

Parameters Subject to Change Without Notice

FEATURES

- Integrate 500V, Low $R_{ds(on)}$ MOSFET
JW1780A: 30Ω, 60mA
- Excellent line/load regulation
- Boundary mode
- High efficiency
- LED OVP and SCP
- VDD UVLO
- Over-temperature protection
- Brown Out Protection
- TO-92 package

APPLICATIONS

- LED lighting

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Unit
Input Voltage	V_{IN}	176~264	V
Output Voltage	V_O	60	V
Output Current	I_O	50	mA

DESCRIPTION

JW1780A is a integrate 500V MOS Non-isolated, high output current constant accuracy LED Driver. It realizes high output current constant accuracy by sampling the output current directly. It can decrease MOSFET switching loss and avoid outside diode reverse recover by switching with boundary mode,

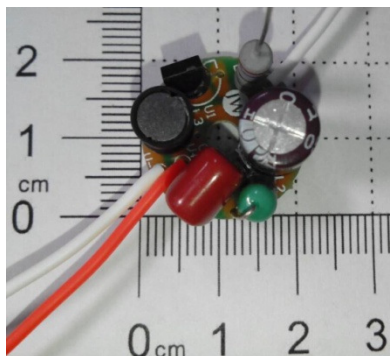
JW1780A is supplied from the output directly and auxiliary winding is not needed.

JW1780A start up time is smaller than 0.1S. It has multi-protection functions which largely enhance the safety and reliability of the system, including VDD UVLO, short-circuit protection, LED open protection and over-temperature protection.

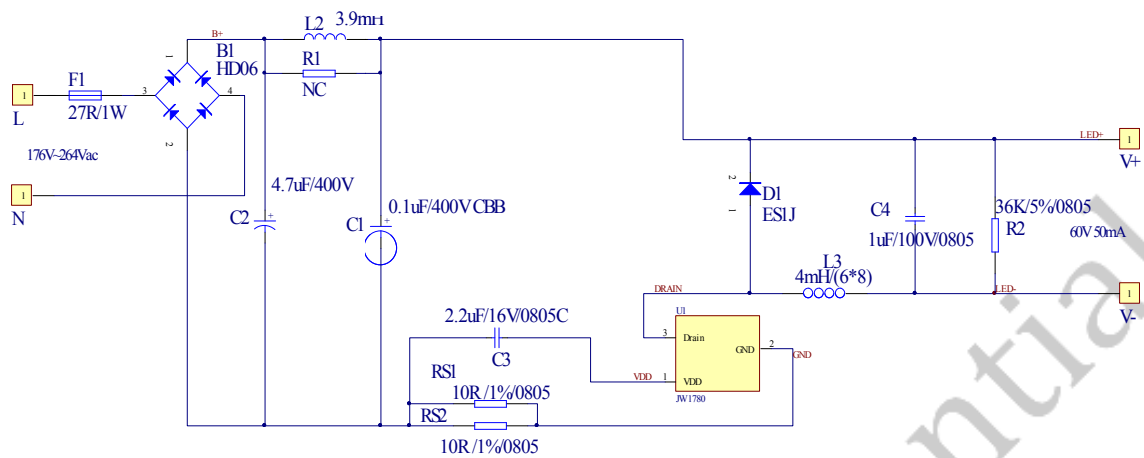
Company's Logo is Protected. "JW" and "JOULWATT" are Registered

Trademarks of JoulWatt technology Inc

EVALUATION BOARD



SCHEMATIC



BILL OF MATERIALS

Quantity	Designator	Comment	Description	Footprint	Manufacturer	Manufacturer P/N
1	B1	HD06	Diode Bridge	MB10		
1	C1	0.1uF/400V	CBB capacitor	RAD-0.3		
1	C2	4.7uF/400V	Electrolytic capacitor	RB.3.5		
1	C3	2.2uF/16V	Ceramic Cap,X7R	0805C		
1	C4	1uF/100V	Ceramic Cap,X7R	1206C		
1	D1	ES1J	Diode,1000V/1A	SMA		
1	L2	3.9mH	DM inductor	AXIAL-0.4		
1	L3	4mH	Power Inductor	6*8mm		
1	F1	27R 1/2 W	Fuse Resistor	AXIAL-0.4		
1	R1	NC	Film Resistor	0805R		
1	R2	36K/5%	Film Resistor	1206R		
2	RS1, RS2	10R /1%	Film Resistor	0805R		
1	U1	JW1780A	Offline BUCK LED Switcher	TO-92	JoulWatt	

