EVL6562A-TM-80W

80 W high performance transition mode PFC evaluation board

Data Brief

Features

- Line voltage range: 88 to 265 V_{AC}
- Minimum line frequency (f_L): 47 Hz
- Regulated output voltage: 400 V
- Rated output power: 80 W
- Maximum $2f_L$ output voltage ripple: 10 V pk-pk
- Hold-up time: 20 ms (V_{DROP} after hold-up time: 300 V)
- Minimum switching frequency: 35 kHz
- Minimum estimated efficiency: 92% (V_{IN} = 90 V_{AC}, P_{OUT} = 80 W)
- Maximum ambient temperature: 50 °C
- PCB type and size: single side, 35 µm, CEM-1, 108 x 57 mm



Description

The L6562A is a current-mode PFC controller operating in transition mode (TM). With the same pin-out as its predecessor L6562, the L6562A offers improved performance mainly in terms of efficiency and noise immunity.

This board implements an 80 W, wide-range mains input and a PFC pre-conditioner suitable for ballast, adapters, flat screen displays, etc.

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1 Electrical specification and performance

Figure 1. EVL6562A-TM-80W schematic

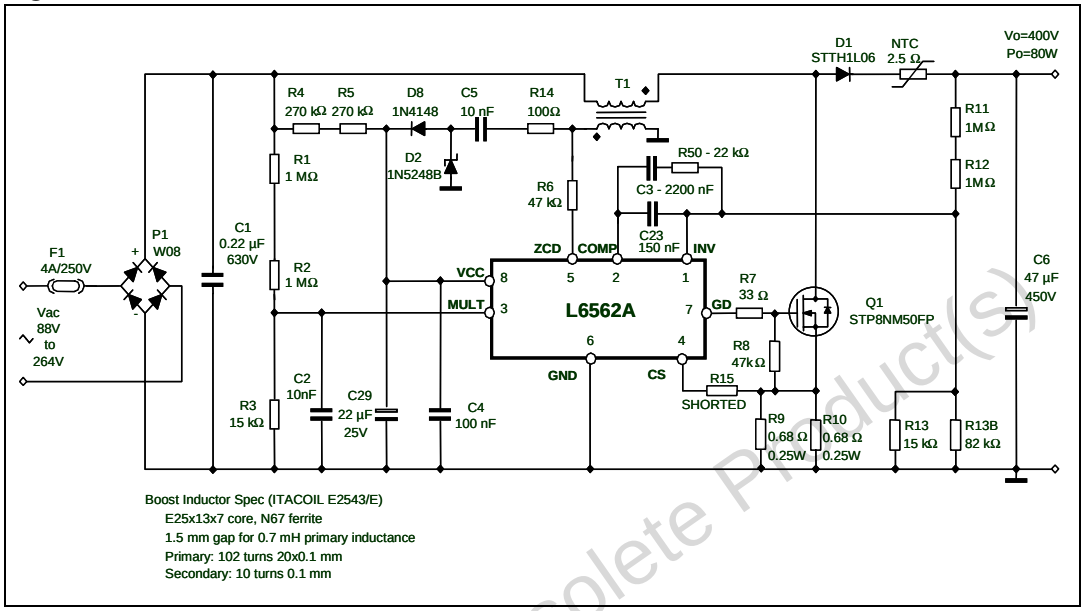


Table 1. Bill of material

Des.	Part type / part value	Description	Supplier
F1	Fuse 4 A	Fuse T4A - time delay	Wichmann
P1	W06	600 V-1 A Single phase bridge rectifier	Chenyi electronics
C1	220 NF-630 V	B32653-A6224-K - film capacitor	Epcos
C2	10 NF	50 V cercap - general purpose	Avx
C3	2u2F	SR305E225MAR - 50 V ceramic capacitor - Z5U	Avx
C4	100NF	50 V cercap - general purpose	Avx
C5	10NF	50 V cercap - general purpose	Avx
C6	47 µF-450 V	aluminium elcap - ED series - 85°C	Daewoo
C23	150NF	50 V cercap - general purpose	Avx
C29	22 µF-50 V	aluminium elcap - YK - 85°C	Rubycon
R1	1M0	MBB0207 axial film res - 0.4 W - 1% - 50 ppm/°C	BC Components
R2	1M0	MBB0207 axial film res - 0.4 W - 1% - 50 ppm/°C	BC Components
R3	15 K	MBB0207 axial film res - 0.4 W - 1% - 50 ppm/°C	BC Components
R4	270 K	SFR25 axial stand. film res - 0.4 W - 5% - 250 ppm/°C	BC Components
R5	270 K	SFR25 axial stand. film res - 0.4 W - 5% - 250 ppm/°C	BC Components
R6	47 K	SFR25 axial stand. film res - 0.4 W - 5% - 250 ppm/°C	BC Components
R7	33R	SFR25 axial stand. film res - 0.4 W - 5% - 250 ppm/°C	BC Components

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Table 1. Bill of material (continued)

