

Technical Data

Input voltage: 110V/220V (50/60Hz) AC with EPCOS® E25 (with Coilcraft® transformer N2881-AL only 110V)
Output voltage: 340- 400V DC (adjustable by control dial or setting up by 1% resistors)
Max. Output: 80 W (PE4301), 60 W (PE4201), limited by the power devices
Efficiency: >90 %
Powerfactor: >0.98
Board- Dimension: 80mm x 50mm x 25mm (L/B/H)

The Board is designed to be integrated into a SMPS of existing electronic equipment. It achieves a power factor correction for the complete set. The board was designed for both ICs, the PE4201 or the PE4301. The PE4201 works in CRMode and the PE4301 in CCMode.

IC features

PE4201

- Low Total Harmonic Distortion (THD)
- Low StartUp Current (<5µA)
- Low Operating Current (<450µA)
- Disable Function (<170µA)
- Under-Voltage Lockout with >8V Hysteresis
- Over voltage and Over current protection with separate Reference
- Reduse operating Frequency if Output Power low
- High Efficiency at high and low Output Power
- Internal Clamping Resistor at G
- fast Driver Switch 'off'
- very fast Driver 'off' at over current sense
- Driver load up to 5nF

PE4301

- Wide Range Input
- Low Total Harmonic Distortion
- Low Operating Current (<550µA)
- Disable Function (<100µA)
- Under-Voltage Lockout with >8V Hysteresis
- Over voltage protection, Peak current protection and Open loop protection with separate Reference
- low Peak current protection threshold
- Operating Frequency between 40 kHz and 250 kHz dependent upon load
- High Efficiency at high and low Output Power
- Internal Clamping Resistor at Driver
- Soft start
- fast Driver Switch 'off'

