8W Isolated , Triac dimmable Flyback LED Driver with PFC for A19

Specifications

Input Power ≈ 8W

Output Power ≈ 7W

Line Voltage = 198~264VAC

Line Frequency = 50Hz

LED Forward Voltage = 20V

LED Current ≈ 350mA

Efficiency > 75% @230VAC

Power Factor ≥ 0.9

Topology: FlyBack transition mode

Solution size: 56mm (L) x 22mm (W) x 14mm (H)

Test Equipment

Voltage Source: isolated AC source PCR500LA (KIKUSUI)

Multi meters: Agilent 34401A

Power Meter: YOKOGAWA WT210

Output Load: 7 LEDs in series (VF = 3 V at 350mA per LED)

Oscilloscope: TDS3045C (TEKTRONIX)

Operating Temperature: 25°C

Recommended Wire Gauge: 18 AWG not more than two feet long

Performance Date and Typical Characteristic Curves.

1. Efficiency

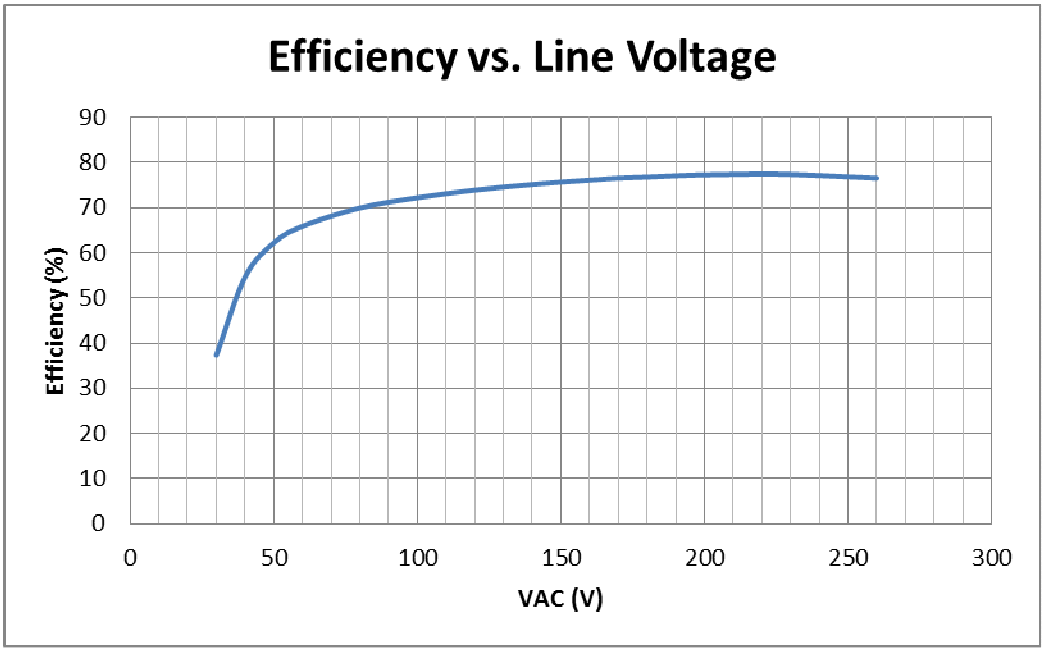

Figure 1 Efficiency vs. Line Voltage from 30VAC to 264VAC/50Hz

2. Power Factor

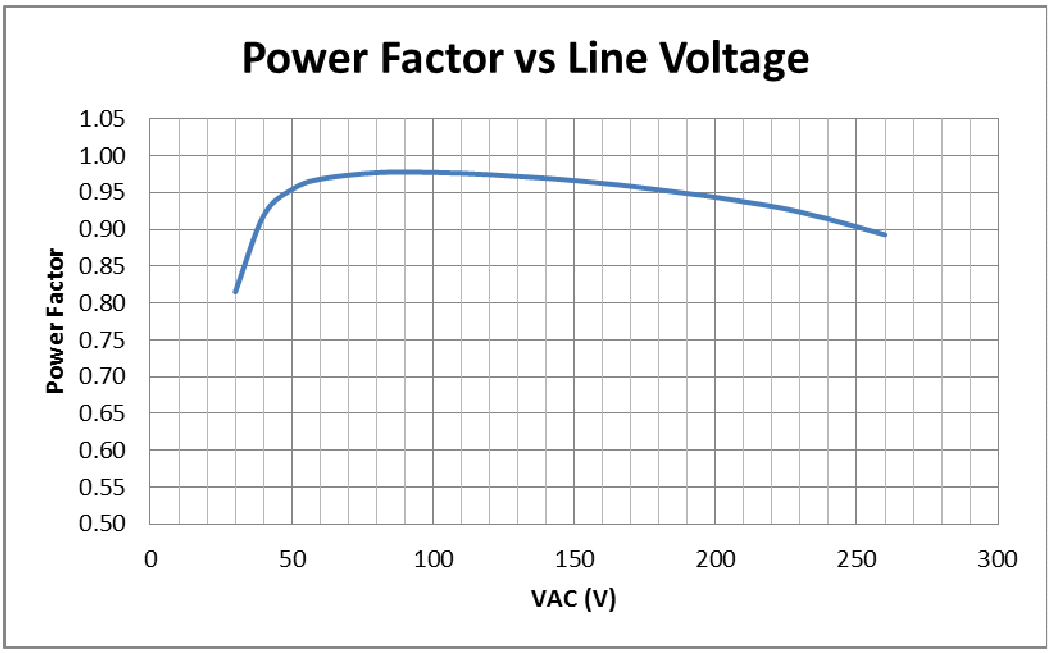

Figure 2 Power Factor vs. Line Voltage from 30VAC to 264VAC/50Hz

3. LED current vs. Input Voltage

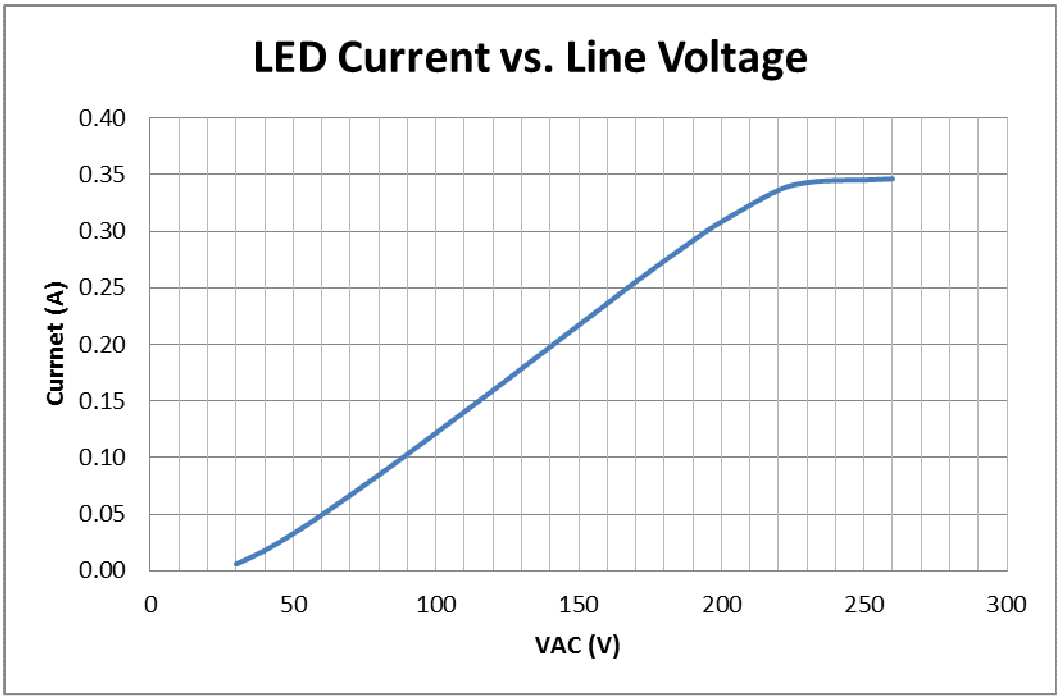

Figure 3 ILED vs. Line Voltage from 30 to 264VAC/50Hz.

