EVAL6563-80W

L6563 80W High performanceTM PFC with active tracking boost function

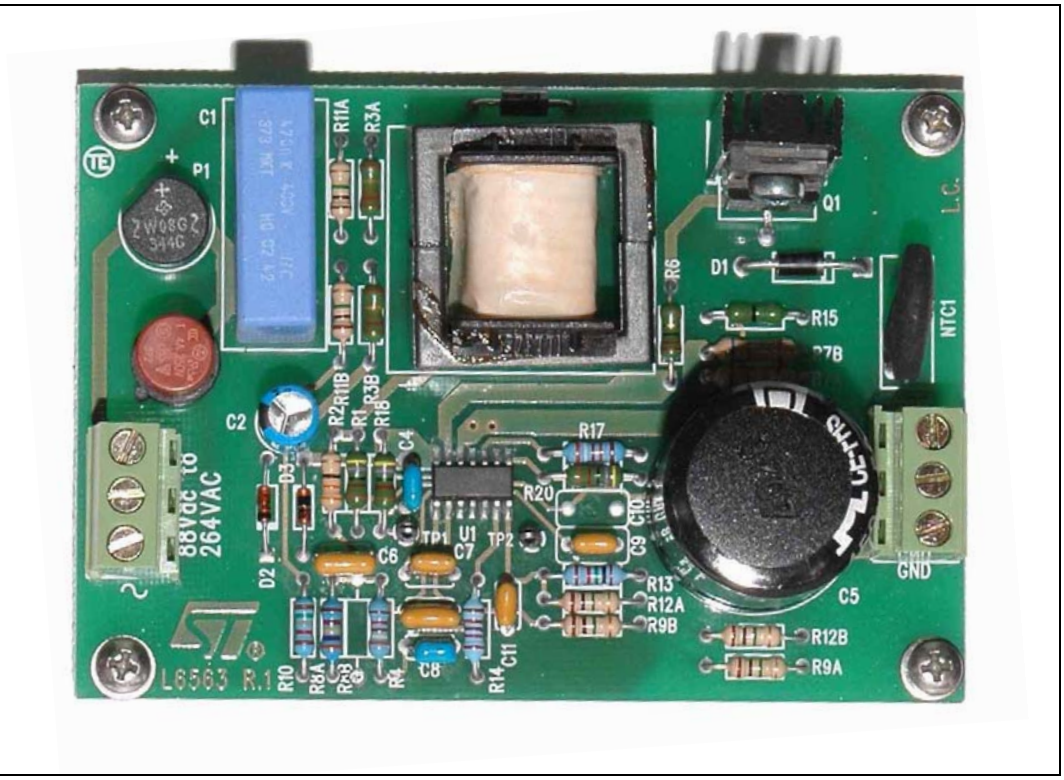
Data Brief

General description

L6563 is a current-mode PFC controller operating in Transition Mode (TM). Based on the core of a standard TM PFC controller, it offers improved performance and additional functions, such as active tracking boost function. In some applications it may be advantageous to regulate the output voltage of the PFC pre-regulator so that it tracks the RMS input voltage rather than at a fixed value like in conventional boost pre-regulators. This is commonly referred to as "tracking boost" or "follower boost" approach.

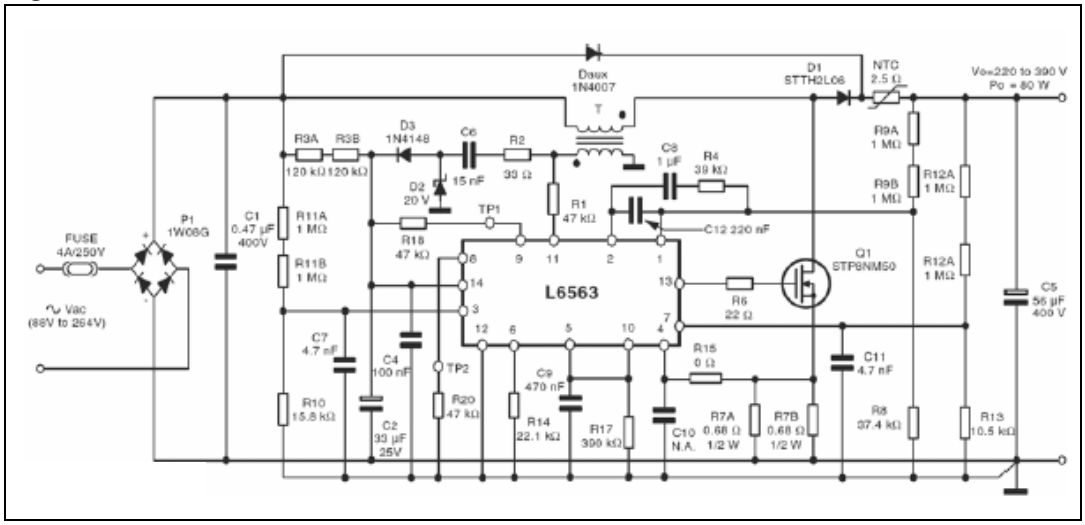
With the L6563 this can be realized by connecting a resistor between the TBO pin (pin 6) and ground. The board implements a 80 W, wide-range mains input, PFC pre-regulator.