PRINTED CIRCUIT BOARD LAYOUT

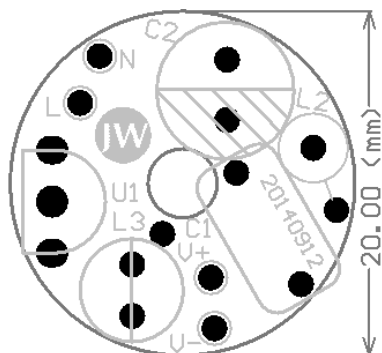


Figure1—Top Layer

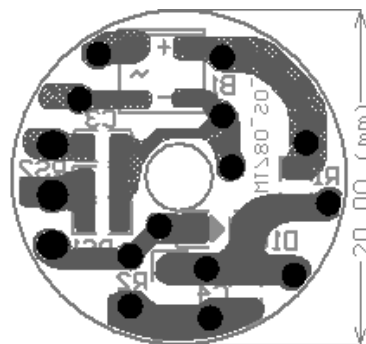


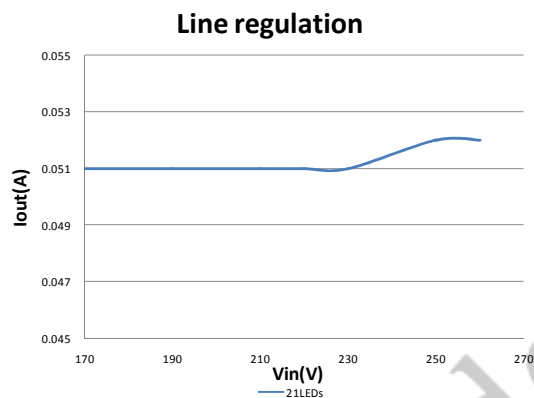
Figure2—Bottom Layer

QUICK START GUIDE

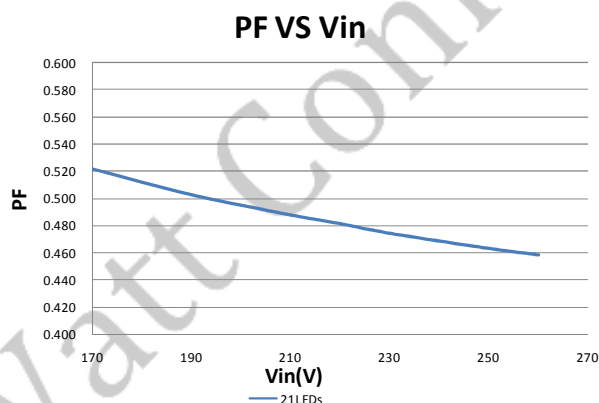
1. Connect the anode of the load (20 LEDs) whose VF falls between (3~3.3V) to “LED+” marked on the EVB, and cathode to “LED-”.
2. Set the AC source to 176V ~264V, turn off the source.
3. Connect the “Line” of AC source to the “L”, and “neutral” to “N”.
4. Turn on the AC source; the evaluation board starts operating in normal condition.
5. Change RS1 and RS2 if you want another output current.
6. To get more information, please refer to the datasheet of JW780A.