4. Input and Line Voltage Waveforms vs. Dimmer Setting

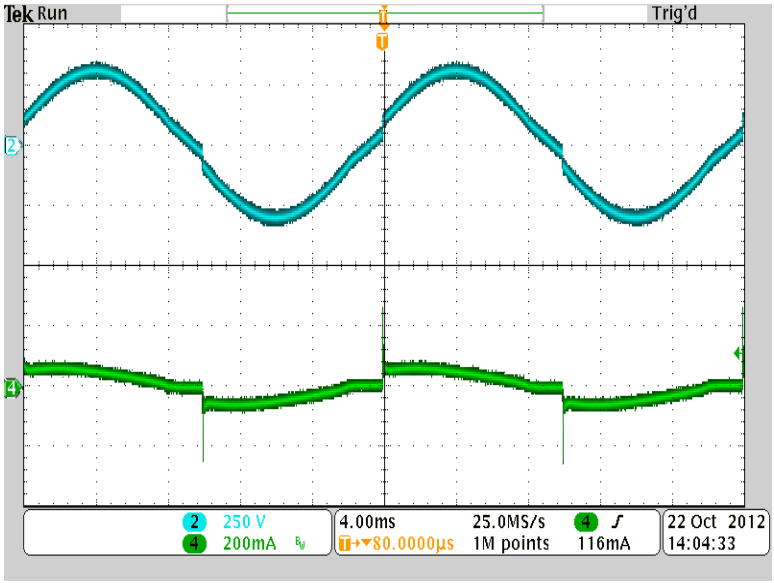

Figure 4 Dimmer Full ON

CH2– Input Voltage; CH4– Input current

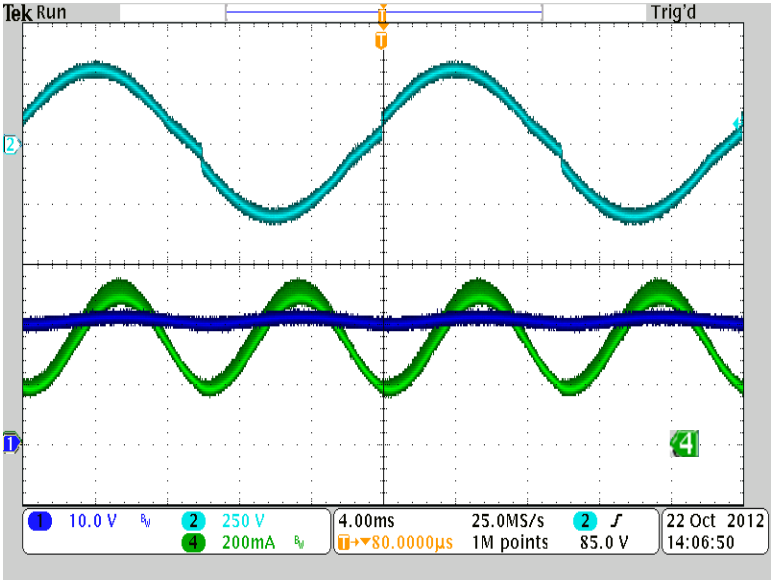

Figure 5 Dimmer FULL ON

CH1– Output Voltage; CH2– Input Voltage; CH4– Output current