Des.	Part type / part value	Description	Supplier
R8	47 K	SFR25 axial stand. film res - 0.4 W - 5% - 250 ppm/°C	BC Components
R9	0R68	SFR25 axial stand. film res - 0.4 W - 5% - 250 ppm/°C	BC Components
R10	0R68	SFR25 axial stand. film res - 0.4 W - 5% - 250 ppm/°C	BC Components
R11	1M0	MBB0207 axial film res - 0.4 W - 1% - 50 ppm/°C	BC Components
R12	1M0	MBB0207 axial film res - 0.4 W - 1% - 50 ppm/°C	BC Components
R13	15 K	MBB0207 axial film res - 0.4 W - 1% - 50 ppm/°C	BC Components
R13B	82 K	MBB0207 axial film res - 0.4 W - 1% - 50 ppm/°C	BC Components
R14	100 R	SFR25 axial stand. film res - 0.4 W - 5% - 250 ppm/°C	BC Components
R15	Shorted	Tinner wire jumper	
R50	22 K	SFR25 axial stand. film res - 0.4 W - 5% - 250 ppm/°C	BC Components
D1	STTH1L06	Ultrafast high voltage rectifier	STMicroelectronics
D2	1N5248B	18V-0.5W zener diode	Fairchild
D8	IN4148	fast switching diodE	Vishay
NTC1	2R5-S237	B57237S0259M000	Epcos
T1	E2543/E	E25x13x7 core, 0.7 mH	Itacoil
U1	L6562A	Transition mode PFC controller	STMicroelectronics
Q1	STP8NM50FP	n-channel md-mesh Power MOSFET	STMicroelectronics
HS1	FK218 32	Q1 heat sink for TO-220 - 21 °C/W	Fischer elektronik
J1	MKDS 1,5/	PCB term. block, screw conn., pitch 5 mm - 3 W.	Phoenix contact
J2	MKDS 1,5/	PCB Term. block, screw conn., pitch 5 mm - 3 W.	Phoenix contact
F1	Fuse 4 A	Fuse T4A - time delay	Wichmann
P1	W06	600 V-1 A single phase bridge rectifier	Chenyi electronics

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Figure 2. EVL6562A-TM-80W: efficiency vs Vin

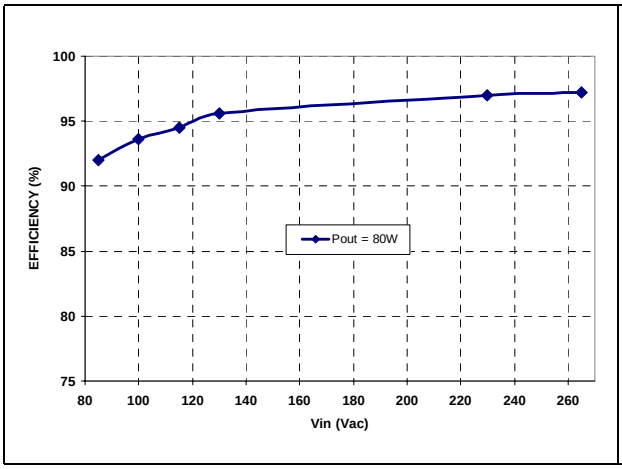


Figure 3. EVL6562A-TM-80W: static Vout regulation vs Vin

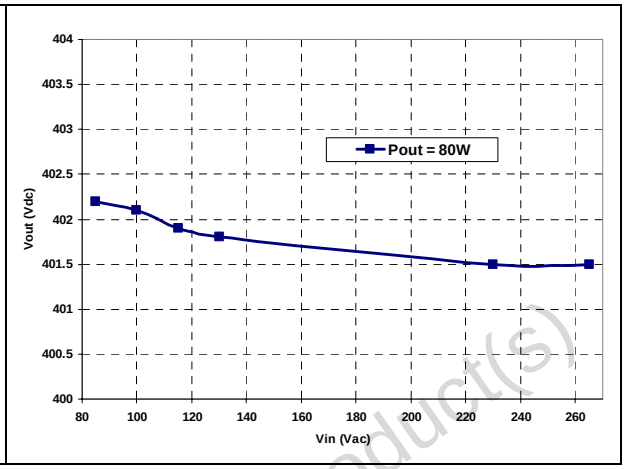


Figure 4. EVL6562A-TM-80W: PF vs Vin

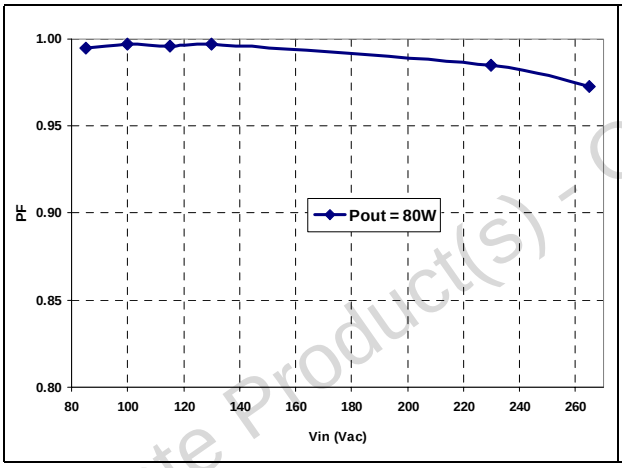
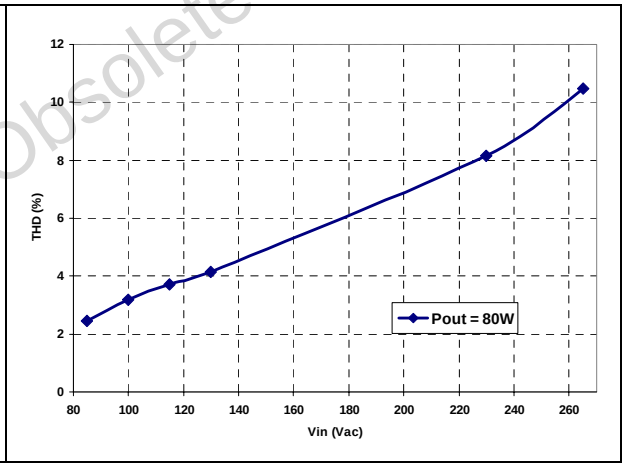


Figure 5. EVL6562A-TM-80W: THD vs Vin



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2 Revision history

Table 2. Document revision history

Date	Revision	Changes
07-Aug-2007	1	Initial release
11-Oct-2007	2	Document reformatted no content change

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