

Report T/Bericht T

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Title: "CERTIFICATION" at FCC: modifications of the product Circline
30W 120V

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Due to various needing of improvement of the ballast (either electrical improvements or those connected to the production) some modifications of the already tested product have been done. In the following you will find the effected modifications and the related motivations:

1. Introduction in position C11 (cond. SMD, 1 μ F 25V) of an alternative in version P.I.H. (1 μ F 63V) in order to optimise the automatic assembly. In the electrical scheme it is indicated as C11a. Done tests show that the two different components do not change the emissions.
2. As a consequence to 1 the Layout has to be modified passing from version 20 to version 22.
3. Modifications in the switching circuit (T1, T2, Rs1, Rs2, C14) with improvement of the yield and reduction of the temperatures. It has been verified that it is opportune to use different source resistors and different C14 values as per used Mosfet:

Mosfets T1 and T2	Rs1 = Rs2	C14
250V-Rdson _(max) =10Ohm with Package TO251	0,3 Ohm	1,5nF
300V-Rdson _(max) =0.9Ohm with package TO220	1 Ohm	2,2nF

Before Rs1=Rs2=1 Ohm and C14=1,5nF independently from the mosfet.

4. The modifications at point 3 allow to remove the components L4 and C12 off the circuit, because not correlated to emission. In the Layout the positions remain.

The description with functional blocks of the circuit remains the same (in the following indicated once again for your convenience) as well as the frequencies of each block.

As an attachment the new electric block scheme and with the electric values.

A. Brief description of the circuit functions: (see attachment n°2 for description)

Block1: EMI Filter

Block2: AC-DC Rectifier

Block3: SHUT OFF, protection block in case of lost lamp or in case of the lamp doesn't switch on.
To restore the correct operation of the circuit it is necessary to close and open again the system.

Block4: High Voltage Half Bridge Driver with integrate.

Block5: Half Bridge implemented with Mosfet design and lamp current limitation (HF-Choke)

Block6: Current Sense and Feedback in Current-Temperature

Block7: injection capacitor

B. Block diagram showing the frequency of all oscillators in the device: (see attachment n°2 for description)

Block1: connection to the main supply, 120V 60Hz

Block2: AC-DC, from 60Hz to DC voltage plus low and high frequency ripple (120Hz and operating frequency)

Block3: in normal conditions it doesn't operate.

Block4-5-6-7: operating frequency, the range is from 40KHz to 50KHz, it depends of the tolerances of the single components in the device.