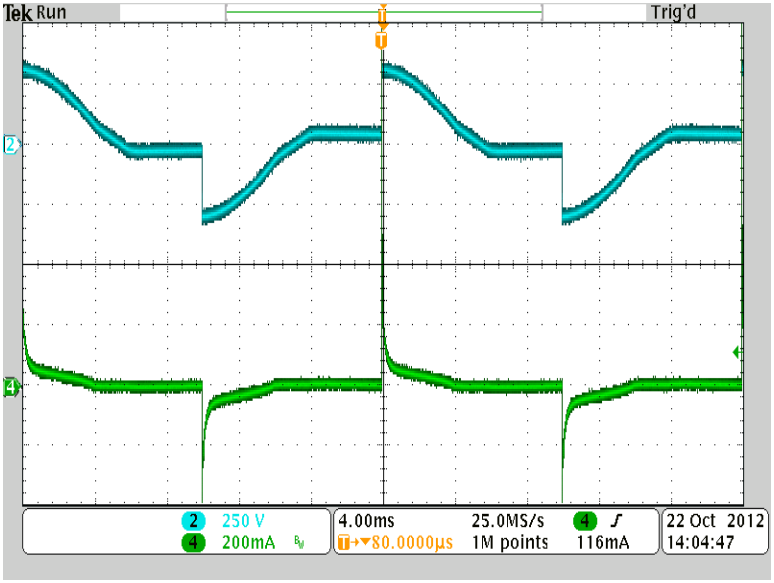

Figure 6 Dimmer 50% ON

CH2– Input Voltage; CH4– Input Current

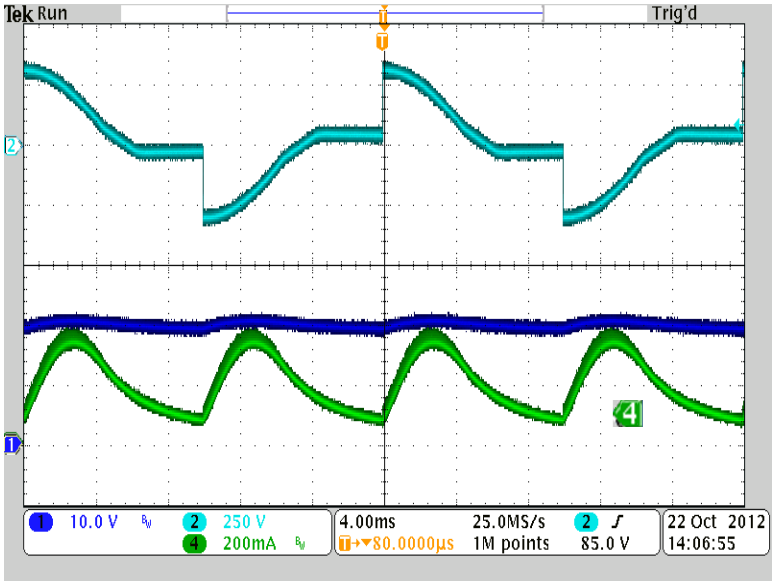

Figure 7 Dimmer 50% ON

CH1– Output Voltage; CH2– Input Voltage; CH4– Output Current

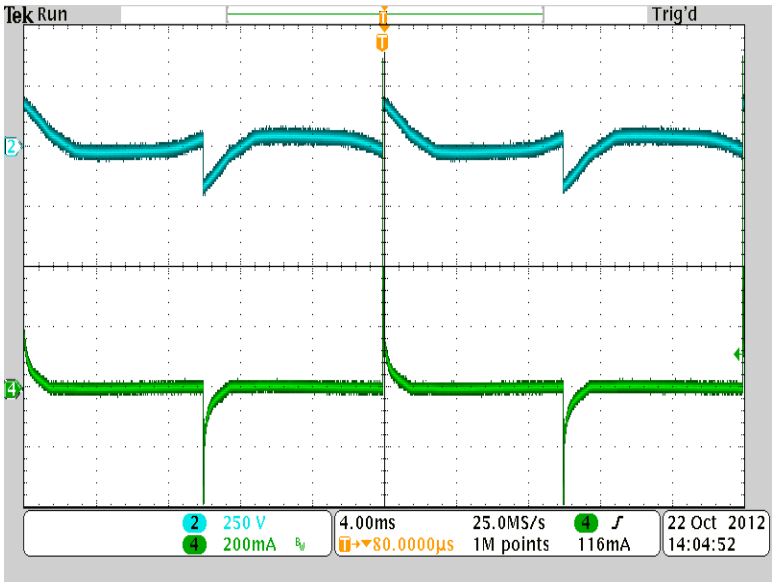

Figure 8 Dimmer minimum ON