TYPICAL PERFORMANCE CHARACTERISTICS

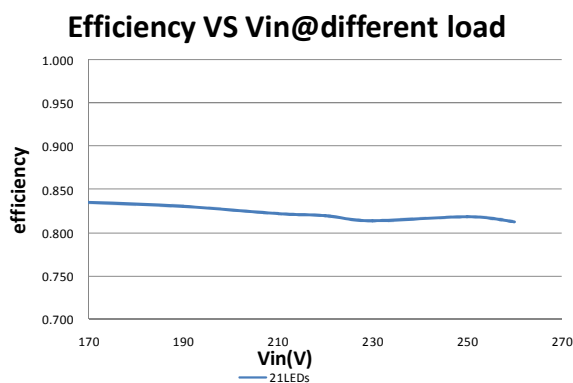
1. Line Regulation



2. PF vs V_{in}

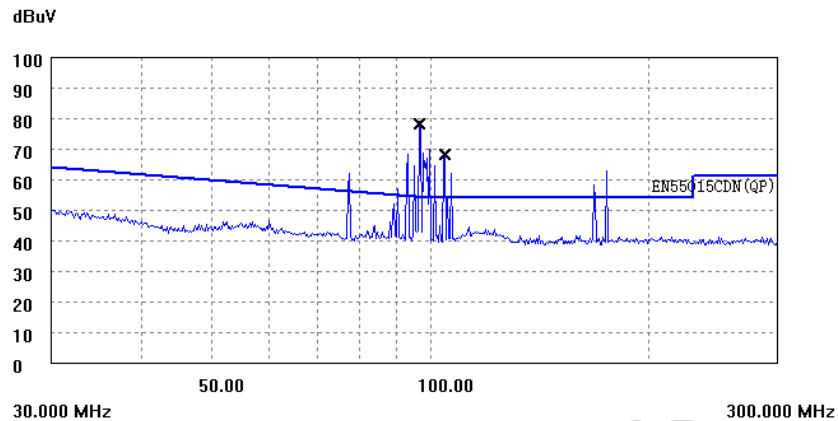


3. Efficiency VS V_{in}

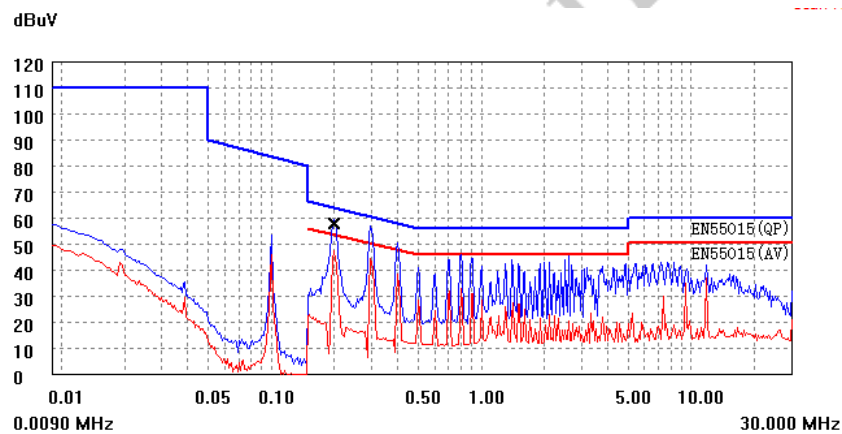


2. EMI performance

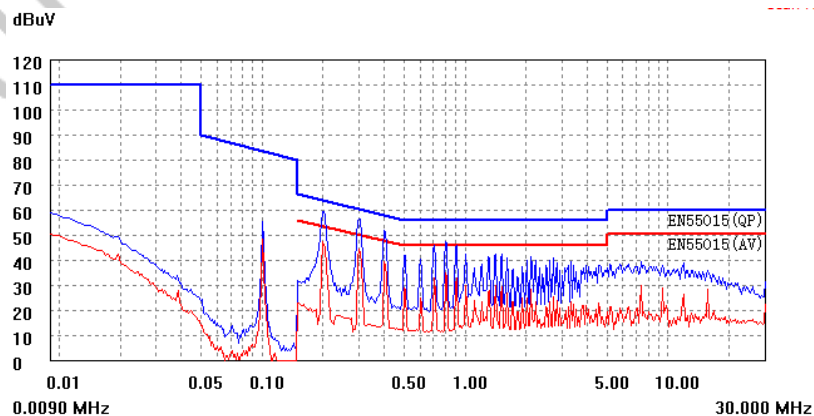
1. 230V CDN Radiation results



3. 230V Conducted EMI



L



N

IMPORTANT NOTICE

- Joulwatt Technology Inc. reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein.
- Any unauthorized redistribution or copy of this document for any purpose is strictly forbidden.
- Joulwatt Technology Inc. does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel.

JoulWatt Confidential

Copyright© 2014 EV1780A_S0_R0 Incorporated.

All rights are reserved by Joulwatt Technology Inc.