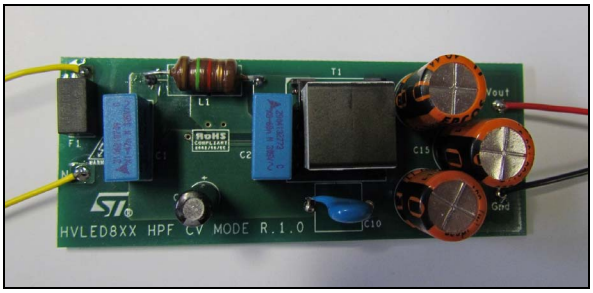
EVLHVLED815W8CV

8 W - high power factor - constant voltage regulation based on HVLED815PF

Data brief



Features

- 8 W LED driver - constant voltage
- EU range input (200 - 265 Vac)
- Isolated solution
- Single stage HPF flyback
- Primary side regulation - no optocoupler
- Power factor > 0.90
- LED driver efficiency > 87%
- Harmonics distortion meets EC 61000-3-2 Class D

Description

The LED demonstration board is based on a high power factor flyback topology using the STMicroelectronics® HVLED815PF device.

The HVLED815PF is a high-voltage primary switcher intended for operating directly from the rectified mains with minimum external parts and enabling high power factor (> 0.90) to provide an efficient, compact and cost effective solution for LED driving. It combines a high-performance low voltage PWM controller chip and an 800 V, avalanche-rugged Power MOSFET, in the same package. There is no need for the optocoupler thanks to the patented primary sensing regulation (PSR) technique.

Board description

Table 1. Electrical specifications

Parameter	Value
Input voltage	200 - 265 VAC
Output LED voltage	25 V (typ.) ± 5%
Maximum output LED current	Up to 310 mA
Power factor (PF)	> 0.90
LED driver efficiency	> 87%
Harmonics	Meets EC 61000-3-2 Class D

Figure 1. Jumpers and connectors location

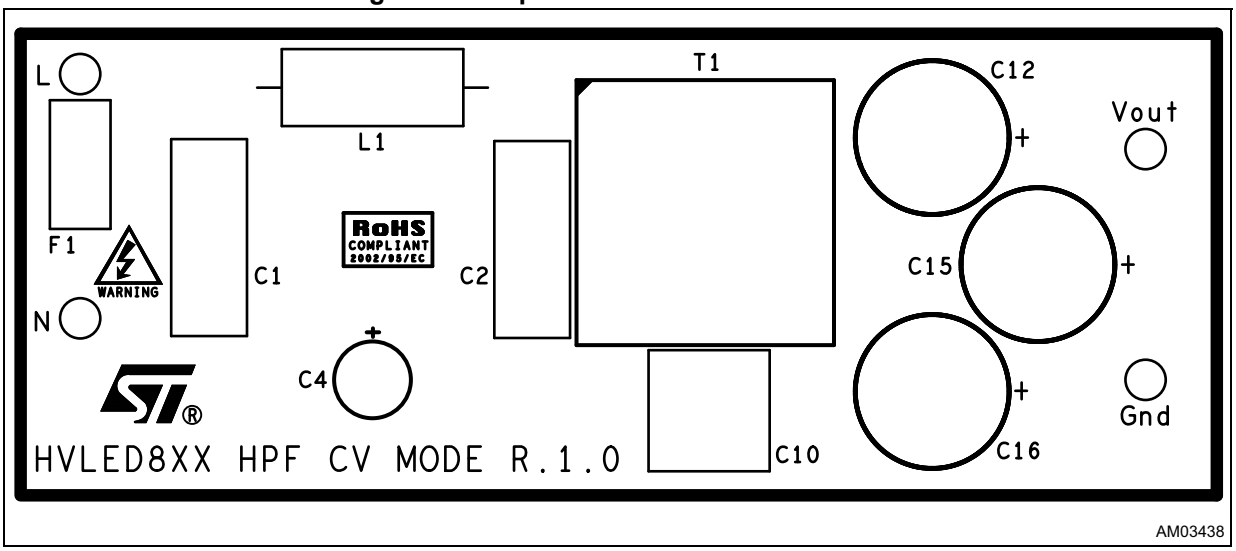


Table 2. Connector A pinout

Name	Type	Function
L	-	Line input voltage
N	-	Line input voltage
Vout	-	Positive output LED (+)
GND	-	Negative output GND (-)