CH2– Input Voltage; CH4– Input Current

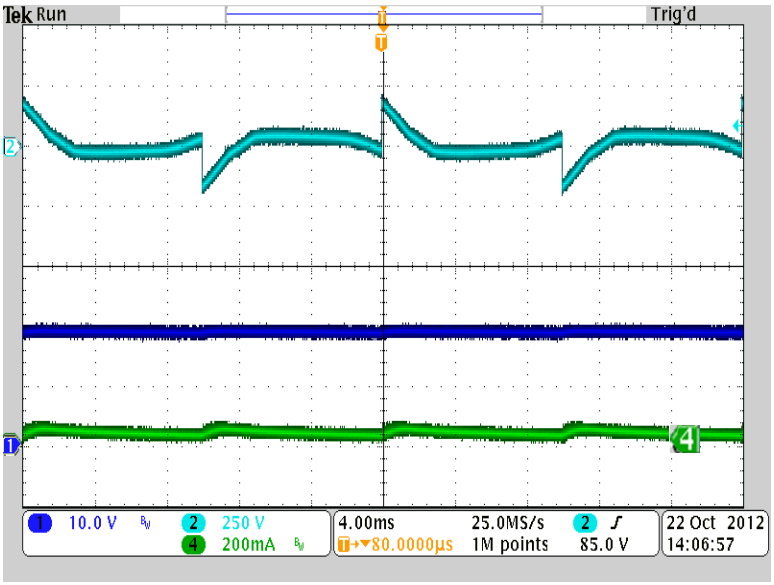

Figure 9 Dimmer Minimum ON

CH1– Output Voltage; CH2 – Input Voltage; CH4 – Output Current

5. Switch Node Voltage Valley Switching Wavefrom

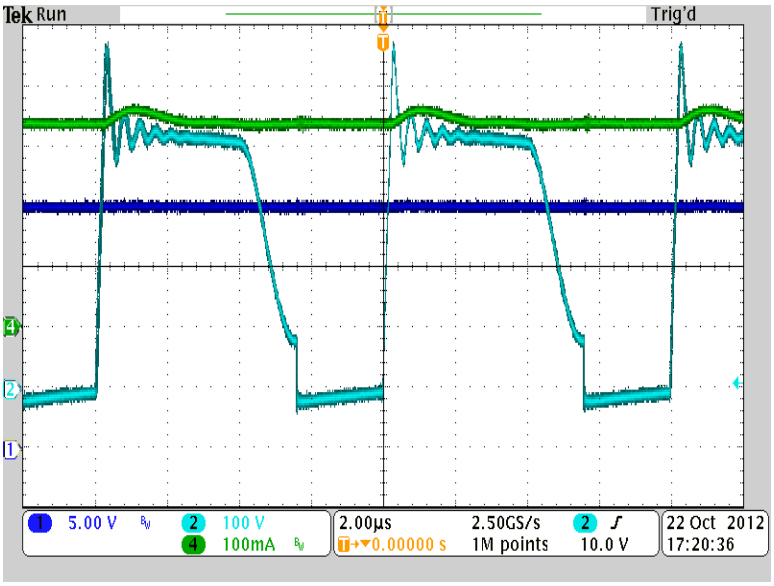

Figure 10 Switch Node and Output Current Waveform

