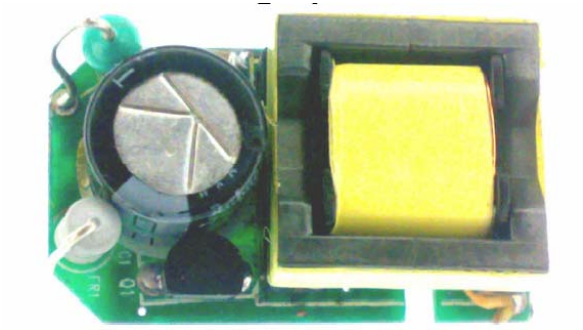
1W-3W LED Lamp Driver – for GU10 E27 housing_ With iW1692

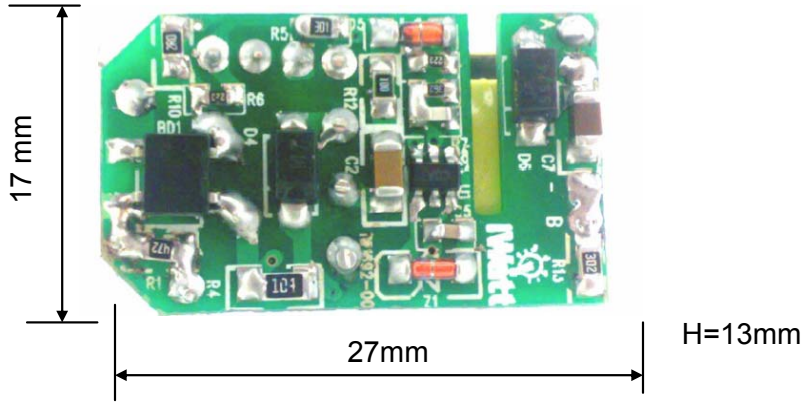
a) Line isolation

b) CC Regulation – Accuracy between +/- (5 – 5)%

c) EFD15 transformer for low profile

d) Protections – Line UV, OV, Output Short / Open





Demo and solutions for

1pcs 1W LED 3.5V350mA η =65%

1pcs 3W LED 3.5V700mA η=65%

3pcs 1W LED 10.5V350mA η=75%

GU10

E27

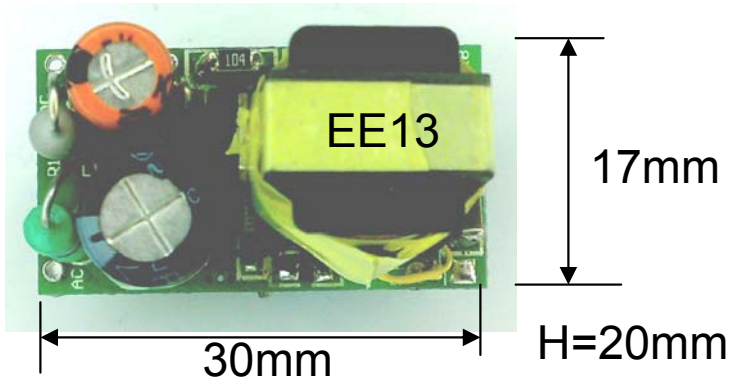
3W-6W LED Driver –With iW1692

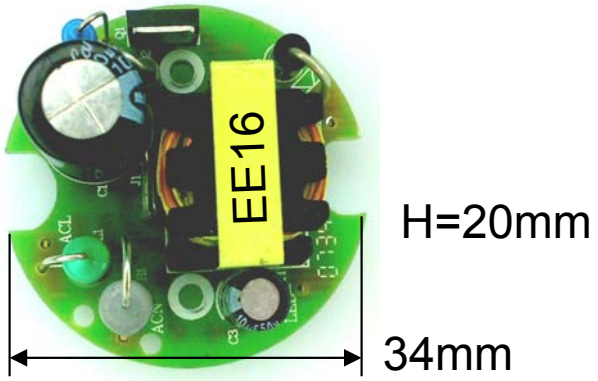
a) None- isolation design

b) CC Regulation – Accuracy between +/- (5 – 5)%

c) EE13 or RM6 transformer for small profile

d) Protections – Line UV, OV, Output Short / Open

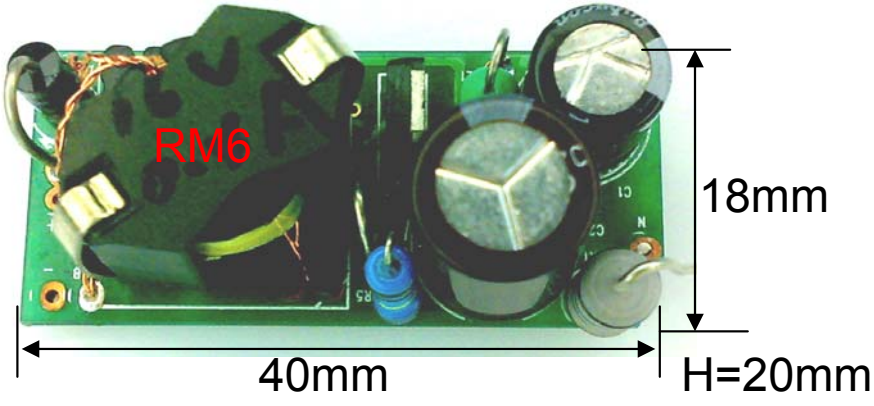




Demo and solutions:

5pcs 1W LED 16V300mA η=73%

5pcs 3W LED 16V450mA η=80%



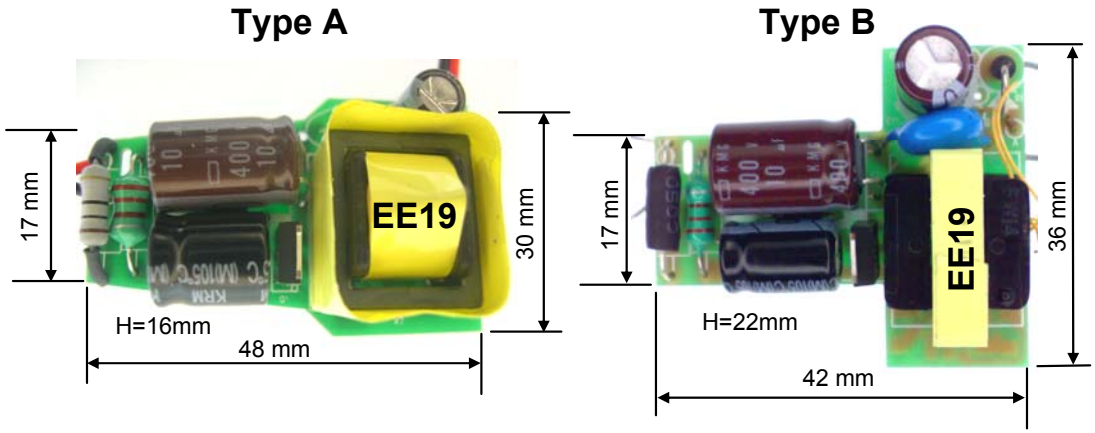
iW1692 Solution For LED Driver (5W~9W)

a) Line isolation

b) CC Regulation – Accuracy between +/- (5 – 5)%

c) Single side PCB design for low cost

d) Protections – Line UV, OV, Output Short / Open



Demo and solutions:

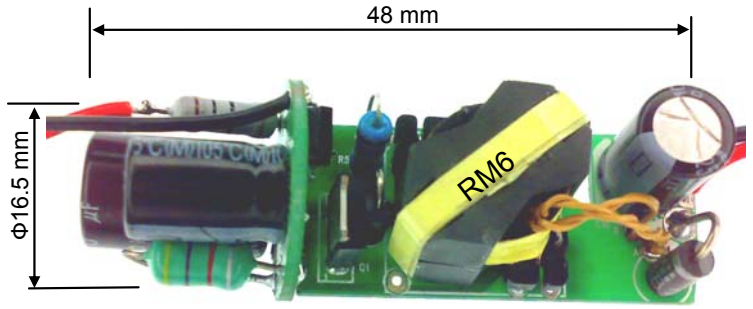
5pcs 1W LED ___18V350mA η=80%
7pcs 1W LED ___25V350mA η=82%
3pcs 3W LED ___12V700mA η=75%
9pcs 1WLED____30V300mA η=82%

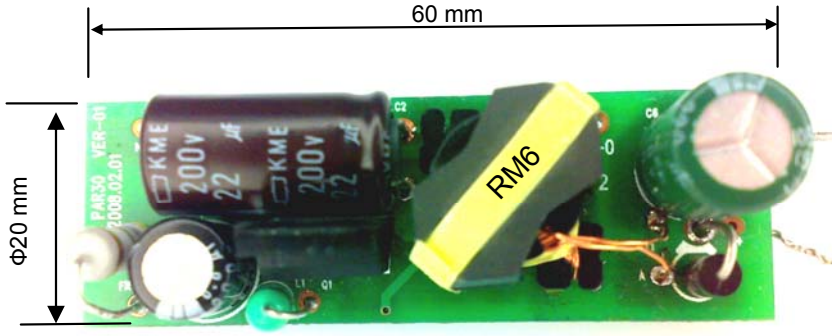
iW1692 Solution For LED Driver__6W-12W

a) Line isolation or None-Isolation design

b) Small PCB size with high power density

c) Protections – Line UV, OV, Output Short / Open





Demo and solutions:

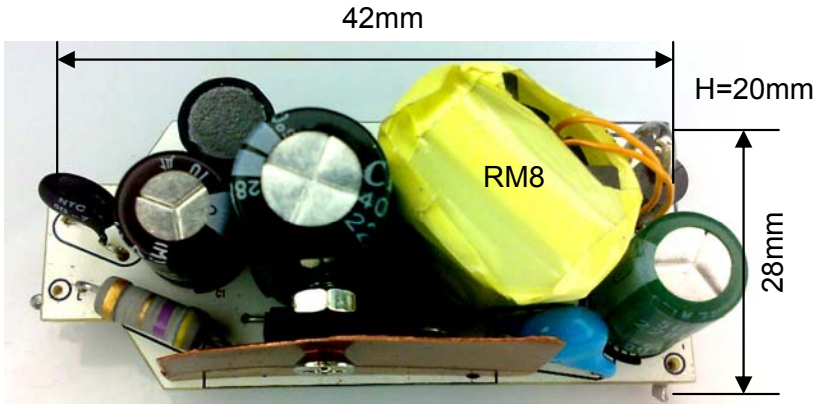
3pcs 3W LED ___12V700mA η=82%
3pcs 3W LED ___12V900mA η=80%
10pcs 1W LED __35V320mA η=84%
12pcs 1WLED___40V300mA η=84%

iW1692 Solution For LED Driver__10W-20W

a) Line isolation or None-Isolation design

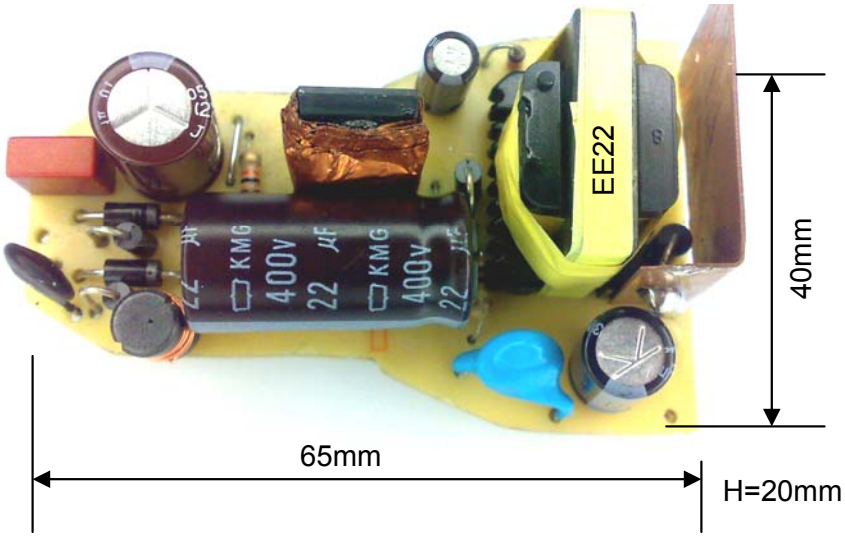
b) Small PCB size with high power density

c) Protections – Line UV, OV, Output Short / Open



Demo and solutions:

15W LED ___12V 1.2A	η = 75%
15W LED ___15V 1A	η = 76%
16W LED ___40V0.4A	η = 84%
18W LED ___21V0.9A	η = 80%



iW1692 for External mounted LED Driver

3W~20W

3W-6W

a) Line isolation design

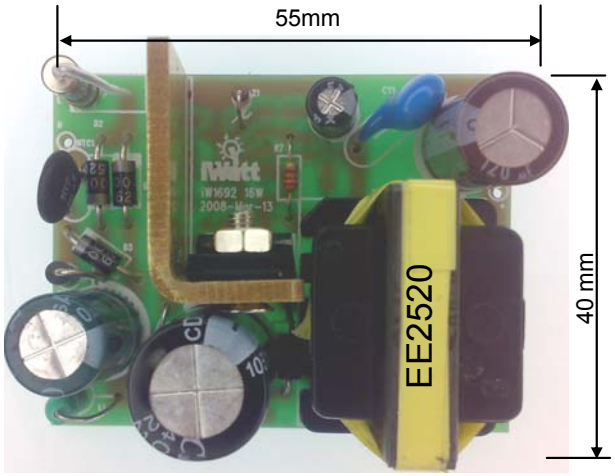
b) CC Regulation – Accuracy between +/- (5 – 5)%

c) Varied output power design up to 20W

d) Liner replacement for extension power driver

e) Protections – Line UV, OV, Output Short / Open

f) EMI and others EMC requirement – Meet EN55015B



12W-20W H=25mm

Demo and solutions:

13W LED ___18V 0.7A η=83%
16W LED____40V0.4A η=82%
19W LED ___27V 0.7A η=85%
19W LED ___55V0.35A η=85%
21W LED ___62V0.30A η=85%

What is the new requirement for LED driver?

Safety standard regulate ___ **IEC60968&IEC61347**

__Isolated; Thermal; EMI ;….

Dimming and Color control__**100%--1%, RBG color**

__Dimmer, IR, DLP

High PF and Low Harmonic__**0.7—0.9; IEC61000-3-2**

__0.7 for home, 0.9 for office

Long life and High MTBF___**10000-50000 Hours**

__Efficiency, E-cap, component de-rating, temperature