Figure 2. Schematic

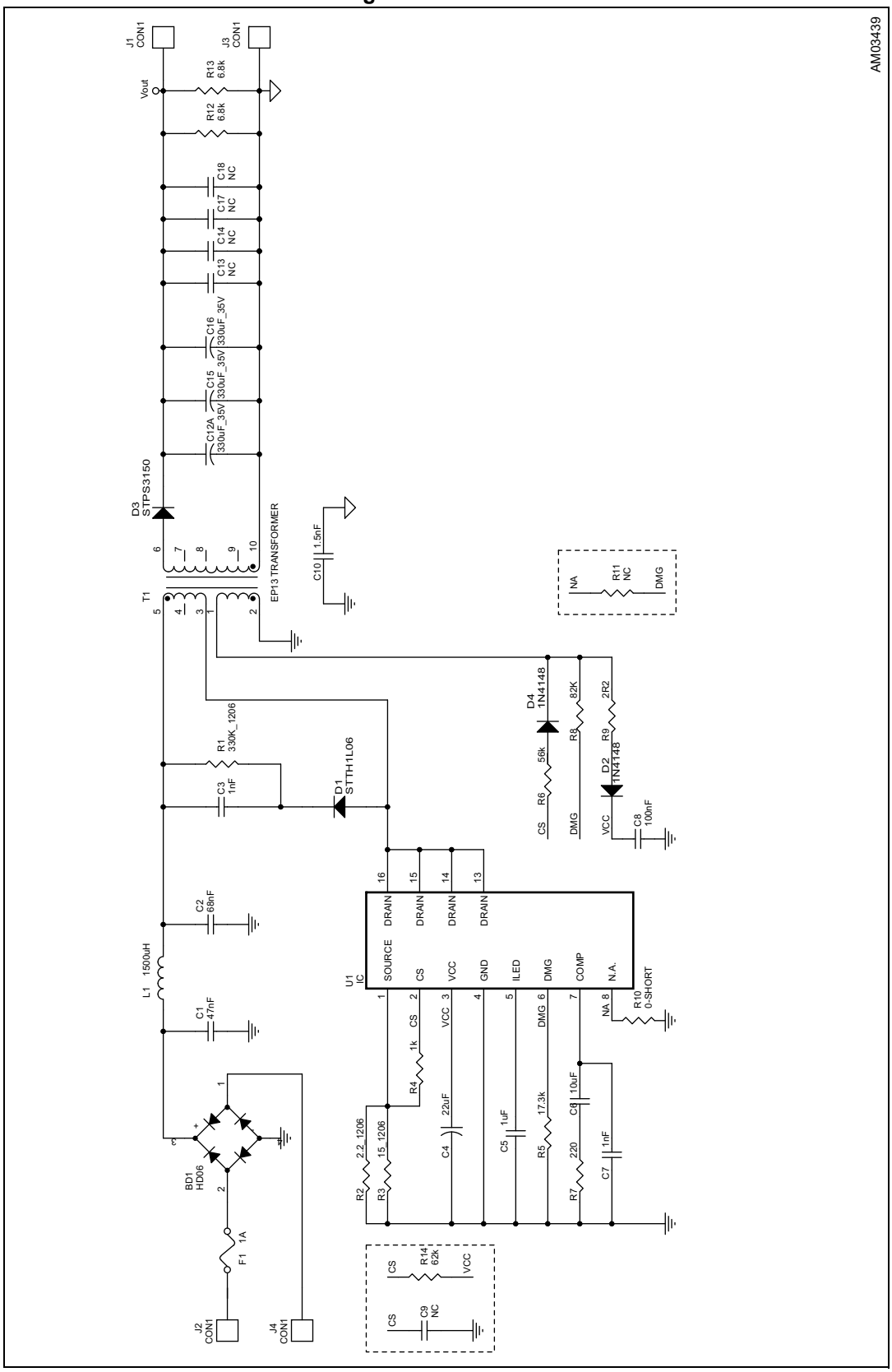


Table 3. Bill of material

Part reference	Part value	Part description
BD1	HD06-T	600 V 0.8 A
C1	B32921C3473	47 nF
C2	B32921C3683	68 nF
C3	C3216X7R2J102K	1 nF
C4	EEUFR1H220	22 µF / 50 V
C5	C2012X5R1E105K	1 µF
C6	C3216X5R0J106K	10 µF
C7		1 nF
C8		100 nF / 25 V
C9		NC
C10	DE1E3KX152MN5A	1500 pF
C12A	B41888C7337M	330 µF / 35 V
C13		NC
C14		NC
C15	B41888C7337M	330 µF / 35 V
C16	B41888C7337M	330 µF / 35 V
C17		NC
C18		NC
D1	STTH1L06	1 A / 600 V
D2	1N4148	
D3	STPS3150UF	3 A / 150 V
D4	1N4148	
F1	MCMSF 1A 250V	1 A - 250 V
L1	B82145A1155J000	1.5 mH
R1		330 kΩ
R2		2.2 Ω - 1%
R3		15 Ω - 1%
R4		1 kΩ - 1 %
R5		16.9 kΩ - 1%
R6		56 kΩ - 1%
R7		220 Ω
R8		82 kΩ - 1%
R9		2.2 Ω
R10		0 Ω
R11		NC