CH1 – Output Voltage; CH2 – Switch Node LX; CH4 – Output Current

6. Total Harmonic Distortion

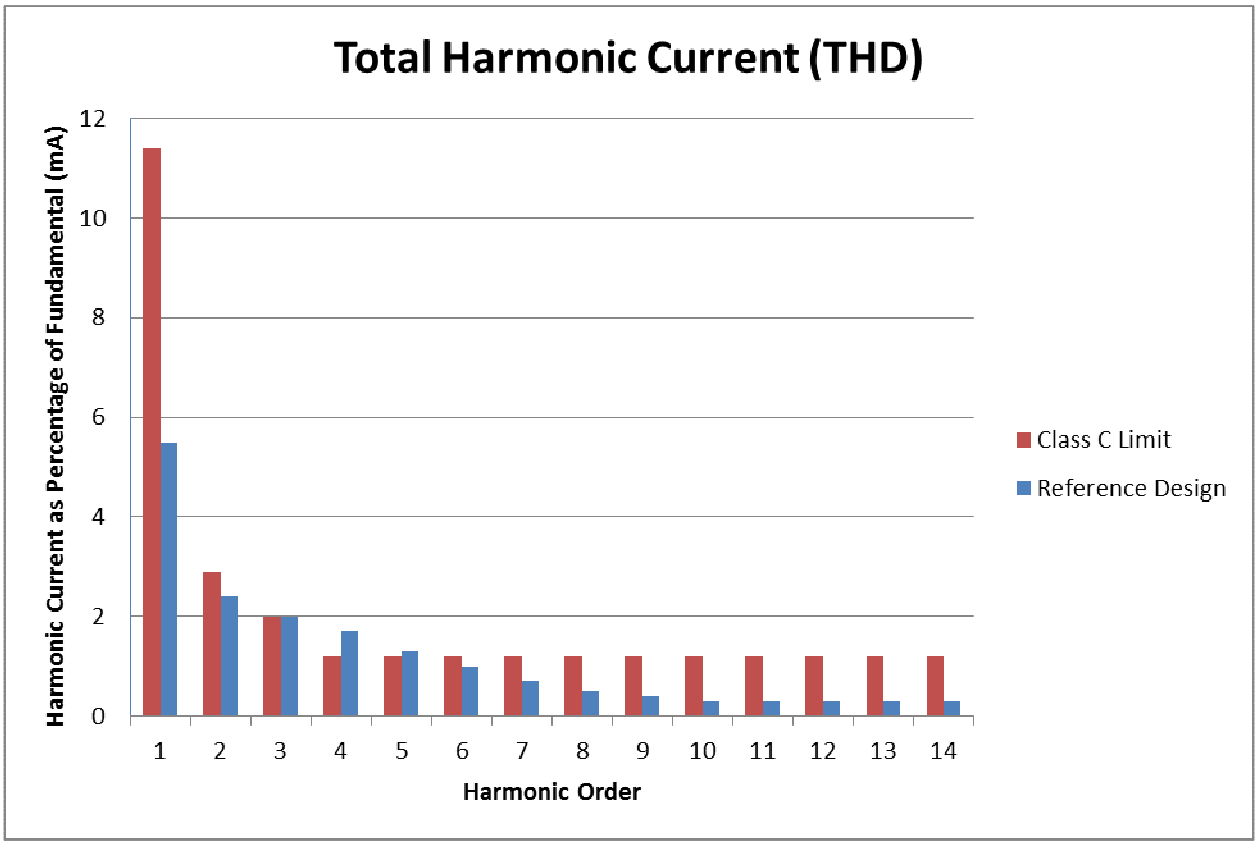

Figure 11 Current Harmonic Performance vs. EN/IEC61000-3-2 Class C Limits at 230VAC/50Hz

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