

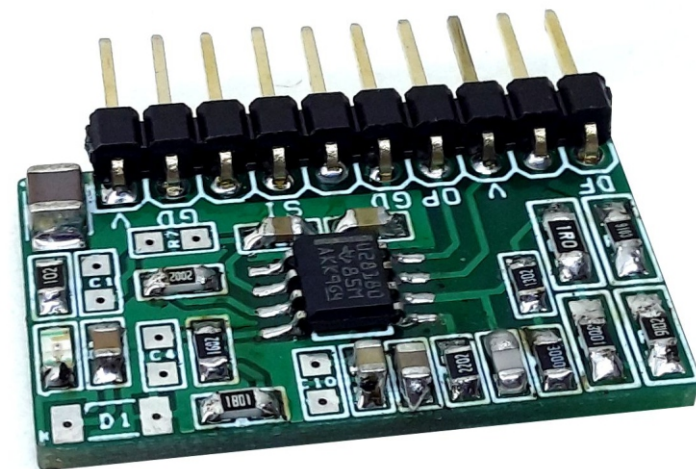
Programmable Frequency, Continuous Conduction Mode (CCM), Boost Power, Factor Correction (PFC) Controller

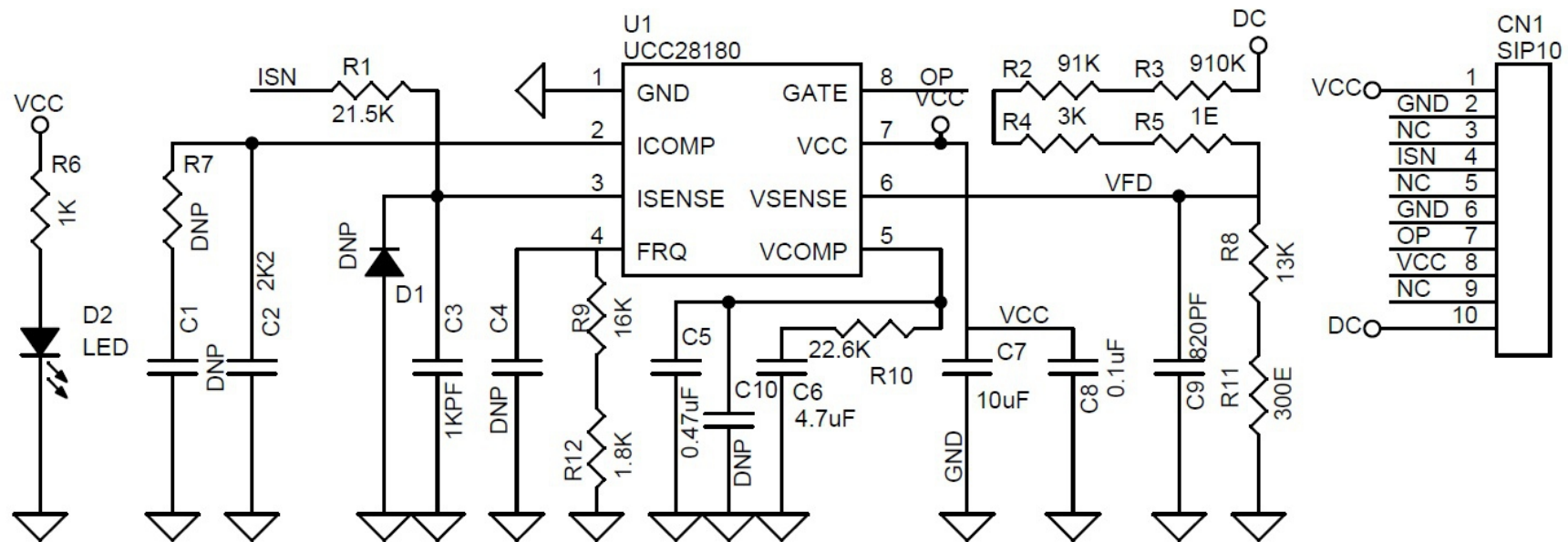
The circuit described here is a simple PFC controller using the UCC28180 chip from Texas instruments. The controller operates under average current mode control at a fixed programmable switching frequency of 116 kHz. Simple external current and voltage loop compensation, along with advanced protection features, make this controller ideal for server and desktop power supplies, industrial power supplies, and white goods. The module is a flexible and easy-to-use, active Power-Factor Correction (PFC) controller that operates under Continuous Conduction Mode (CCM) to achieve high Power Factor, low current distortion, and excellent voltage regulation of boost pre-regulators in AC - DC front-ends. The controller is suitable for universal AC input systems operating in 100-W to few-kW range with the switching frequency programmable between 18 kHz to 250 kHz, to conveniently support both power MOSFET and IGBT switches. An integrated 1.5-A and 2-A (SRC-SNK) peak gate drive output, clamped internally at 15.2 V (typical), enables fast turn-on, turn-off, and easy management of the external power switch without the need for buffer circuits. Low-distortion wave shaping of the input current using average current mode control is achieved without input line sensing, reducing the external component count.