Table 3. Bill of material (continued)

Part reference	Part value	Part description
R12		6.8 kΩ
R13		6.8 kΩ
R14		62 kΩ - 1%
T1	SRW13EP-XxxH003 TDK	Transformer flyback
U1	HVLED815PF	Offline LED driver HVLED815PF SO16

Figure 3. Layout (top layer)

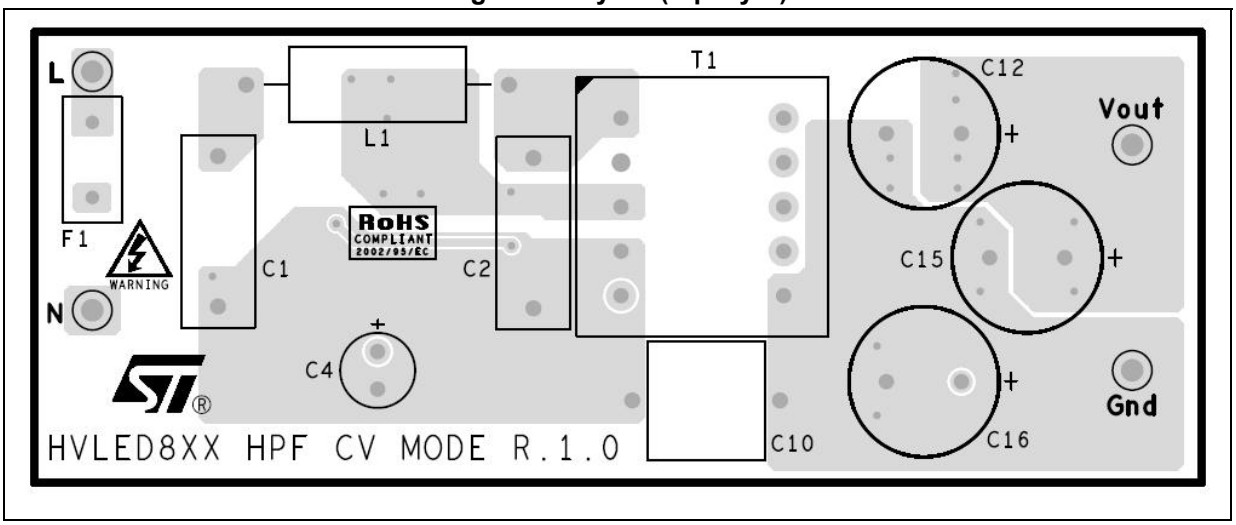
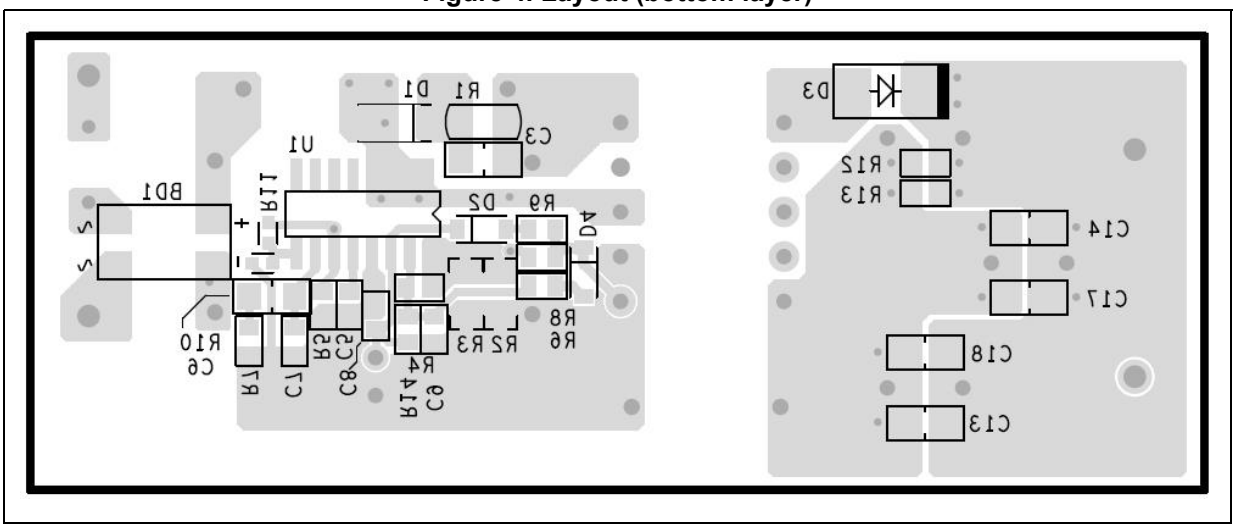


Figure 4. Layout (bottom layer)



Revision history

Table 4. Document revision history

Date	Revision	Changes
10-Feb-2014	1	Initial release.

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