Evaluation board



1 Features

Figure 1. EVAL6563 - 80W schematic



Boost inductor spec:

- E25x13x17 core, 3C85 ferrite or equivalent
- 1.6 mm gap for 0.43 mH primary inductance
- Primary: 80 turns 20x0.1 mm
- Secondary: 9 turns 0.1 mm

Figure 2. EVAL6563-80W: PCB and components layout (top view, real size: 64x94 mm)

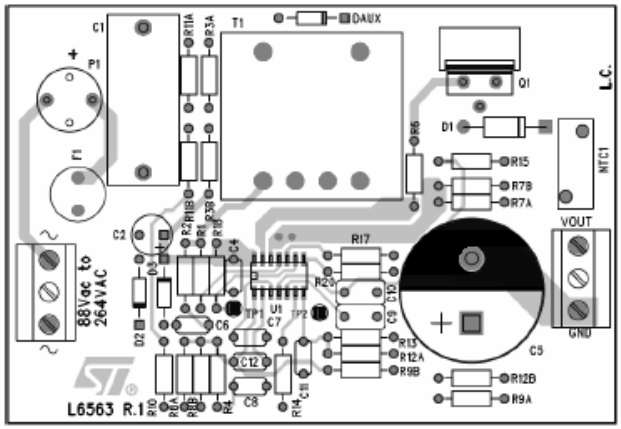


Figure 3. EVAL6563-80W: soldering side (top view)

Table 1. EVAL6563 - 80W: evaluation results at full load

Vin(V_{AC})	Pin (W)	Vo(V_{DC})	ΔVO(V_{pk-pk})	Po (W)	η(%)	PF	THD (%)
90	85.3	219.4	16.6	79.64	93.4	0.999	3.7
115	84.9	244.1	15.0	80.80	95.2	0.998	4.3
135	83.7	263.7	13.9	80.16	95.8	0.997	4.8
180	83.5	307.6	14.5	80.28	96.1	0.993	6.0
230	85.2	356.7	13.0	81.33	95.5	0.984	7.7
265	85.0	390.6	12.1	80.85	95.1	0.974	9.5

Note: 1 Measurement done with the line filter shown in Figure 4.

Table 2. EVAL6563 - 80W: evaluation results at half load

Vin(V_{AC})	Pin (W)	Vo(V_{DC})	ΔVO(V_{pk-pk})	Po (W)	η(%)	PF	THD (%)
90	43.4	219.9	8.6	40.90	94.2	0.997	4.8
115	42.6	244.5	7.7	40.10	94.1	0.994	5.7
135	43.1	264.0	7.3	40.39	93.7	0.989	6.5
180	43.8	307.7	7.7	40.31	92.0	0.978	8.4
230	45.6	356.8	6.8	41.03	90.0	0.951	9.6
265	46.0	390.7	6.7	40.63	88.3	0.920	14.2

2 Measurement done with the line filter shown in Figure 4.

Figure 4. Line filter (not tested for EMI compliance)

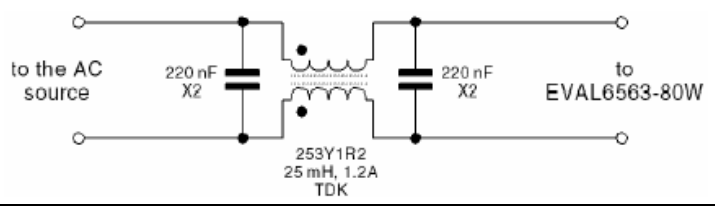
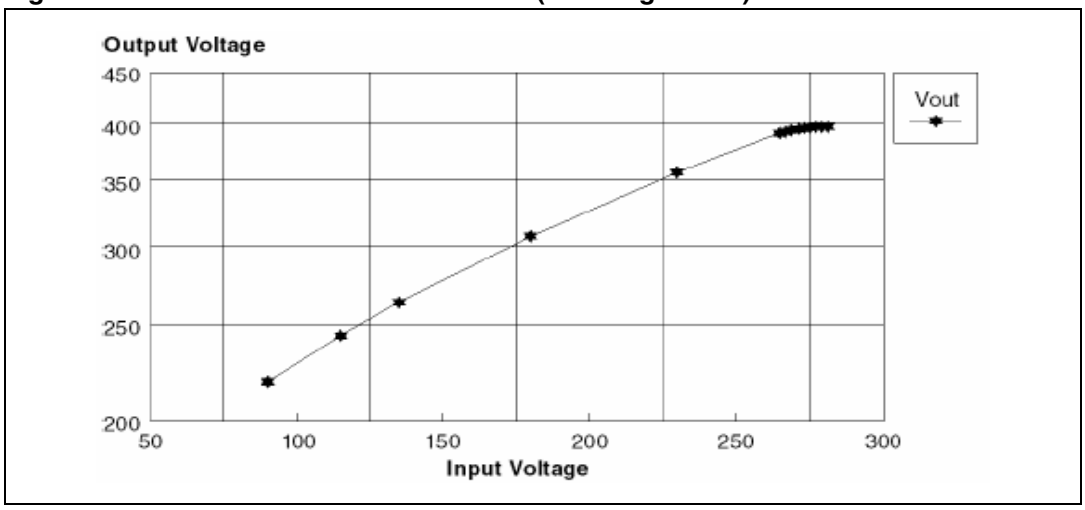


Figure 5. EVAL6563 - 80W: Vout vs. Vin (tracking boost)



2 Revision history

Table 3. Revision history

Date	Revision	Changes
10-Jan-2007	1	First issue

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