In addition, the controller features reduced current sense thresholds to facilitate the use of small-value shunt resistors for reduced power dissipation, especially important in high-power systems. To enable low current distortion, the controller also features trimmed internal current loop regulation circuits for eliminating associated inaccuracies. The module requires few external components to create a complete PFC Controller. In the future, we will publish few PFC drivers using this module. Refer to the datasheet of UCC28128 to configure the board as per requirement.

Features

- Supply 12 to 15V DC
- Default Frequency 116Khz (Programmable 18Khz to 250Khz Resistor R9, R10)
- Average Current Mode PWM Control
- NO AC Line Sensing Needed
- Soft Over Current and Cycle by Cycle Peak Current Limiting
- Voltage Regulation Open Loop Detection
- Output Over-Voltage Protection with Hysteresis Recovery
- Enhanced Dynamic Response
- Soft-Start
- PCB Dimensions 29.21 x 16.67mm

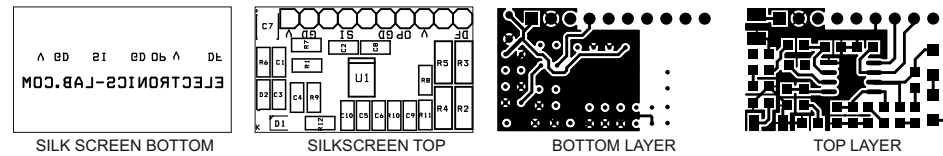






BOM						
NO.	QNTY.	REF.	DESC.	MANUFACTURER	SUPPLIER	SUPPLIERS PART NO
1	1	CN1	10 PIN MALE HEADER 2.54MM PITCH	TE	MOUSER	571-1-825433-0
2	5	D1,C1,C4,R7,C10	DNP			OMIT
3	1	C2	2K2 5% SMD SIZE 0805	MURATA/YAGEO	MOUSER	
4	1	C3	1KPF/50V SMD SIZE 0805	MURATA/YAGEO	MOUSER	
5	1	C5	0.47uF/50V SMD SIZE 0805	MURATA/YAGEO	MOUSER	
6	1	C6	4.7uF/50V SMD SIZE 0805	MURATA/YAGEO	MOUSER	
7	1	C7	10uF/25V SMD SIZE 1210	MURATA/YAGEO	MOUSER	
8	1	C8	0.1uF/50V SMD SIZE 0805	MURATA/YAGEO	MOUSER	
9	1	C9	820PF/50V SMD SIZE 0805	MURATA/YAGEO	MOUSER	
10	1	D2	LED SMD SIZE 0805	DIALLIGHT	MOUSER	645-599-0120-007F
11	1	R1	21.5K 1% SMD SIZE 0805	MURATA/YAGEO	MOUSER	
12	1	R2	91K 1% SMD SIZE 1206	MURATA/YAGEO	MOUSER	
13	1	R3	910K 1% SMD SIZE 1206	MURATA/YAGEO	MOUSER	
14	1	R4	3K 1% SMD SIZE 1206	MURATA/YAGEO	MOUSER	
15	1	R5	1E 1% SMD SIZE 1206	MURATA/YAGEO	MOUSER	
16	1	R6	1K 1% SMD SIZE 0805	MURATA/YAGEO	MOUSER	
17	1	R8	13K 1% SMD SIZE 0805	MURATA/YAGEO	MOUSER	
18	1	R9	16K 1% SMD SIZE 0805	MURATA/YAGEO	MOUSER	
19	1	R10	22.6K 1% SMD SIZE 0805	MURATA/YAGEO	MOUSER	
20	1	R11	300E 1% SMD SIZE 0805	MURATA/YAGEO	MOUSER	
21	1	R12	1.8K 1% SMD SIZE 0805	MURATA/YAGEO	MOUSER	
22	1	U1	UCC28180	TI	MOUSER	595-UCC28180D





PCB DIMENSION 29.21MM X 16.67MM