PFC Reference Design

Application Note

PFC – supply 50-80W

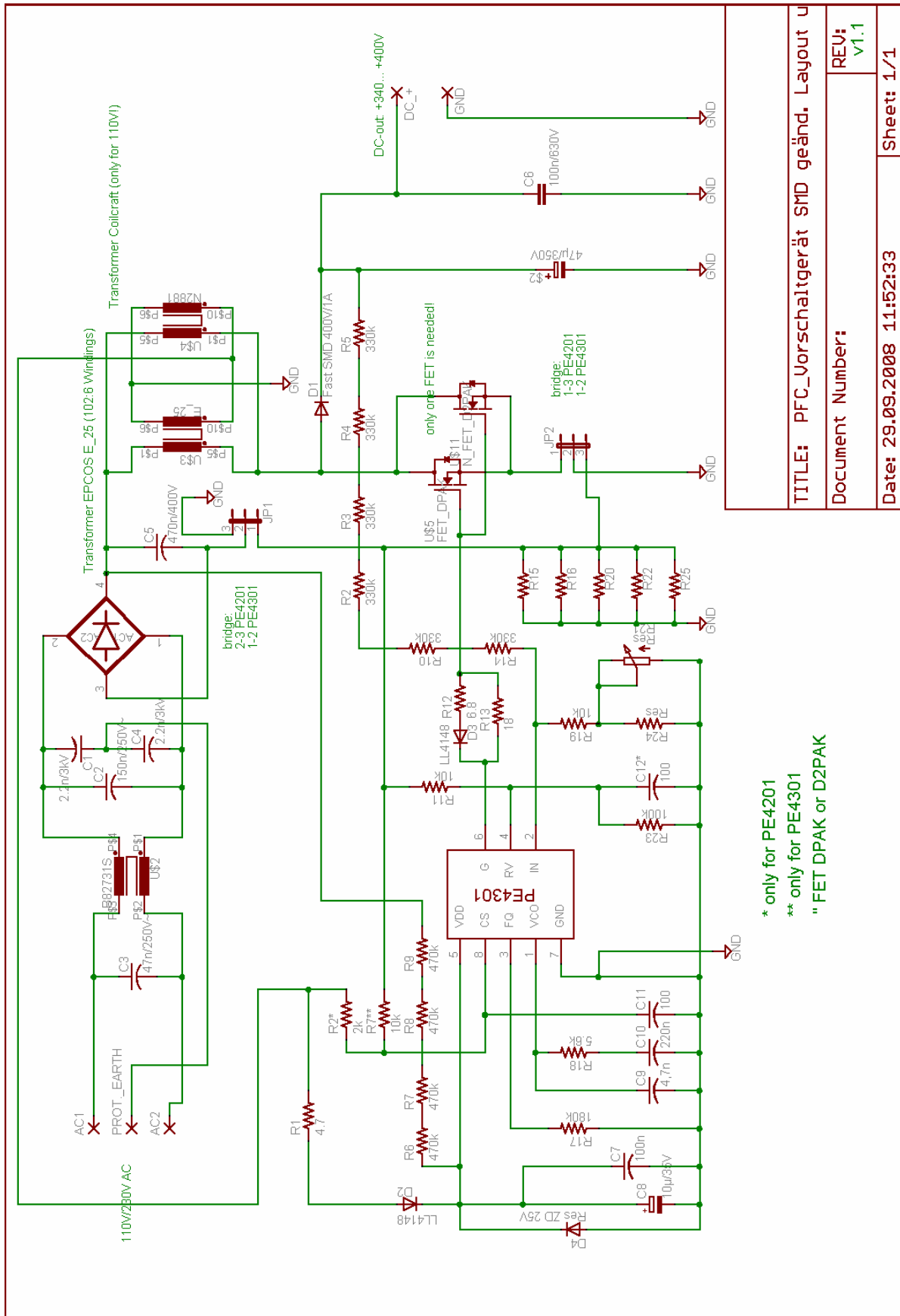


Figure 1: circuit diagram

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Bill of Material

Part	Quantity	Value	Package	Notes
\$2	1	47μ/400V	VRH	horizontal
\$0000	1	PE4X01_SO08	PE4X01_SO08	PE4201 or PE4301
C1,C4	2	2.2n/3kV	C2N2	
C2	1	150n/250V~	C150-084X183	
C3	1	47n/250V~	C102-064X133	
C5	1	470n/400V	C150-084X183	
C6	1	100n/630V	C15B6	
C7	1	100n	C1206K	
C8	1	10μ/35V	153CLV-0405	
C9	1	4,7n	C0805	
C10	1	220n	C0805	
C11	1	100p	C0805	
C12*	1	100p	C0805	not for PE4301
D1	1	fast SMD 400V/1A	SMC	
D2, D3	2	LL4148	SOD123	
D4	1	Res ZD 25V	SOD123	
R1	1	4.7	R0805	
R2, R3, R4, R5, R10, R14	6	330k	R0805	
R2*	1	2k	R0805	not for PE4301
R6, R7, R8, R9	4	470k	R0805	
R7**	1	10k	R0805	not for PE4301
R11, R19	2	10k	R0805	
R12	1	6.8	R0805	
R13	1	18	R0805	
R15, R16, R20, R22, R25	5	1Ω	R0805	not for PE4201
R15, R16, R20, R22, R25	5	0.3Ω	R0805	not for PE4301
R17	1	180k	R0805	
R18	1	5.6k	R0805	
R21	1	Res (5k adjustable r.)	PC25	
R23	1	100k	R0805	
R24	1	Res (tbd)	R0805	dependent on Uout
U\$1	1	MB4S	SOIC4	
U\$2	1	B82731S	B82731S	
U\$3	1	E_25 (EPCOS®)	E25L	AL=91nH/n ²
U\$4	1	N2881	N2881AL	only for 110V
U\$5	1	SPD07N60S5	DPAK	
U\$11	1	IRF840	D2PAK	

Remarks:

- The transformer N2881-AL was only tested with PE4301 (110V AC).
- For detailed description of the function of our ICs and calculation of the surrounding devices see our BoardUsers guide for PE4201 Evaluation Board.
- Eagle-Layout Database is available on our web-site and can be modified to fit other applications.

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